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MINDSET, SELF-EFFICACY, AND FIRST YEAR COLLEGE STUDENTS:
PERCEPTIONS OF PERFORMANCE ACCOMPLISHMENTS

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Bachelor of Arts in Psychology, University of Connecticut, 2003

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A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of

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in the

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at

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2018

MINDSET, SELF-EFFICACY, AND FIRST YEAR COLLEGE STUDENTS:
PERCEPTIONS OF COLLEGE TASKS

Jeanette E. Moore

Western Connecticut State University

Abstract

College-bound students move from various high school environments to a collegiate setting; this transition requires acclimation. There is increased interest in the understanding of college student adjustment to decrease student attrition, thus adjustment to college has been studied in different contexts, including social and academic. The construct of self-efficacy, or students' judgments of their capabilities to organize courses of action to perform tasks, attributes to college adjustment. Another construct, mindset, defined as a person's self-perception or "self-theory" effects learning, skill acquisition, success, and other aspects of life. The purpose of this study was to examine the effects of the use of mindset language in the college classroom, on student's perceptions of self-efficacy and mindset. For one fall semester, this study required treatment participants to participate in classes where mindset language was delivered by professors. Terms were derived from the Growth Mindset Framing and Feedback tools, and treatment professors received training to deliver the language in the subsequent 15-week semester. The treatment group completed eight Self-Assessment Prompts on Performance Accomplishments and Mindset (SAPPAM). The researcher also measured first-year students' self-efficacy and mindset using two qualitative instruments to explain perceptions of collegiate abilities (i.e., exam preparation and time management). Focused interviews and fidelity of treatment observations were conducted; the mixed-methods convergent parallel design was used to understand students' perceptions. A MANOVA was used to examine academic, social, and

social integration self-efficacy of students who participated in classes infused with mindset language and those who were not in these classes. In addition, an ANOVA was used to understand differences in mindset for each group. Quantitatively, there were no significant differences for either procedure, though the data collected from student responses provided information pertaining to the college experience.

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2018




*School of Professional Studies
Department of Education and Educational Psychology
Doctor of Education in Instructional Leadership*

Doctor of Education Dissertation

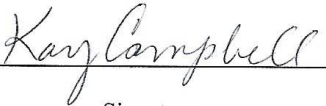
MINDSET, SELF-EFFICACY, AND FIRST YEAR COLLEGE STUDENTS:
PERCEPTIONS OF PERFORMANCE ACCOMPLISHMENTS

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“The miracle is not that we do this work but that we are happy to do it.”

Mother Theresa

This journey started in the garage of my parents’ home, where I played school with children in the neighborhood. I was always elected to be the teacher. I did not take my childhood musings seriously until I had a divine moment late one evening, in the summer before starting my freshmen year of college. It was a call to teach. Therefore, first and foremost, I must thank God.

Many people have assisted me along the way. I would like to thank my daughter, Maya, for her excitement and her understanding, as many nights of studying and writing overtook our evenings. We found other ways to make memories through art and play; she knows this degree is important to her mama, but more importantly, this degree shows her that women can achieve such heights in academia.

I would like to thank Victoria Altman, now deceased but always remembered. She was the first parent to employ me as a tutor at 17 and became a mother figure to me. I also thank Jill Carpenter, my aunt who passed but always has guided me closely, along with my late grandmother Doris, who knew I would get to college and left me a small amount of money in her will to help me initially fund the first semester of my journey. To Michele Schneider, for employing me as a lead tutor in my first office at the Pound Ridge Learning Center in 2000. To my third-grade teacher, Diane Guhl, who wrote my recommendation letter for this doctoral program.

I must thank my students and their parents. Each year for 18 consecutive years, I have been blessed with a cohort of 40-60 students ages 5-18. I do not advertise, nor do I have a

website. These students and parents find me through soulful networking and interactions, via family members, friends, and neighbors. They seek help in every subject, test prep, and college application processes. Parents trust in my research, my individualized lessons, and my advice; I am grateful for this. I also thank the Writing and Education departments at Western Connecticut State University for guidance and inspiration, and for contributing to the furthering of my love of learning.

I thank my parents and my family for their support and love, as well as my close friends and extended family who supported my journey. Thank you to the families I lived with growing up, including Rasheena Lopes' family, the Barteks, and the Wells, and for their belief in me. I also thank those who helped me juggle all the various tasks along the way, including Andrew and Amanda, for being available to help me on college breaks.

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Lastly, I thank the deans, professors and students who were involved in this study in various capacities. They willingly contributed to the growing body of knowledge on college

freshmen, mindset and self-efficacy. This dissertation was only possible because of them. Of course, I thank Dr. Carol Dweck and Dr. Albert Bandura. Their proverbial concepts of mindset and self-efficacy are the foundations of this study. Many thanks to my cohort members who have provided me with encouragement and laughs. We knew we could do it; may we go far and always “dream big.”

DEDICATION

“Do all things with love.”

Og Mandino

I dedicate this dissertation to all the children in the world who want an education to better themselves, their families, and their circumstances. I dedicate this to those who want to attend college, who dream of being college freshmen, and those who hoped to attend but were never given the chance. Child laborers, such as the late Iqbal Masih, and child activists, such as Malala Yousafzi, and all those who live to lead young people to better lives: the ones who speak up for children when a voice is needed most. I dedicate this dissertation to all children, for they are humanity’s greatest treasure.

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CHAPTER ONE: INTRODUCTION TO THE STUDY

The population of college freshmen has increased steadily over the course of several decades in the United States (Schneider & Dillow, 2012). College enrollment was 21.0 million in fall 2011, which was nearly as high as the record enrollment in fall 2010. Enrollment was expected to set new records from fall 2012 through fall 2021 (Schneider & Dillow, 2012). In fall 2017, about 20.4 million students are expected to attend American colleges and universities, with an increase of about 5.1 million since fall 2000 (Digest of Education Statistics, 2016). Despite new records, research reveals colleges lose most students in their first year (Charlie, 2016).

Self-efficacy and “efficacy expectations determine how much effort people will expend and how long they will persist in the face of obstacles” (Bandura, 1977, p. 194). Self-efficacy, or belief in one’s capabilities, is developed by performance accomplishments, or mastery tasks, and verbal persuasion, or influential language (Bandura, 1977). Self-efficacy impacts academic performance; by improving emotional management, young people could increase their life satisfaction, which may benefit their academic performance (Costa, Ripoll, Sanchez, & Carvahlo, 2013). “Efficacy expectations are a major determinant of people’s choice of activities, how much effort they will expend, and of how long they will sustain effort” (Bandura, 1977, p. 194). Perceived self-efficacy relates to a student’s ability to persist in college. Therefore, students who remain in college may have higher self-efficacy. Similarly, mindset, or self-perception a person has about him or herself may have a profound effect on learning, skill acquisition and success (Dweck, 1999). Mindset can be in a fixed state or a growth state.

Statement of the Problem

According to the National Center for Education Statistics (2016) there were over 20 million students expected to attend American colleges and universities in the fall. This

demonstrates an increase of approximately 5.1 million students since the fall of 2000. The number of collegiate bound students continues to increase, and the scholarly interest in their self-efficacy deepens. Colleges lose the largest number of students in their first year (Charlie, 2016), and self-esteem, self-efficacy, and life stressors are related to such attrition (Peterson-Grazioplene, Bryer, & Nikolaidou, 2013). Therefore, studying perceived self-efficacy and mindset may explain this phenomenon, as research suggests students with high self-efficacy have academic success and adjust to college (Barry & Finney, 2009; Solberg, O'Brien, Villareal, Kennel, & Davis, 1993). Possessing a growth mindset is also related to academic success (Blackwell, Trzesniewski, & Dweck, 2007; Castella, & Byrne, 2015; Yeager & Dweck, 2012).

There are relatively few self-efficacy scales specifically for college students (Barry & Finney, 2009). Several researchers examined the relationship between self-efficacy and college adjustment for Hispanic students (Barry & Finney, 2009; Solberg, O'Brien, Villareal, Kennel, & Davis, 1993). They wanted to assess college self-efficacy rather than self-efficacy for only one aspect of the college experience (e.g., academics); they developed the College Student Self-Efficacy Inventory (CSEI). The CSEI serves as a measure of self-efficacy for the broader college experience (Barry & Finney, 2009). Using the CSEI for this study was relevant to the age group (ages 18-23) and the setting (college campus), as well as the student classification (college freshmen). Also, the CSEI is recommended to be explored further (Barry & Finney, 2009) due to the growing interest in college freshmen self-efficacy.

Similarly, the desire to research mindset has stemmed from Dr. Carol Dweck's work (1999) regarding the Implicit Theories of Intelligence (Self-Theory) Scale (ITI), which is related to her influential book *Mindset: The New Psychology of Success* (2006) which further inspired introspective programs such as Brainology (2016) and Mindset Works (2016), so students and

teachers may understand that their intelligence and abilities are not fixed and can be developed through effort (Mindset Works, 2016). Constructs of self-efficacy and self-theory using the Mindset language from Mindsetmaker (2016), Growth Mindset Framing and Feedback Tools, could be applied to reveal information about collegiate freshmen, though it has not been researched at length with students beyond high school.

In this study, professors delivered the language of growth mindset to students. The students' self-efficacy and mindsets were measured using the CSEI (Solberg, et al., 1993) and ITI (Dweck, 1999) in the beginning and at the end of their first semester in college, to gain insight into freshmen perceived self-efficacy and mindset, as both constructs are important to college success.

Rationale

Keeping students in college impacts an array of factors. When student retention is high, so is his or her persistence, thus a student successfully integrates into the institution academically and socially (Jensen, 2011). Self-efficacy in the academic and social domains are critical components of the college experience, and both have been studied at length (Barry & Finney, 2009). This study intertwined the results of the CSEI created by Solberg, O'Brien, Villareal, Kennel, and Davis in 1993, which assesses college self-efficacy specifically, or the degree of confidence students have in their ability to successfully perform college-related tasks (Solberg et al., 1993), with the scores of the ITI created by Dr. Carol Dweck in 1999 and revised in 2015. On the ITI, students identify aspects of their intelligence as fixed vs. malleable, as some students believe that intelligence is more of an unchangeable, fixed "entity" and others think of intelligence as a pliable quality that can be "incrementally" developed (Blackwell, Trzesniewski, & Dweck, 2007).

Three other instruments were utilized. The CSEI and ITI were used to gather quantitative pre- and post-data regarding levels of self-efficacy and mindset. During the first week of the study, all participants also completed a demographic survey which contained self-reported data: gender, age, current major, and GPA. Secondly, an instrument used to illuminate the quantitative data was the researcher-created eight Self-Assessment Prompts on Performance Accomplishments and Mindset, or SAPPAM, given to the treatment group (See Appendix G). Lastly, during the semester, the researcher entered the treatment classroom three times to check the fidelity of treatment, or the use of the mindset language, with a researcher-created checklist containing 60 mindset terms from the Mindsetmaker (2016): Growth Mindset Framing and Feedback Tools.

The exploration of the five total instruments provided insight into the beliefs constructed by collegiate freshmen in the context of their new academic environment. This was illuminated further through focus group interviews of 2-3 students in both treatment group, three times during the semester. The interview protocol is in Appendix A.

Potential Benefits

Through this research, people in the business of secondary school and post-secondary education, and other stakeholders, will gain insight into the cognitive constructs framed by students' self-perceptions and self-reports. The CSEI and ITI scores, along with the descriptive, reflective student responses to self-assessment prompts, attribute meaning to current topics of college retention, self-efficacy, and mindset development. Self-efficacy and mindset are significant constructs of interest in higher education, especially at a university where between 71 and 75 percent of first time full-time students come back to attend a second year (WCSU, 2016). Additionally, self-evaluative reactions (Bandura, 1977) may describe college performance

accomplishments: principal sources of personal efficacy (Bandura, 1977), and evidence of growth mindset may reveal students' potential (Blackwell, Trzesniewski, & Dweck, 2007) for collegiate success.

Definition of Terms

The following terms were used in this research study.

1. A *First-Year Student, or College Freshman* is a student who is attending college for the first time (Barry & Finney, 2009). The students in this study have recently graduated from high school. They are 18 years of age or older.
2. The *Implicit Theory of Intelligence* as described by Dweck (2000), includes the belief that intelligence is a malleable and controllable quality, an incremental theory, and the belief that intelligence is a fixed and uncontrollable trait, an entity theory. This term is heavily related to *Self-Theories*, defined by Dweck (1999). She noted two theories of ability/intelligence that people may possess: an entity theory, in which people believe their abilities are fixed. Later in her career, Dweck (2006) also referred to this as the fixed mindset. In contrast, other people hold an incremental theory of ability, as they believe that their abilities are things they can cultivate and develop throughout their lives (Dweck, 2006). This became the growth mindset (Dweck, 2006). Self-theories are the roots of mindset, as success is the result of the tools one uses to approach learning tasks.
3. *Mindset* is defined as a self-perception or “self-theory” which a person has about him or herself; and it may have a profound effect on learning, skill acquisition, success, and other aspects of life (Dweck, 1999; The Glossary of Educational Reform, 2013). Mindset can be in a fixed state or a growth state. Dweck defines fixed and growth

mindsets in a 2012 interview. “In a fixed mindset, students believe their basic abilities, their intelligence, their talents, are just fixed traits... In a growth mindset, students understand that their talents and abilities can be developed through effort, good teaching and persistence” (Morehead, 2012, p. 3).

4. *Growth Mindset Framing and Feedback Tools* contain language that outlines high expectations, in which a teacher can give positive feedback that focuses on process (Ferlazzo, 2012). The language has positive, growth mindset-oriented vocabulary words.
5. *Perceived Self-Efficacy* is defined as people’s beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Self-efficacy beliefs determine how people feel, think, motivate themselves and behave. Such beliefs produce these diverse effects through four major processes. The processes include cognitive, motivational, affective, and selection processes (Bandura, 1994).
6. *Self-Assessment Prompts of Performance Accomplishments and Mindset* are researcher-developed prompts that will be used by the treatment group in this study. The prompts are crafted to trigger thoughts related to self-efficacy and implicit theories of intelligence, or mindset.
7. *Self-Reflective Practice* is an active, dynamic way to reflect upon situations. Reflective practice refers skills which enables one to identify or evaluate the quality of information used by her in the design of her action. Therefore, reflective practice emphasizes information acquisition and processing (Boud & Knights, 1996).

8. *Dialogic Teaching* is a causal conversational style of teaching, often in the form of informal discussion (Alexander, 2010). It is grounded in the research regarding the intertwinement of language, learning, thinking, and understanding (Alexander, 2010), and observational evidence of dialogic teaching makes it truly effective (Alexander, 2010).

In summary, college freshmen levels of self-efficacy and mindset type were explored in this study. The research aims to provide insight into the levels of self-efficacy and types of mindsets that college freshmen possess upon starting and finishing their first semester of college.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

The review of literature is presented in nine sections. The first section provides a discussion of research supporting the existence of college retention and the need for retention strategies in the United States. The next three sections provide a discussion for the theoretical background for this study: self-regulation, self-efficacy, and self-theories. The fifth section presents Carol Dweck's Growth Mindset (Dweck, 2006). The sixth section unveils dialogic teaching and cognition. The seventh section is focused on the use of mindset language in the classroom (MindsetWorks, 2016) and how this instruction has impacted students. The eighth section reviews the need for growth mindset in the college classroom. The final section presents a summary of the literature review.

The researcher utilized the following academic databases to conduct research of peer-reviewed sources for this study: Google Scholar, EBSCO Host, ERIC, and Academic Search Premier. The researcher used a variety of search terms such as: (a) college freshmen retention, (b) college self-regulation, (c) self-efficacy, (d) self-theories, (e) mindset and classroom, (f) growth mindset, (g) dialogic teaching, and (h) growth mindset in the classroom.

College Retention

National collegiate retention and persistence rates have been an interest to educational institutions and their constituents; the national higher education field continuously seeks to improve retention rates to facilitate greater success and graduation rates among students (Hurford, Ivy, Winders, & Eckstein, 2017). Retention is of interest to communities with community and regional universities that serve large populations of first generation, low-income, and underprepared students (Hurford, Ivy, Winders, & Eckstein, 2017). In 1983, ACT (formerly American College Testing) began to collect first-to-second-year retention data (Figure 1) to

accumulate data in regard to the percent of first-time and full-time students who enrolled in the fall of a given year, and then were also enrolled the fall of the consecutive year at the same institution.

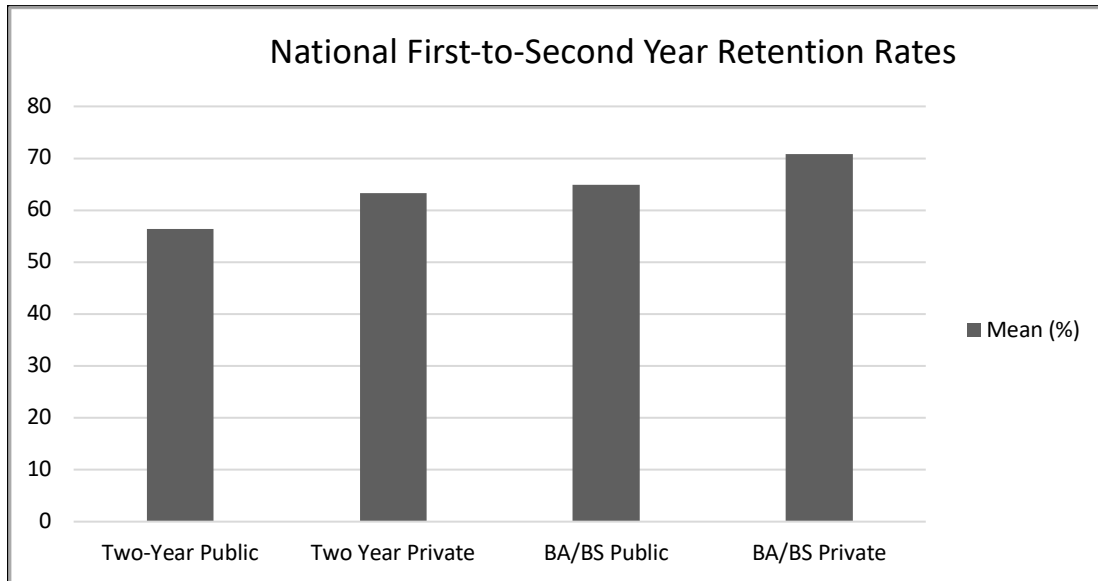


Figure 1. National First-to-Second Year Retention Rates by Institutional Types, 2016. Adapted from ACT, Inc., 2016, p. 3.

Researchers (Hurford, Ivy, Winders, & Eckstein, 2017) have suggested that retention is illuminated by studies connected with the determination of qualities which set successful students apart from unsuccessful students. It is critical for institutions to hone in on such attributes, so the limited sources of funding can be allocated most efficiently and effectively. Influencing student behavior and the understanding of student performance can greatly impact student success, and thus, college retention rates (Hurford, Ivy, Winders, & Eckstein, 2017).

Retention failure does not mean a student failed to fulfill his or her life goals in the realms of academia, but it does mean the given institution may have failed to recognize the risk determination. No one factor is the omniscient indicator of attrition, nor retention (Hurford, Ivy, Winders, & Eckstein, 2017), though a combination of variables may serve as indicators; GPA,

enrollment date, residence hall living, academic performance in the first semester and part-time status are all important factors. Furthermore, easy accessibility to university personnel promotes retention and student success (Hurford, Ivy, Winders, & Eckstein, 2017). The combination of factors paints a picture for each institution to consider, to fully understand retention of first-year students and beyond.

Approximately 58% of undergraduates in the United States will complete college, but it may take as many as six years (Turner & Thompson, 2014), and the first year is critical to retention. Many of the young adults today have different attributes from past generations, hence they are millennials (Turner & Thompson, 2014) and the generations after millennials. This population is larger and diverse, with distinctive learning style and socialization characteristics which incorporate technology and the use of collaborative learning. There is also an expectation of accessible faculty and administrators, as students need guidance that is like what their parents may have experienced (Turner & Thompson, 2014). They have been engendered with email usage, instantaneous messaging, cell phones, and social media. New teaching techniques and program initiatives therefore must foster self-reflection among such students, so they become active participants in the acquisition of knowledge (Turner & Thompson, 2014). As Turner & Thompson noted, negative experiences during the first year may lead to a student dropping out of college, or not returning to the same institution for sophomore year.

The Need for Self-Regulation

College students are transitioning into an environment that requires a level of independence and academic rigor that is not required in high school. Treatments in recent years demonstrate that students benefit from knowing the challenges of such a transition, and that these challenges can be presented and explained, without hindering a students' potential (Yeager, et

al., 2016). By assigning meaning to their experiences (Yeager, et al., 2016), students can derive the greatest personal value from their educational advancement endeavor: college. Preparing students to achieve includes preparatory interventions and the opportunities for improvement, through exposure to growth mindset as a facet of the ethos of a university (Yeager, et al., 2016). High school and first year college students must self-regulate when approaching learning and engaging in projects (Lawanto, et al., 2013). Metacognition is implicated in self-regulation, which is a significant aspect of learning and a crucial predictor in academic performance (Lawanto, et al., 2013). A learner, high school or first year college student, must monitor and adjust cognition and learning (Lawanto, et al., 2013) to maximize engagement in a learning environment. The interpretation of college level tasks and achieving expectations connected to tasks are on a continuum, from disengaging completely, to just getting by, to completing with learning fully internalized, to (Lawanto, et al., 2013). Self-regulation of one's performance, and the active understanding of one's performance criteria for each task, is related to the understanding of the task (Lawanto, et al., 2013), but on a deeper level, is related to the student's understanding of how he or she may gauge, and be positively impacted, by his or her own achievements. Studies conducted by Lawanto et al. (2013) with high schoolers and college freshmen, indicate students must demonstrate effective task interpretation, apply planning strategies and other cognitive strategies, when working on engineering tasks. This is applicable to many performance tasks, or performance accomplishments (Bandura, 1977) which occur in the freshmen year of college, as students must learn to adjust to the new set of tasks at hand: those which pertain to college life (i.e., monitoring academics, seeking advisement, problem solving, managing time, etc.). Overall project management reported in the Lawanto et al. (2013)

study conveys the same notion of the management of one's education in the collegiate environment: self-regulation is necessary for success.

Furthermore, students must learn to judge whether they possess knowledge acquired from the material they are exposed to and metacognitively monitor their learning (Cohen, 2012). Self-regulation of one's collegiate performance helps one adjust his or her approach to the experience (Cohen, 2012). Students grow and learn as they adapt and change (Cohen, 2012; Schunk & Zimmerman, 1998). Hence, self-regulating learners can self-monitor and even evaluate their own progress, as well as strategically plan, thus enabling opportunities for accomplishment (Cohen, 2012). Self-monitoring and regulating is particularly important for students during their first semesters of college, since they often receive little feedback from instructors (Cohen, 2012); self-regulation affects a student's approach to learning. It is therefore critical that instructors assist students in learning how to self-regulate in the college environment, as well as help the students assess what material they know and do not know (Cohen, 2012). Improving self-regulatory abilities not only becomes a way to enhance and understand one's academic performance, but moreover, it is a fundamental skill for success in life, as a metacognitive, reflective citizen.

Self-regulating learning is also important for managing time and adjusting academic performance. Time management and planning skills may need to be revisited by students to address inadequate self-regulated learning (Thibodeaux, Deutsch, Kitsantas, & Winsler, 2017) during a student's first and second semesters. Participants in the Thibodeaux et al. (2017) study who manage time and demonstrate self-regulation positively influence their academic performance, as students who adjust their activities dependent upon realistic expectations can accomplish goals or change levels of effort based on feedback. Participants were in a large,

public, mid-Atlantic university. Those in this 2017 study were not only first semester freshmen, but also transfer students, though 535 were first-semester undergraduates (Thibodeaux, et al., 2017). The study investigated student self-regulation habits, grade point average, and time management. Questionnaires were administered in biology, psychology, and university orientation courses, and students could take the questionnaires home; they were collected three times in the first semester. The Motivated Strategies for Learning Questionnaire (MSLQ) assessed self-regulation through 20 items; eight items ($\alpha = .71$) pertaining to time devoted to and place of studying, and 12 items ($\alpha = .74$) measuring how much a student uses strategies, including planning, monitoring, relearning and reflecting. As the researchers expected, students with higher GPA goals had higher self-regulated learning. Researchers suggested the relevance of faculty and administration involvement; academic advisors and professors were recommended to offer a curriculum related to self-regulation, so students were encouraged to reflect on expectations and identify academic values, as well as manage time effectively (Thibodeaux, et al., 2017). Results demonstrated that maximizing one's learning potential through self-regulation is possible for freshmen during their first semester of college.

Self-Efficacy in College

Self-efficacy, or an individual's belief in his or her ability to perform behaviors necessary to produce specific performance attainments, is a seminal concept in the fields of psychology and education. Bandura (1977) stated "efficacy is derived from four principal sources of information: performance accomplishments, vicarious experience, verbal persuasion, and psychological states" but "psychological changes can be produced through other means than performance accomplishments" (p. 191). A person has efficacy and expectations, and through behavior, the outcome will occur. Thus, self-efficacy is the catalyst to the expectations which are a

mechanism of operation (Bandura, 1977). Efficacy in conjunction with expectations determine the amount of effort people expend on a task, so the stronger the perceived self-efficacy is, the more active the efforts will be (Bandura, 1977). Performance accomplishments are the principal source of self-efficacious changes, and successes will raise mastery expectations; hence, failures lower them, and strong self-efficacy is required to accomplish the tasks one sets out to accomplish (Bandura, 1977). Improvements in behavioral functions can be transfers to other activities and raise performance in other realms of one's life. For example, if a college student experiences success and meaningful change in an assignment in a course, he or she may experience raised self-efficacy and accomplish the next assignment with higher levels of self-efficacy (Bandura, 1994). On the other hand, students with low aspirations or doubts in their capabilities may shy away from tough tasks and focus on personal deficiencies (Bandura, 1994) instead of provoking thoughts of growth, or stimulating ideas of approaching problems with new ideas.

Verbal persuasion is widely used to influence outcomes in one's life, and merits investigation and treatment consideration (Bandura, 1977). People who are verbally persuaded, or sometimes deemed socially persuaded (Bandura, 1994), may mobilize greater efforts to various activities and will not harbor as much self-doubt. Self-appraisal and managing the environment are two important factors when assessing the impact of verbal or social persuasion. Stressors can be quelled, and psychological changes can occur in a relatively short time (Bandura, 1994). This efficacy stems from one's beliefs about what he or she can accomplish and their abilities (Bandura, 1994). Research indicated that verbal persuasion, encouragement to engage on a target behavior (Solberg, et al., 1993) in the class may influence self-efficacy. Furthermore, this social persuasion, or persuasive communication and evaluative feedback,

heightens self-efficacy among students, though it can be limiting (Bandura, 1977; Dinther, Dochy, & Segers, 2011). In fact, Dinther, Dochy, and Segers (2011) state patterns of teacher interactions with students can enhance students' self-efficacy, as self-efficacy is a vital component in obtaining academic mastery. Their literature review of 39 empirical studies concluded that student self-efficacy is an important construct in educational research for the past 30 years, especially starting in the early 1990s. Providing a classroom environment deemed "safe" and actively stimulating self-efficacy of students through a program, may benefit students and educational institutions. Furthermore, Dinther, Dochy, and Segers (2011) conclude that it is possible to influence students' self-efficacy within higher education programs, particularly those that are based in social cognitive theory. Practical experiences, vicarious experiences, and verbal persuasion were mentioned as influencers of self-efficacy. The researchers also mentioned there is a need for investigators to examine verbal persuasion further, particularly feedback.

Self-efficacy in college students was investigated by the creators of the College Self-Efficacy Inventory in the 1990s. The first exploration of the CSEI was implemented by Solberg et al. (1993), with second-year and third-year students who attended Hispanic University ($n = 164$). Participants completed the original CSEI instrument with 19 items, "because only 19 of the 20 items had pattern coefficients greater than .50" (Barry & Finney, 2009, p. 199). The second study of the CSEI was implemented in 1998, again by Solberg and his colleagues, with a re-examination of the instrument "by conducting a principal components analysis with varimax rotation using first and second-year students" (Barry & Finney, 2009, p. 199) with a total of 388 participants.

The researchers felt validation procedures for the CSEI (Solberg, et al., 1993) were necessary (Barry & Finney, 2009, p. 200). Participants constituted a sample of convenience

because the researchers were in the doctoral program at James Madison University, so they studied incoming freshmen to their university ($n = 3,187$). The sample consisted of college freshmen who were ages 17-19. There were male and female students, 68% and 32% of the population, respectively. There were 85.1% White and 14.9% Minority students in the sample.

This was an exploratory study where the authors wanted to understand the dimensionality of the CSEI (Barry & Finney, 2009, p. 209). The variables were the scores derived from the CSEI, with 20 different items. The purpose of the study was to identify subscales among the 20 items, and explore potential relationships among social anxiety, academic anxiety, self-regulated learning, and academic achievement.

Data collection used solely the CSEI instrument. The instrument is a college self-efficacy inventory, which measures confidence on a Likert scale of 1-10 via 20 questions. Students are given a brief set of instructions to explain briefly how the 20 items concern confidence in various aspects of the college experience (Barry & Finney, 2009). Individual items were categorized under three subscales: Course Efficacy, Roommate Efficacy, and Social Efficacy.

These subgroups contribute to a student's ability to adjust and develop while in college (Barry & Finney, 2009). The authors gathered validity and reported on the exact functioning of the instrument. Barry and Finney suggested revisiting college self-efficacy to ensure it truly represents all aspects of the experience (2009). It was found that course efficacy was positively correlated with GPA, along with university activities such as participating in library functions, and reading and writing (Barry & Finney, 2009). Therefore, the total CSEI scores were correlated with cumulative GPA and correlations between the CSEI and GPA were higher for

retained students than non-retained students (Barry & Finney, 2009), which indicated that college self-efficacy is a factor of retention.

Solberg et al (1993), as well as Barry and Finney (2009) explored the use of the CSEI on the collegiate freshmen population, thus creating a basis for further studies regarding its consistency, validity and reliability, but also implied there is a need for further exploration into the self-efficacy of this population. There is a near universal concern about college completion rates (Brady-Amoon & Fuertes, 2011) and the association of self-efficacy among the collegiate freshmen, indicating that student perceptions of their ability to perform in an academic setting are related to self-efficacy.

The CSEI was further studied by Brady-Amoon and Fuertes (2011) when given to 275 full-time undergraduate students enrolled at six different colleges in the New York metropolitan area. Students had to be at least 18 years old and were of varying ethnicities and backgrounds. Self-efficacy was measured using the CSEI and self-rated abilities were investigated. Self-efficacy was found to be a strong predictor for college adjustment (Brady-Amoon & Fuertes, 2011). The researchers suggested further use of the instrument with diverse student populations, which is indicative of the student population today.

Chemers, Hu, and Garcia (2001) studied 373 first-year students in one wave and 256 in a second wave at eight residential college campuses. By administering multiple self-rated questionnaires, such as an academic self-efficacy scale, participants gave information related to their self-efficacy using a 7-point Likert scale, and reported their levels of optimism through the Life Orientations Test to understand individual differences in optimism and pessimism. Findings indicated that self-efficacy was related to students' perceptions of their capabilities when responding to the demands of collegiate life (Chemers, Hu, & Garcia, 2001). The authors found

confident students have more stamina for college tasks, and have better learning and problem-solving strategies (Chemers, Hu, & Garcia, 2001).

Verbal persuasion, or the use of language to build self-efficacy was studied, along with vicarious experience (Bandura, 1977) in a study conducted on 89 undergraduate pre-service teachers at a midwestern state university (Hagen, Gutkin, Wilson, & Oats, 1998). The researchers showed videotapes to influence the treatment group regarding teaching situations, though the study did not find that these videotapes changed the mean preservice teachers' self-efficacy scores on two surveys given pre- and post: Teacher Efficacy Scale-Revised (TES-R) and a modified version of the Teacher Efficacy Scale (TES). The researchers claim the intervention may have been weak, as it was too brief and lacked follow-up (Hagen, et al, 1998). However, they assert the study suggested that some aspects of pre-service teachers' self-efficacy may be increased through verbal persuasion. Specifically, students in the study who viewed the videotape demonstrating effective classroom management techniques had a greater sense of Personal Teaching Self-Efficacy and Classroom Management Self-Efficacy than those in the comparison group.

The construct of learning as a process is shifting to a constructivist point of view in the educational arena, and thus, student-centered learning is a current movement occurring around the world (Szili & Sobels, 2011). In the study conducted in 2011, students were enrolled in an Environmental Management program (first-year college) and engaged in open-journal exams. They provided feedback through reflective practices. The researchers then conducted discursive analysis of student writings, revealing that through constructivist teaching methods, students can be active learners via encouragement and the instilling of pragmatic work ethic. Students in the study demonstrated evidence of an elevated understanding of both content and their abilities to

learn. Research indicates that metacognition and encouragement of metacognition from professors may impact self-efficacious behavior among first-year students (Szili & Sobels, 2011).

Self-theories

Carol Dweck examined the two frameworks for understanding intelligence and achievement (1999). The goal of her work was to understand how people work, in terms of why some people perform above expectations and others never can fully reach their potential. She examines the self and development of the self through the term “self-theories” along with the experiences that shaped one’s perception of their abilities, through the way they understand intelligence. Dweck (1999) reported there are two ways: the fixed intelligence and the malleable intelligence. These two terms are the precursors to her revised, more modern work in growth and fixed mindset (Dweck, 2006). The fixed intelligence is one that cannot change in the mind of the beholder. These people believe intelligence is preset, predestined, or simply not changeable. Easy, low effort types of performance tasks are dominant experiences of those with fixed mindsets as they do not want to reveal their feelings of inadequacy to others, and arguably, themselves. Seeking a challenge or a new opportunity to learn may be avoided by the person with a fixed intelligence, and thus, they disengage from tasks that pose obstacles (Dweck, 1999). These people possess the entity theory, and therefore, they feel challenges are a threat, as they have fixed mindsets. They feel vulnerable because they do not want to reveal or admit their feelings of incapableness or their perceptions of their inability to grow; yet Dweck (2000) argued such vulnerabilities are opportunities for boosting students’ esteem, and how critical it is to assist students when they demonstrate such a fixed mindset.

Other students are very different; they possess a malleable intelligence (Dweck, 2000), which is now coined growth mindset (Dweck, 2006). They cultivate opportunities to learn and persevere through challenges. Obstacles are in fact opportunities to learn. These students have an incremental theory of intelligence, because through effort, the students can increase their intelligence with the help of difficult tasks. They feel everyone, with effort and guidance, can favor opportunities to grow and learn (Bandura & Dweck, 1985). These students engage and stretch their skills, and in turn, they view easy tasks as a waste and crave a challenge.

A study by Ahmavaara and Houston (2007) among 856 secondary school pupils in England came from four schools, using Dweck's Implicit Theories of Intelligence scale and the 5-point Likert scale indicating confidence (Dweck, 1999) measured fixed versus malleable (or growth) mindsets. Researchers found that changeable, or growth-oriented, intelligence (also referred to as growth mindset) has positive connotations for academic achievement; in fact, older teens may demonstrate potential for malleable intelligence (Ahmavaara & Houston, 2007). This poses an important window of opportunity as the children age and become teens, in which this potential for malleability should be harnessed and encouraged.

Bergen and Dweck (1991) studied beliefs about intelligence and the behaviors pertaining to achievement. Ninety-nine undergraduate students at the University of Illinois taking Introduction to Psychology were studied; they read a *Psychology Today* article and answered a line of questions, then judged their performance on the reading task. Results indicated a student's belief on his or her malleability and generalized influence of abilities can impact the way a student interprets information from the collegiate environment. Beliefs in one's ability have a fundamental inspiring influence on behavior.

Implicit self-theories of intelligence were further explored by Robins and Pals in 2002, who studied 508 undergraduates at the University of California at Berkeley. One of the measures used was a 5-item version of a survey that measured Implicit Self-Theories, first developed by Erdley and Dweck in 1993. The Robins and Pals (2002) study revealed how implicit self-theories shape how students experience and react to achievements in context and examined normative change over the transition from high school to college by examining high school seniors who attended a college orientation program and high school students who did not. The researchers noted Dweck's two implicit self-theories: entity theorists, or those with fixed intelligence or mindsets, and incremental theorists, or those with growth mindsets. The researchers acknowledged that people approach achievement situations differently, and in the way they perceive themselves. For example, some people place importance on performance, while others care more about the actual learning experience. The first person may want to take the easy route, in hopes of not looking "stupid" while the other loves to have challenges to experience growth. This is true for grades, as the researchers note. Some people are discouraged by a failing grade, yet others understand they must try harder to find a way to overcome such a mark. The study presented by Robins and Pals (2002) was to investigate implicit self-theories of abilities on this sample of 508 University of California at Berkeley. Male and female students were analyzed regarding their development of self-esteem and personality in college. Findings revealed that students with entity orientation (fixed mindset) had a maladaptive nature in the college achievement context, and thus, felt more stress regarding academic performance, blaming failure on their low ability, rather than feeling inspired or determined, as exemplified by the incremental theorists (those with a growth mindset). The findings revealed that implicit theories of intelligence are psychologically meaningful constructs, and an individual's belief in

whether his or her intelligence is fixed or changeable plays a critical role in the academic domain.

Dweck, Chiu, and Hong (1995) reviewed research about implicit theories regarding human attributes, such as mindset, which structures the way in which people perceive and react to outcomes. Those with fixed, trait-like entities (entity theory, or fixed mindset) fail to understand the outcomes of their actions, and thus attribute negative reasoning to the outcomes, i.e., “I failed the test because I am dumb” (p. 267). On the other hand, when people perceive their mindsets are more malleable and changeable, they exhibit an incremental theory (growth mindset), thus understanding the outcomes in terms of behavioral mediators, i.e., “It did not work because of my effort or strategy” (p. 267). Such implicit beliefs in one’s self, according to Dweck, Chiu, and Hong (1995) influence people’s judgements and reactions of events.

Systematic effort is required on behalf of researchers and scientists when articulating the effects of implicit theories of intelligence, or mindset, because of the implicit nature of the very construct (Dweck, Chiu, & Hong, 1995). People may believe a trait they possess is a fixed and nonmalleable entity: entity theory, or a person may believe they have a changeable trait that can be developed: incremental theory. These two self-theories are the basis for fixed and growth mindsets. Behaviors can alter traits, according to the incremental or growth mindset, and people understand that outcomes are a result of effort and strategy (Dweck, Chiu, & Hong, 1995). There are cognitive and behavioral patterns associated with said theories, and self-judgements are part of the intellectual domain. Therefore, the way people confront their own outcomes of actions is dependent upon their mindsets. The belief that human attributes or traits are fixed or malleable is a core assumption which creates a framework that fosters judgements and reactions to actions (Dweck, Chiu, & Hong, 1995). Tasks which involve performance allow students to

evaluate their intellectual ability and offer opportunities for students to increase their abilities (Dweck, Chiu, & Hong, 1995). In short, students' assumptions about the fixedness or malleability of their own traits predict the way they perceive and experience their reality (Dweck, Chiu, & Hong, 1995).

Growth Mindset

Growth mindset is arguably essential for success, particularly in the academic arena. Risk and effort are two constructs that may reveal inadequacies and show a person is not up to a task (Dweck, 2006). A person, or student, who is super sensitive about making mistakes or being wrong is considered to have a fixed mindset (Dweck, 2006). However, a person who is skilled in growth mindset knows that cultivation of personal traits is a process. Individuals with a growth mindset stretch themselves when they confront obstacles (Dweck, 2006). For educators, it is important to resist over-praising people, though we want our students to know we appreciate their successes and perpetuate growth mindset (Dweck, 2006).

Teachers and professors can appreciate what students accomplish through practice, studying, and good strategy usage (Dweck, 2006). Delivering a message that skills and achievement come through commitment and effort (Dweck, 2006) is the message educators want to send to promote a growth mindset line of discourse in their classrooms. Therefore, it is critical to promote concrete, growth-oriented planning among students (Dweck, 2006). Growth-mindset students use strong study techniques, plan their study time (time management) and use every strategy they can to succeed (Dweck, 2006). When bumping into obstacles, students can turn to a growth mindset to approach problems and enhance their lives (Dweck, 2006).

Dialogic Teaching and Cognition

Dialogic teaching stimulates students' minds through the power of talk (Alexander, 2010). A teacher can frame students' learning tasks and assess progress using dialogic teaching (Alexander, 2010). The causal conversational style of dialogic teaching is often enacted in the form of informal discussion (Alexander, 2010). It is grounded in the research regarding the intertwinement of language, learning, thinking, and understanding (Alexander, 2010), and observational evidence of dialogic teaching makes it truly effective (Alexander, 2010). Students can address learning tasks together as a collective when in the dialogic teaching environment, and reciprocal communication allows students to listen to one another, considering each other's viewpoints (Alexander, 2010). It is purposeful and supportive in nature, as answers to questions give rise to new questions. According to Alexander (2010), dialogic teaching combines four repertoires: talk for everyday life, learning talk, teaching talk, and classroom organization.

Bakhtin (1981) made a distinction between dialogic and monologic discourse, by recognizing teacher-pupil discourse is more of a dialogue and should not be overly concerned with the transmission of knowledge to the pupils. Dialogic teaching has a downside though: there is a dominance of the teacher's voice at the expense of the students' voices (Lyle, 2008). There is a power relationship between teachers and students, and thus, the pedagogical potential of learning through dialogic talk may be left unexamined (Lyle, 2008). Classroom talk using a dialogic approach unveils the reality of dialogue as a central role; speaking and listening contribute to cognitive development, and such dialogic engagement can promote pupil learning and growth (Lyle, 2008). Teachers need to provide a framework to enable students' involvement with newly encountered knowledge, as dialogic speaking on behalf of the teacher is purposeful; teachers plan and facilitate to value pupils' knowledge acquisition (Lyle, 2008). Lyle (2008)

notes the centrality of language as a part of a culture's tool kit shapes a student's actions, as children most often experience the world through language and thought. Lyle (2008) indicates, in conjunction with their interpretation of the language used in the classroom, that talk is vital to learning.

Use of Mindset Language in the Classroom

Fostering a growth mindset in students is pertinent to their overall success in school, and in life. After all, students with growth mindset think they can develop their intelligence over time (Blackwell, Trzesniewski & Dweck, 2007; Dweck, 1999). Blackwell, Trzesniewski, and Dweck (2007) investigated 373 seventh graders and the role of implicit theories of intelligence in adolescents' math achievement. As noted by Dweck (2010), students with fixed mindsets value looking smart above all, and may sacrifice learning opportunities because they don't want to be viewed as low performers or feel deficiencies. A mediational model was used with the students which included the instillation of positive beliefs about effort and yielded positive results; Blackwell, Trzesniewski, and Dweck (2010) understood that students carry mental "baggage" that can be carried to academic situations. Focusing on students' potential can develop their notions of intellectual capacity and benefit them in the academic arena.

Teachers need to create a growth mindset culture within their classrooms to prepare students to stretch and take risks academically, and in life (Dweck, 2010). When there is a climate of growth mindset within the classroom, teachers can present tasks in a manner which fosters long-term achievement (Dweck, 2010), as the emphasis is on challenge rather than success, and development rather than immediacy. With teacher guidance, a student may use meaningful strategies in the classroom, and the teacher can provide feedback that praise the use of the strategy, then encourage the student to try another strategy (Dweck, 2010), as if the

investigation in learning is a continuously rewarding challenge. Teachers can point out students' efforts which lead to progress and improvement over a given time (Dweck, 2010). Certain words are valuable to students when heard directly from an educator; Dweck (2010) cites the word "yet" as it is a word that can easily answer a student's comment regarding not liking a subject or unit, because "yet" indicates potential for change. Teachers can convey effort and joy in tackling tasks, so the classroom becomes a place to breed lifelong learning (Dweck, 2010).

It is important not to simply praise students (Dweck, 2007), as praise is potentially counterproductive, giving a short burst of pride, which hinders students' abilities to complete tasks to their fullest potentials (Dweck, 2007). Students praised for their efforts make more references to skills and knowledge they can learn from through efforts, thus achieving growth mindsets (Dweck, 2007). Growth mindset leads to higher achievement (Dweck, 2007) and interventions as demonstrated in middle schools in New York City. When students received a growth mindset intervention, they sought to grow as learners through effort, as intellectual development was posited to the treatment group as the formation of new connections in the brain. Programs for teachers and students on the computer through Mindset Works (2016) were developed, including Brainology (2016). The pilot testing revealed the mindset potential in teaching when studied in 20 different New York City schools (Dweck, 2010a) and was rolled out online for elementary, middle and high school students. College level students are yet to come. The same implicit theories and mindset language applies, however, as the creator, Dweck (2010a), warns teachers not to simply praise students' intelligences and talents, but to teach them how much fun it is to tackle challenging tasks, and how errors can be informative.

Educators can foster mindsets in educational settings (Dweck, 2010b; Yeager & Dweck, 2012). Yeager & Dweck (2012) cite more research will be conducted at the collegiate level;

using implicit theories interventions to address high failure rates in community college students who are placed in remedial math classes in one realm of study. Performing academically is just one of many challenges adolescents face regularly (Yeager & Dweck, 2012). Interventions to assist such students that emphasize the potential for change, despite difficulties, can influence students' beliefs in their mindsets (Yeager & Dweck, 2012). Students' mindsets may hinder their ability to take advantage of helpful learning supports (Yeager & Dweck, 2012) and therefore, growth mindset language employed in the classroom may be a viable route, as noted by Yeager & Dweck (2012). Furthermore, they found that students need mindsets to overcome challenges, while developing strategies and seeking help from others, as it is important for educators to empathize with the power of a student's potential to change. Yeager and Dweck (2012), after exploring several interventions, conclude that discussing the reasoning behind psychological interventions that change students' mindsets allows educators to foster growth mindsets and create resilience in educational settings.

Summary

College level students, specifically entering college freshmen, experience constructs of self-efficacy and self-theories. Through their perceptions of their capabilities, and innate sense of growth, or lack thereof, in terms of these capabilities, information is revealed about mindset. Their ability to experience mindset language in the classroom and receive intervention protocol centrally developed around the terms and language reveals findings in many studies pertaining to mindset and implicit theories of intelligence. In terms of self-efficacy, through verbal persuasion (Bandura, 1977), with underpinnings of dialogic teaching due to the nature of providing students with a framework for learning (Bakhtin, 1981), students can learn language pertaining to growth mindset (Dweck, 2006) and influence their academic perceptions in college.

CHAPTER THREE: METHODOLOGY

The purpose of this study was to examine college freshmen perceptions of self-efficacy and growth mindset, and to measure any changes in these concepts at the beginning and ending of the first collegiate semester. Specifically, the researcher explored whether the use of mindset language in the classroom, as delivered by the professor, pervaded students': (a) biweekly written responses, and (b) focused interviews, and in general, impacted students' self-perceptions of their mindset and self-efficacy. This chapter is organized into the following sections: (a) research questions and hypotheses, (b) description of the setting and the participants, (c) research design, (d) instrumentation, (e) procedures, (f) description of the delivery of mindset language, (g) description of data analysis, (h) description of data collection procedures and timeline, and (i) an ethics statement.

Research Questions and Hypotheses

Using a systematic approach, the researcher explored the following questions:

1. Is there a statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not, with respect to three mean sub-scale scores (academic, social, and social integration) for the College Self-Efficacy Inventory?

Non-directional hypothesis: There will be a statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not, with respect to three mean sub-scale scores (academic, social, and social integration) for the College Self-Efficacy Inventory.

2. Is there a statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not,

with respect to perceptions of intelligence for the Implicit Theories of Intelligence Scale?

Non-directional hypothesis: There will be a statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not, with respect to perceptions of intelligence for the Implicit Theories of Intelligence Scale.

3. How do students perceive self-efficacy in their responses regarding university life?

Description of the Setting and Participants

Setting

The community researched included college freshmen at an urban state school in the Northeast region of the United States. In 2017, the university accepted 71% of students from an applicant pool, who had an average GPA of 2.97 and a female to male ratio of 52% to 48%. Over half of the freshmen class live in on-campus dormitories. The racial ethnic statistics included 61% White, 18% Hispanic/Latino, 11% Black/African American, 4% Asian, and 3% Unknown. Approximately 73% of first year students return to the university for sophomore year (College Board, 2018). The racial ethnicity of the university is in Table 1.

Table 1

School Breakdown of Racial Ethnicity of First-Year Students at the University

Ethnicity	Frequency	Percentage
Hispanic or Latino	144	17.5
American Indian or Alaska Native	1	0.1
Asian	33	4.0
Native Hawaiian or other Pacific Islander	0	0.0
Black or African American	96	11.7
White	487	59.1
Two or more Races	35	4.2
International	2	0.2
Unknown	26	3.2
Total	823	100.0

This information describes the setting of the study, which was conducted on the main campus at a New England university in the Northeast. The sample population includes collegiate freshmen students in First Year (FY) designated courses. The campus is a 34-acre main campus in a downtown, urban area. There are 4195 full-time undergraduates. There are 1237 students enrolled as new full-time students, including 413 transfers.

A sample of convenience was utilized. The School of Arts and Sciences had 13 departments; the researcher approached four professors from the Psychology and Communication and Media Arts departments. Three professors agreed to be a part of the study. The research approached a fifth professor from The Business School, and this professor became

the fourth in the study. Each professor taught two sections of First-Year (FY) designated courses. There were confounding variables which impacted the selection of FY-course professors, including their contractual agreement with the university. One hundred and thirty-five out of 154 students in eight FY designated courses voluntarily participated in the study; they were in two sections of Communication 100-level courses, four sections of Psychology 100-level courses, and two sections of Business 100-level courses. Four sections were in the treatment group and four sections were in the comparison group. The ethnicity of the sample of students is located in Table 2.

Table 2

Sample Breakdown of Racial Ethnicity of First-Year Students at the University

Ethnicity	Frequency	Percentage
Hispanic or Latino of any race	15	18.1
Black or African American	8	9.6
White	54	65.0
Other	2	2.4
Not Reported	4	4.8
Total	83	100.0

Sample

Adult participants. The Institutional Review Board (IRB) at Western Connecticut State University (WCSU) approved this research (Appendix Q) on February 8, 2017. Consent was obtained from school administrators and participants. Consent forms are in Appendix K. The researcher then met with four professors to present the purpose and methods of the proposed

research in April and May of 2017; regular communication with professors was conducted through emails, phone calls, and personal contact. The two treatment professors felt comfortable with the level of involvement of the study: allowing pre and post data collection, using five Mindset terms per week for 12-weeks, having weekly contact with the researcher, and allowing three fidelity of treatment checks. The other two comparison professors felt comfortable with just the pre and post collection of data. Two treatment professors received training materials prior to the college summer break in May 2017. These professors had an open dialogue with the researcher and asked questions freely about the study, the IRB paperwork, and the schedule. Then, the professors met with the researcher the week before fall courses began in August 2017. Components of the study and expectations for the professors were communicated in May 2017 and August 2017.

An equal representation of male ($n = 2$) and female professors ($n = 2$) participated in the research study; demographic information for professors who participated in the treatment and comparison conditions is presented in Tables 3 and 4. Professors have been assigned an identification number to preserve confidentiality.

Table 3

Demographic Information for Professors in the Treatment Group

Professor ID	Course #	Gender	Years Teaching		Degrees
			College	Freshmen	
A	1, 2	Female	8	8	BA-Marketing MA-Elementary MA-Special Education (K-12) Sixth Year-Educational Leadership
B	3, 4	Male	27	18	BS-Elementary Education MA - Educational Leadership

Table 4

Demographic Information for Professors in the Comparison Group

Professor ID	Course #	Gender	Years Teaching		Degrees
			College	Freshmen	
C	5, 6	Female	21	21	Psychology MS in Special Education
D	7, 8	Male	9	9	BA-History BA-Communications MBA-Marketing MAT-Education

Student participants. One hundred and fifty-four students filled out consent forms (Appendix K) during the first day of their first year of college, on August 28-30, 2017. One hundred and thirty-five were usable, as the other 19 consent forms indicated the students were not 18 years of age. Therefore, a total of 135 participated in the research study, a response rate of 87.66%. According to Gall, Gall, and Borg (2007), in research studies using causal-comparative or treatment designs, each cell should contain a minimum of 15 participants. The current study consisted of four cells (male participants, female participants, treatment condition, comparison condition), which suggest that a minimum of 60 participants were required. The post-data collection yielded 83 students of the initial 135, which is a response rate of 53.89% response rate. The number decreased from a potential 135 to 98, because students were not present for the posttest, and then another 15 students dropped the courses by the first week of December, prior to finals week. Thirteen of the students were in the comparison group and two

in the treatment group. Student response rates are indicated in Table 5. A breakdown of student counts by cell is provided in Table 6.

Table 5

Student Response Rates

Participants	Frequency	Percentage
Potential	154	100.00
Actual	135	87.66
Final	83	53.89

Table 6

Total Student Participants by Gender

	Treatment	Comparison
Males	29	20
Females	16	18
Total	45	38

Also, a breakdown of student participation by professor is provided in Table 7. The potential participants were reduced from 154 to 135 due to the age 18 requirement. In December, 15 dropped the course, reducing the participants to 120. Then 27 who filled out the pretest were not in class to fill out the posttests.

Table 7

Participation Rate by Group

Condition	Potential	Actual	Percentage
Treatment	81	45	55.55
Comparison	73	38	52.05
Total	154	83	53.89

Table 8 illustrates students' self-reported grade-point average (GPA) information. Students placed this information in the initial demographics survey given on the first day of classes. The self-reported GPA was on a 4.0 scale. Table 9 demonstrates the number of students at the university, specifically in the sample, who speak English as a first language.

Table 8

Breakdown of Participants by Self-Reported GPA

GPA	<i>n</i>	%
Above 3.01	55	66.3
2.01 - 3.01	21	25.3
Below 2.0	2	2.4
No Report	5	6.0
Total	83	100

Table 9

Participants' Who Spoke English as First Language

	<i>n</i>	%
EFL	77	92.8
Other	6	7.2
Total	83	100

Research Design

This study investigated self-efficacy and mindset in freshmen students. The research design was a mixed-methods using a convergent parallel model (Creswell & Plano Clark, 2007). This design is appropriate when combining the strengths of open-ended (qualitative) and close ended (quantitative) data in order to develop a greater understand of the research questions. The researcher sought to compare different perspectives of student perceptions of self-efficacy and mindset, drawn from quantitative and qualitative data. The researcher sought to merge the two to show how the data converges to illuminate the research questions. Both qualitative and quantitative data were collected and analyzed separately. Results were compared to see if findings were related. The data provide different types of information in regard to the results, in order to produce a better understanding of the research questions.

The quantitative aspect of this design used a quasi-experimental methodology as the research lacks the element of random assignment to the treatment or the comparison groups (Thyer, 2012). Professors volunteered to participate in this study, groups were intact. Two professors taught four courses which were identified treatment sections, and two professors who taught four other courses that were identified as comparison course sections. Since the professors volunteered to be a part of the specific condition, neither students nor classrooms were randomly assigned to the treatment or comparison groups.

The qualitative design was case study (Yin, 2009) for the analysis of the qualitative data and inductive coding to study the use of Mindset language in response to self-efficacious college-oriented tasks embedded within the SAPPAM questions, for students who participated in the treatment. Data were gathered using focused interviews as well, three times in the semester. There was also a Fidelity of treatment checklist utilized three times in the semester.

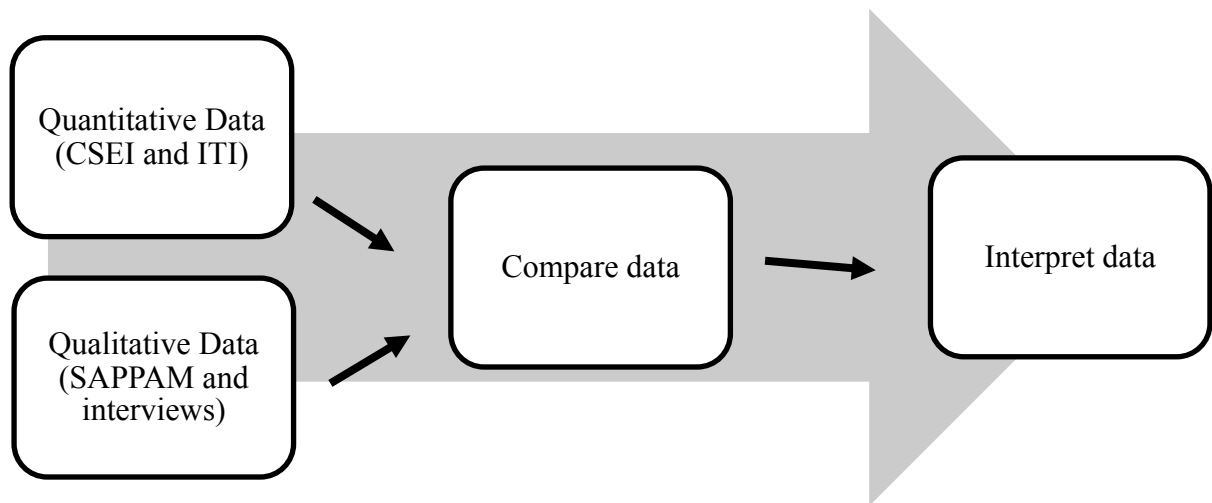


Figure 2. Convergent Parallel Mixed Methods Model. Adapted from Cresswell & Plano Clark, 2007, p. 68.

The treatment group members verbally received language delivered by a professor who used a list of 60 terms adapted from the Mindsetmaker (2016): Growth Mindset Framing and Feedback Tools. Permission to use the tools was not required; the tools are free resources offered on the Mindworks website. Still, the researcher received permission to use the words from the company via L. Blackwell (personal communication, June, 28, 2018). See Appendix P.

The treatment group members completed a pretest and pos-test CSEI (Solberg, et al., 1993), a pretest and posttest ITI (Dweck, 1999), and a demographic survey. During the semester, the treatment group answered the prompts from the researcher-developed self-reflective instrument consisting of eight Self-Assessment Prompts on Performance Accomplishments and Mindset (SAPPAM). These eight prompts pertain to collegiate experiences, to allow for metacognition and self-assessment in response to receiving mindset language in the classroom; studies demonstrate such written reflection engages students in reflective learning, and enhances metacognition (Schunk, 2001; Sundstrome, 2004).

The comparison group only completed a pretest and pos-test CSEI (Solberg, et al., 1993), a pretest and posttest ITI (Dweck, 1999), and a demographic survey.

Research questions one and two utilized quantitative pretest-posttest data that included two dependent variables. Data were collected from the treatment and control groups with respect to the three mean sub-scale scores for the College Self-Efficacy Inventory (dependent variable) and question two was with respect to scores of the Implicit Theories of Intelligence (dependent variable). Research questions three was of general qualitative research design. In this type of design, general qualitative research characteristics are found within this study, including data that are not numerical in nature but are needed to understand behavior (Bogdan & Biklen, 2007).

Instrumentation

Several instruments were used in this study. The following section provides a discussion of the (a) demographic survey, (b) College Self-Efficacy Inventory (CSEI), (c) Implicit Theories of Intelligence (ITI), (d) Self-Assessment Prompts on Performance Accomplishments and Mindset (SAPPAM), (e) Classroom Observation Fidelity Checklist, and (f) Focus Group Interviews.

Demographic Survey

A brief demographic survey contained self-reported information from participants, including gender, age, selected major, ethnicity and self-reported high school GPA (See Appendix D for a copy of the survey). Students were given the opportunity to provide their email and phone number information, so they could be contacted for focus group interviews. The demographic data were collected in August 2017 from both the treatment and comparison groups.

College Self-Efficacy Inventory (CSEI)

Barry & Finney (2009) investigated the validity and reliability of the College Self-Efficacy Inventory (Solberg, et al., 1993). The 20-item instrument were developed from college self-help manuals and a team of six experts (Solberg, et al., 1993) to measure confidence on three subscales (academic – eight items, social – five items, and roommate- four items). This confidence to perform tasks associated with college success is measured on a 10-point Likert scale. A fourth subscale was added in a study published in 1998 (Solberg, et al.) to confirm there are three items connected to feeling associated with an institution. The scale has been strongly associated with college adjustment (Solberg, 1993); validity results were determined (Solberg, et al., 1998). Solberg et al. (1998) checked the dimensionality of the 20-item CSEI using a varimax rotation on a sample of 388 first- and second-year students and a four-factor solution emerged: Course, Roommate, and Social Self-efficacy items ($\alpha = .86, .89, .79$, respectively), with the fourth component, Social Integration Efficacy ($\alpha = .62$). Barry and Finney (2009) reported the CSEI items appear to have adequate reliability. Permission was granted to use this instrument from V. Scott Solberg and his graduate student, Ellie Castine of Boston University (personal communication November 6, 2015); they expressed interest in hearing the results of this study.

The 20 questions are on a 10-point Likert scale. The 20 questions are in subscales for this assessment: subscale 1 - course self-efficacy (questions 4, 8, 9, 14, 17, 18, 19), subscale 2 - roommate self-efficacy (questions 2, 15, 16, 20), subscale 3 - social self-efficacy (questions 1, 3, 5, 6, 11, 13) and subscale 4 - social integration self-efficacy (questions 7, 10, 12). The study utilized the raw total score from this test, as well as the four factor means, as recommended by Dr. Solberg (Personal communication, September 30, 2017).

However, subscale 2 (roommate self-efficacy: questions 2, 15, 16, 20) was removed from the study, as it pertained to roommate self-efficacy, and this was not a construct for the study. The roommate items were specifically geared toward social interactions with those whom the participants lived (Barry & Finney, 2009), and therefore, this subscale did not apply to the academic lens of this study. This study was primarily concerned with items included in the academic self-efficacy scale (e.g., “Write a course paper,” “Do well on your exams”), as well as many social items that pertained to communication. The roommate self-efficacy scale items ($n = 3$) were omitted from data collection, as similarly demonstrated by researchers such as Wernersbach, Crowley, Bates and Rosenthal, (2014).

Implicit Theory of Intelligence Scale (ITI)

In accordance with Dweck’s (1999) findings, students may have two different “theories” about the nature of their intelligence. Some think intelligence is a fixed concept (entity theory); others think of intelligence as a malleable quality (incremental theory) that can be developed (Blackwell, Trzesniewski, & Dweck, 2007). According to this theory, for any given individual, intellectual ability can always be further developed (Sternberg & Horvath, 1998).

The self-theory version of the theories of intelligence scale was based on the original measure by Dweck (1999) to gauge whether adults had fixed mindset or a malleable, growth mindset (two subscales). The eight items each contain a first-person claim about the extent to which intelligence was fixed or malleable, and efforts were made to ensure items stayed closely aligned to the originals in connection to the newest version (Castella & Byrne, 2015). The six-point Likert scale measures if participants strongly agree (1) or strongly disagree (6) with statements about the malleability of intelligence. Incremental items were reverse scored and the average scores across the eight items provided a measure of students’ entity beliefs about their

own intelligence, and, like original scale, the new version scale had internal consistency, $\alpha = .90$ (Castella & Byrne, 2015). It has test-retest reliabilities at two weeks, $\alpha = .80$ to $.82$ (Dweck, Chiu & Hong, 1995). There is good construct validity with scores predicting theoretically meaningful relationships with many variables (Dweck, et al., 1995). There is good discriminate validity against many confounding variables (Dweck, et al., 1995). According to Castella & Byrne (2015), the general implicit theories of intelligence scale demonstrated good internal reliability with a combined Cronbach's alpha for the general entity and incremental subscales of $.87$. Per Dr. Carol Dweck, when planning to administer the measure more than once, just items 1, 2, 4, and 6 may be given; she also granted the use of ITI (personal communication, October 4, 2016) knowing the study was with college freshmen.

Self-Assessment Prompts on Performance Accomplishments and Mindset (SAPPAM)

The researcher developed eight writing prompts pertaining to both self-efficacy and mindset. The prompts were constructed after analyzing the 20 statements in the CSEI, and the eight statements in the ITI. Self-efficacy judgments are specific to certain tasks in certain situations (Bandura, 1977); therefore, each prompt contains college performance accomplishment, followed by language derived from the Mindsetmaker (2016): Growth Mindset Framing and Feedback Tools.

In March 2017, the researcher showed the draft of the SAPPAM to five professors with experience working with first year students, and five freshmen students. The professors and students offered feedback, such as diction changes, semantic alterations, and a repeated prompt (first and last). The feedback from each professor and each student was given in a one-to-one setting, but there was a continuity among the suggestions and changes among the 10 people. In

turn, a second version of the SAPPAM was created. This became the final draft of the SAPPAM employed in this study.

The responses are to SAPPAM prompts which were purposely worded to reveal self-efficacious reflections upon collegiate performance accomplishments (Bandura, 1977) and thoughts regarding their mindset. The wording of the SAPPAM is derived from terms used in the CSEI (Solberg, et al., 1993) and the ITI (Dweck, 1999). The supportive evidence regarding the reliability of self-assessment is positive in terms of consistency across tasks, across items, and over short time periods (Ross, 2006). Self-reflective practice involves self-monitoring, which leads to higher self-efficacy, persistence, and achievement; such practices give students opportunities to assess their capabilities or progress in learning (Schunk & Zimmerman, 1998). A copy of the SAPPAM is located in Appendix G.

Prompts were given alternating weeks in one semester to four classes in the treatment group. A total of eight prompts were answered by the participants over the course of a fifteen-week semester. Students received prompts from the researcher at the end of the class; students spent no more than five minutes on each prompt. Responses were hand-written beneath the type-written prompt.

The SAPPAM had to be validated. The SAPPAM were originally drafted by the researcher in November 2016. The researcher presented the first draft to five college freshmen at a different university, six months prior to administering a treatment. The students were asked to read the prompts and make changes to the wording if they felt changes were necessary. This helped validate the prompts, and ensure the language was “friendly” for college freshmen. The freshmen gave very little feedback, and then, the prompts were given to five professors also six months prior to administering the treatment. These professors all had taught first-year students

for at least two semesters. The professors gave valuable feedback, offered diction changes, and suggested that the first prompt be given at the end of the study as well, hence the first and eighth prompt are virtually the same. The questions were also suggested to be broken into two segments on the actual paper and given on smaller sheets of paper to appear less arduous or burdensome. Many of the valuable suggestions were incorporated into the final draft of the prompts, adding to the validity of the instrument.

Table 10

8 SAPPAM Prompts

Week	Prompt
2	Why did you decide to attend college? Did you leave your comfort zone? If so, how?
3	Do you communicate with professors? If so, do you discuss your challenges? Why or why not?
5	Do you participate in class? If so, does it involve risk taking? Why or why not?
6	Do you study for your exams? If so, what strategies are you using?
7	Do you manage your time in college? If so, what strategies are you using?
10	Did you make friends on campus? If so, how have they helped you, and have you helped them?
12	Has college challenged your intelligence? If so, how? Did you make progress? If so, how?
14	Why did you decide to attend college? Did you grow as a college student? Why or why not?

Classroom Observation Fidelity Checklist

The classroom fidelity checklist was used in the treatment classes by the researcher to gauge implementation. It contains 60 terms from Mindsetmaker (2016): Growth Mindset Framing and Feedback Tools, and serves as a checklist, located in Appendix H, to note if professors used mindset language in the classroom. The researcher placed this checklist on Google Sites, and made the list an interactive checklist for ease of recording each term used by professors in their classrooms.

Four treatment classrooms were observed three times. The researcher used a Fidelity of Treatment checklist to check if the sixty terms or related derivatives of the terms were utilized in class time by the professor. The researcher sat in the back, right hand corner of each classroom with a laptop and stylus. The researcher entered each classroom three times and students were informed that the researcher would be sitting in the back of the class, simply observing during week 6, week 10, and week 12. By week 6, professors had been informed to deliver 25 mindset terms. By week 10, professors had been informed to deliver 40 mindset terms. By week 12, professors had been informed to deliver 50 mindset terms.

Focus Group Interviews

The purpose of the interviews was to illuminate quantitative data gathered from the treatment group. Students from the treatment group were invited to partake in voluntary focused interviews. On the initial demographic survey from the pre-data collection in August, the students who were willing to volunteer for the interviews placed their email and phone number on the demographic survey. The researcher then contacted the 31 who offered their contact information for interview purposes. Out of the 31 who presented information on the demographic survey, 6 responded to emails and 0 responded to phone calls.

The researcher asked students questions and record their perceptions regarding research question three. The interviews ranged from 7-12 minutes. One set of questions related to the SAPPAM prompts was asked to the group. One group of 2-3 students from treatment group were interviewed in weeks 3 9, and 15. One focus group interview was held September 26, 2017. The second was held on October 31, 2017. The third was held on November 28, 2017, though no students attended. Students signed brief permission forms, since responses were recorded on an iPhone application, transcribed by a third party, and then analyzed by the researcher.

A total of three students participated in the first of three interviews. The students were asked questions related to the SAPPAM Prompt #1: Why did you decide to attend college? Did you leave your comfort zone? If so, why? In the second interview, two students attended and answered questions about another college-oriented performance accomplishment (Bandura, 1977) based line of questioning pertaining to an academic skill needed in college from SAPPAM #2: Do you communicate with professors? If so, have you encountered any challenges? Why or why not? In the final interview, there were not any students who attended to answer the first question to look back in hindsight: Why did you decide to attend college? Did you leave your comfort zone? If so, why?

Table 11 represents the number of attendees for each of the three interviews.

Table 11

Focused Interview Attendees

	Attendees
Interview 1	3
Interview 2	2
Interview 3	0

Procedures

Consent

In August at the first class of the Fall 2017 semester, consent forms to the freshmen (Appendix K) were distributed by the researcher to six classes, three treatment classes and three control classes. Students were asked to voluntarily give consent if they were eighteen years and older. They were not permitted to be in the study if they were not eighteen years of age. There was also a demographic survey distributed (Appendix D) was also administered to student participants, followed by the CSEI (Appendix E) and the ITI (Appendix F). To ensure fidelity of implementation during the 15-week intervention period, the researcher remained in contact with all participating professors through email and entered the classroom three times using the Fidelity Checklist (Appendix L). The researcher communicated multiple times in the semester with each professor.

Professor Training

The researcher trained the two professors of the treatment group, during individual sessions at the end of the previous semester (Spring 2017), and at the beginning of the semester in which the study was conducted (Fall 2017). The researcher met with each of the two professors in 60-minute intervals. In May, the researcher met with each professor twice. The first session was to show a short five-slide power point to briefly describe the overview of the study and the theories behind the research. The first session also entailed distributing the consent forms. The second meeting entailed the distribution of a hard-copy of the training materials. The professors were each given the book *Mindset: The New Psychology of Success* (Dweck, 2006), and a binder that contained the overview of the study with a thank you note, timeline, and a hard-copy of the 60 growth mindset language words and phrases to be used each week

(Appendix M). Also, professors received copies of the eight SAPPAM prompts, and were provided with information about when and how to collect data with the researcher.

At the end of each informational pre-training session, the researcher also held a question and answer period. Then, the researcher administered a demographic survey (Appendix R) to the professors in May.

In August, professors in the treatment were trained on: (a) the schedule for language delivery, (b) what the language is, and (c) how it applies to growth mindset. During the training, professors reviewed the study content once with the researcher, and then professors were asked to witness a 20-minute video purchased by the researcher from MindsetWorks (2016). The module was housed in a facet of the MindsetWorks (2016) website called MindsetMaker Online Professional Development. “The Malleable Mind” was shown to the treatment professors. A discussion was conducted afterward. The treatment professor training cycle is noted in Figure 3 to show the process of acclimating professors to the study.

The researcher also met with the two comparison group professors who agreed to offer their classrooms for pre- and post-data collection. The researcher received consent forms in one session in May prior to the fall semester. Both professors were debriefed regarding the study. They asked questions of the researcher as well. The researcher also reviewed the IRB paperwork with the two comparison group professors.

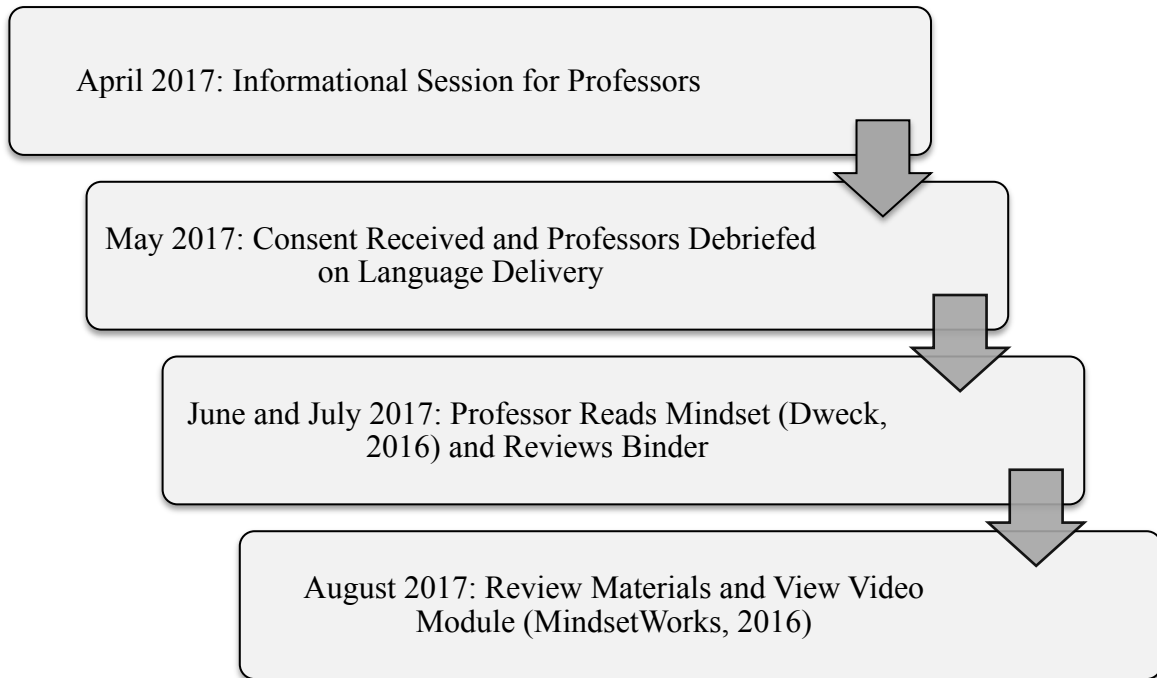


Figure 3. Treatment Professor Training Cycle

The treatment professors were exposed to the training and received a copy of 60 mindset-oriented terms that were to be delivered by them in the classroom. The professors noted several of the 60 terms and phrases were ones they use naturally, such as “plan” and “challenge yourself.” Other terms they found to be new but useful, such as “overcome barriers to success” and “deepen understanding.” The 60 terms are located in Appendix E. They are then broken down into the 12 weeks of delivery (five terms per week) indicated later in Table 12.

Professors were encouraged to incorporate a prescribed five terms each week (12 weeks) into his or her instruction, to promote a growth mindset. Words such as “progress,” “stretch,” “strategies,” and “plan” are utilized to heighten students’ awareness of their thinking processes. The words were derived and inspired by a tool that had not been used with collegiate students, and permission had been granted to access and use the tool by Dr. Lisa Blackwell (personal communication, October 21, 2016).

In the treatment binder, professors received the sixty words in 12 segments, with five words per set. They were instructed to deliver the five terms (at minimum) for each week over the course of the fall semester. At the beginning of each week in the semester, treatment professors received a reminder email, so they were aware of the five terms for the week. Also, all materials in the binder were accessible on Google Drive in an electronic format.

Description of Classrooms

Comparison Classrooms

Description of Activities. Students in the comparison group continued with the regular professor curriculum for 15 weeks (one semester). The two professors taught four sections of Psychology 101 in a building on the main campus. The professors permitted the researcher to distribute the Demographic Survey, CSEI and ITI at the beginning of the semester during the first class (last five minutes). At the end of the semester, the researcher was permitted to enter the classroom in week 15 and distribute the post CSEI and ITI surveys to the participants who had given the researcher permission in the beginning of the semester.

Treatment Classrooms

Description of activities. Students in the treatment group utilized the eight SAPPAM writing prompts approximately every 2-3 classes. They also received the 60 terms (words and

phrases), in intervals of five terms per week. The professors received the phrases in their training binders, but the words were also given in weekly reminders via email. Professors in these treatment groups were permitted to weave the five terms per week into the lesson as they felt. It was important to the researcher that the course content was not interrupted or altered drastically, and therefore, each professor was permitted to incorporate the terminology accordingly.

Mindset-Oriented Language. The language was derived from the MindWorks (2016) program, specifically the free teacher resource pages available online through membership to the company website. The words and phrases were common terms noted in the wording of the Growth Mindset Framing Tool and the Feedback Tool which are used as part of a program through MindsetWorks Mindset Maker (2016). The terms were noted were commonly used in everyday speech, such as “communicate,” “try,” and “proud of yourself.” The program is delivered to students in elementary, middle and high school, but has not been used for collegiate level students. College freshmen, or first-year students, are often the same age as high school seniors. The mean age of the students in this study was 18.35, with a range of 18 to 23. High school seniors range in age, often between 16 and 18 years old in the United States. Therefore, experimenting with Mindset language on a population of students relatively like those in other studies is viable (National Center on Scaling Up Effective Schools, 2014). Words were delivered to students during weeks 2 through 14 of the semester. Terms were not delivered during the first and last class of the semester, nor the mid-semester break. Table 12 illustrates the delivery schedule.

Table 12

12-Week Treatment: 60 Terms

Week	Terms
2	opportunity, stretch beyond comfort zone, grow, lesson is learning, learning target
3	here to help, challenge yourself, chances to improve, push yourselves, tackle this concept
4	mistakes are normal, try, risk-taking, make connections to understand, set the bar high
5	communicate, progress, push you, master this learning, be proud
6	succeed, this isn't easy, learning strategies, mistakes are welcome, we learn from our mistakes
7	struggling, break it down into steps, admire your persistence, appreciate your mental effort, describe your process
9	fix mistakes, write a plan, practice and learn, reassess, discuss a plan
10	realize how much progress, you didn't quit, using strategies/tools/notes, proud of effort put forth, ready for something more difficult
11	solve the problems in different ways, deepen our understanding, helping others, strategizing, goals
12	achieve those goals, put forth effort, new strategies, barriers to your success, improvement is your goal
13	choices contribute to outcomes, share what is confusing, mistakes help me support you, your hard work is clearly evident, proud
14	you need to be challenged, you stayed persistent, manage your time, grown, effort paid off

Researcher Log

The researcher recorded brief notes for conversations held with the professors in the treatment groups. The log was housed on Google Forms and in email.

Description of Data Analysis

A Multivariate Analysis of Variance (MANOVA) was conducted to examine the first research question: Is there a statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not, with respect to three mean sub-scale scores (academic, social, and social integration) for the College Self-Efficacy Inventory?

This study used a quasi-experimental design where pretest and posttest data were collected from both the treatment group and the comparison group. The researcher utilized the Statistical Package for the Social Sciences (IBM, 2016) to analyze descriptive and inferential statistics. Program type was the Independent Variable, with students in treatment and comparison groups. The dependent variables were the scores for the College Self-Efficacy Inventory. The alpha level to test for significance was set at .05.

An Analysis of Variance (ANOVA) was conducted to examine the second research question: Is there a statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not, with respect to perceptions of intelligence for the Implicit Theories of Intelligence Scale?

This study used a quasi-experimental design where pretest and posttest data were collected from both the treatment group and the comparison group. The researcher utilized the Statistical Package for the Social Sciences (IBM, 2016) to analyze descriptive and inferential statistics. Program type was the Independent Variable, with students in treatment and

comparison groups. The dependent variables were the scores for the Implicit Theories of Intelligence. The alpha level to test for significance was set at .05.

Research question three asked: How do students perceive self-efficacy in their responses regarding university life? The was qualitative in nature; data were analyzed using cycle coding as described by Creswell & Plano Clark (2007). The researcher coded the responses from the SAPPAM prompt responses and placed in one column, using HyperRESEARCH (2016). The researcher coded the data again in the adjoining column and examined the data for ongoing themes. Then themes emerged from that second-cycle coding for each question. Subthemes and themes emerged in fully in third level of coding, with a total of two identified themes. Consolidation of the original coding occurred for the overall themes to emerge.

The researcher also counted the number of terms (MindsetWorks, 2016) and related derivatives using the frequency function of HyperRESEARCH (2016). The researcher used the 60 terms given to the professors which were also the 60 terms used on the Fidelity of Treatment.

After the study, the researcher met with an auditor who reviewed the data from research question 3. The auditor examined the surveys, the data collection, the coding, and analysis. The review from the auditor can be found in Appendix Q.

Description of Data Collection Procedures and Timeline

Table 13 displays the timeline for the study. The first part of the timeline shows the researcher gathering participants for the study and obtaining consent. The treatment started and finished within one semester at a university. The semester was Fall 2017.

Table 13

Research Timeline

Date	Research Procedures
February 2017	Received IRB approval via email.
February 2017	Sent out initial emails to provost and two deans at the college.
March 2017	Obtained permission from the provost, deans, and contacted professors who may be interested in partaking in the study.
April 2017	Received permission from four professors (two treatments and two comparison professors); met with all four, and distributed training materials to the treatment professors and administered demographic surveys.
May 2017	Provided professional development and study resources for treatment teachers.
August 2017	Met with treatment professors for further training and the viewing of the MindsetWorks (2016) training module. Collected pre-data from eight courses (four professors)

(continued)

Table 14

Research Timeline

Date	Research Procedures
August 28 – September 5, 2017	Researcher administered and collected the pre CSEI, ITI and demographic surveys in both the treatment (four sections) and comparison groups (four sections).
September 5, 2017	The growth mindset language intervention began.
September 26, 2017	Fidelity of treatment taken in treatment classes. Focus Interviews #1
October 31, 2017	Fidelity of treatment taken in treatment classes. Focus Interviews #2
November 28, 2017	Fidelity of treatment taken in treatment classes. Focus Interviews #3
September to December 2017	Treatment classes provide eight SAPPAM prompt responses for qualitative data.
December 6, 2017	Growth Mindset treatment ended.
December 11-14, 2017	Researcher administered and collected post CSEI and ITI in both the treatment and comparison groups (8 courses)
December 15, 2017 – January 31, 2018	Researcher coded and analyzed quantitative and qualitative data.

Ethics Statement

Written permission was obtained first from the WCSU Institutional Review Board (IRB) in February 2017. After debriefing the Provost, permission was obtained by the Dean of the business school, Dean of graduate studies, and the Dean of liberal arts and sciences was obtained in February, March and May 2017. Next, permission was obtained from the students. All students participating were 18 years of age or older. Students were given a number identifier, or code, that was used to maintain confidentiality. The professors in the treatment and comparison groups were assigned a letter.

When the students were finished with the pretest, posttest, demographic survey and prompts, the researcher matched the name of the student with his or her number identifier, or code, which was then recorded on the sheets when compiling the tests and surveys for the researcher. All consent forms, tests, surveys, written responses to prompts and any notes from professors were kept in a locked filing cabinet by the researcher. The data collected was kept in a password protected electronic database, as well as the Fidelity of Treatment checklists and the notes taken by the researcher.

CHAPTER FOUR: ANALYSIS OF DATA AND FINDINGS

The purpose of this study was to examine college freshmen's perceptions of self-efficacy and mindset after the first collegiate semester. The researcher explored whether the use of mindset language in the classroom, as delivered by the professor, pervaded students' self-perceptions of their mindset and self-efficacy. To accomplish this, three research questions were addressed in this study. This chapter presents a discussion of the three research questions:

1. Is there a statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not, with respect to three mean sub-scale scores (academic, social, and social integration) for the College Self-Efficacy Inventory?

Non-directional hypothesis: There will be a statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not, with respect to three mean sub-scale scores (academic, social, and social integration) for the College Self-Efficacy Inventory.

2. Is there a statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not, with respect to perceptions of intelligence for the Implicit Theories of Intelligence Scale?

Non-directional hypothesis: There will be a statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not, with respect to perceptions of intelligence for the Implicit Theories of Intelligence Scale.

3. How do students perceive self-efficacy in their responses regarding university life?

Chapter Four displays the results from this study. First there is a section on the description of the data, followed by three sections, one for each of the research questions. Research Question 1 details pretest and posttest data preparation which identified 13 outliers. These outliers were removed and detailed in sections titled pretest and posttest data with outliers removed. This is followed by data analysis of Research Question 1. Results of Research Question 2 include qualitative open coding and word analysis. Findings are then presented. Lastly, the results of Research Question 3 with the description of qualitative open coding and word analysis are presented with findings reported.

Research Question 1

Description of the Data

Quantitative data was gathered from a sample of convenience from intact first-year courses for both comparison and treatment groups. The researcher utilized the Statistical Package for the Social Sciences (IBM, 2016) to analyze descriptive statistics and boxplots. The evaluator completed an evaluation of the data from the total sample ($n = 83$). There were no missing data.

The researcher followed the procedures outlined by Meyers, Gamst, and Guarino (2006) to analyze descriptive statistics. Data cleansing occurred; the researcher visually inspected the data first during the data cleaning process to inspect for missing values; the researcher noted missing values within the sample to allow the sample size to remain constant. In the initial cleansing of the data, the researcher also analyzed the pretest scores to be sure the treatment and control groups were similar. The pretest scores for self-efficacy did not meet these assumptions and therefore eight outliers were removed from pre and posttest analysis, along with subscale 2 (roommate self-efficacy). Then, skewness and kurtosis values fell within acceptable ranges

according to D'Agostino, Belanger & D'Agostino (1990). According to D'Agostino et al. (1990), skewness and kurtosis values that were less than +2.0 or -2.0 are deemed appropriate for determining normality.

To avoid an inflated Type 1 error rate, a Bonferroni correction was used to adjust the alpha level of .05, which was divided by two because there were two analyses run, resulting in an alpha level of .025 (Meyers et al., 2006). The alpha level of .0125 was utilized for statistical analyses.

Pretest Data Preparation: College Self-Efficacy Inventory. Research Question one guided the examination of the statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not, with respect to three mean sub-scale scores (academic, social, and social integration) for the College Self-Efficacy Inventory. The researcher analyzed box plots and descriptive statistics to screen all data from the sample ($n = 83$). Data were screened for outliers, missing values, and violations of statistical assumptions.

Assumption of Independence. The researcher considered Assumptions of Independence by separating the treatment and comparison groups. The two groups were independent of each other. These groups were separated by having the treatment groups in one set of courses and the comparison groups in other courses. By having the groups in separate courses, participants in the comparison group did not receive any components of the treatment. After identifying missing data, outliers and then aligning values with post data collected, the sample size included $n = 83$ students, 45 within the treatment group, and 38 within the comparison. The researcher visually inspected the data first during the data cleaning process to inspect for missing values;

the researcher noted missing values within the sample, to allow the sample size to remain constant.

Boxplots were initially reviewed for the CSEI (Solberg, et al., 1993). There were extreme values that were found in both the treatment and comparison groups, prior to the removal of CSEI subscale 2 (roommate self-efficacy). As Meyers et al. (2006) states, box plots were utilized for the treatment and comparison groups to show evidence of outliers. There were extreme cases of outliers which occurred for students 18, 26, 40, 54, 55, 74, 82, 86. Therefore, when CSEI subscale 2 (roommate self-efficacy) was removed, this alleviated the problem of extreme values and adjusted the kurtosis. This reduced the sample to 83 after removing three other outliers 2, 27, 71 due to extreme values. Outliers 48, 83 and 73 were kept in the dataset, as the range of values in the population was not as extreme as other values and did not impact skewness and kurtosis. Figures 4, 5 and 6 reveal box plots for the CSEI (Solberg, et al., 1993) for subscales on course self-efficacy, social self-efficacy, and social integration self-efficacy.

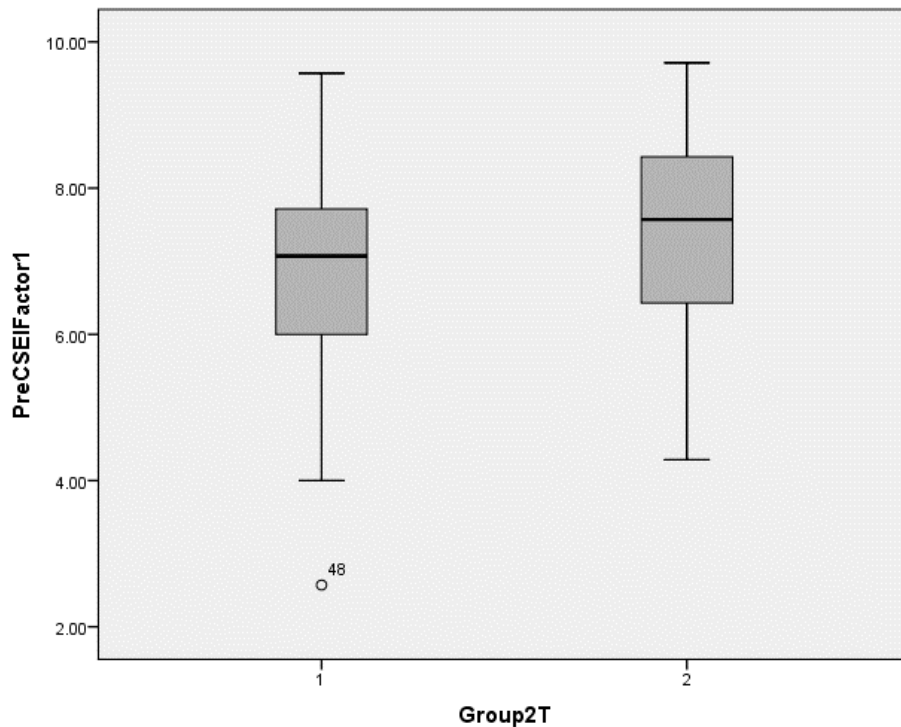


Figure 4. Box Plot for CSEI Course Self-Efficacy Subscale by Group

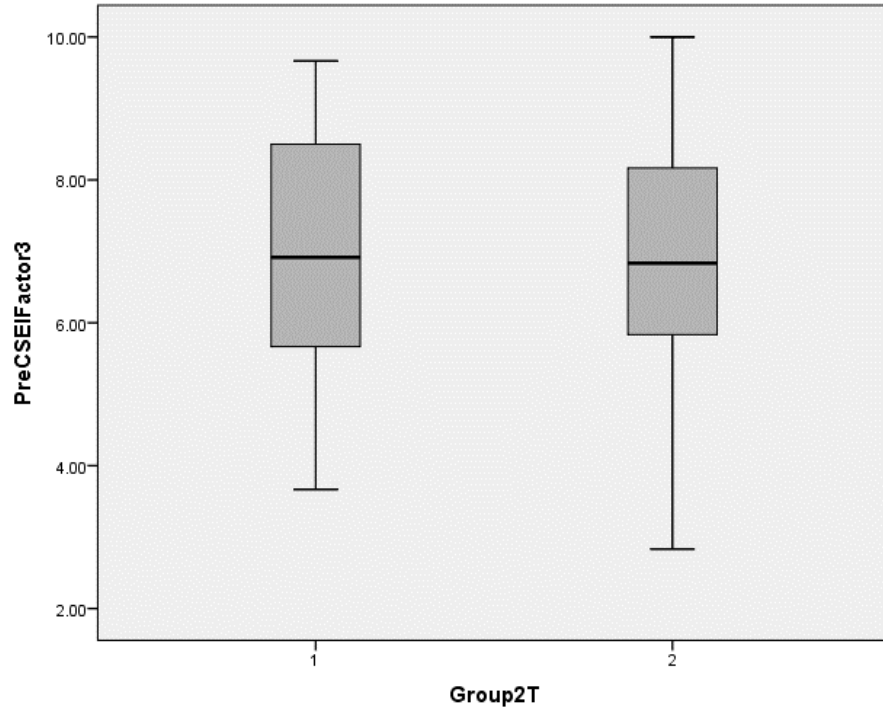


Figure 5. Box Plot for CSEI Social Self-Efficacy Subscale by Group

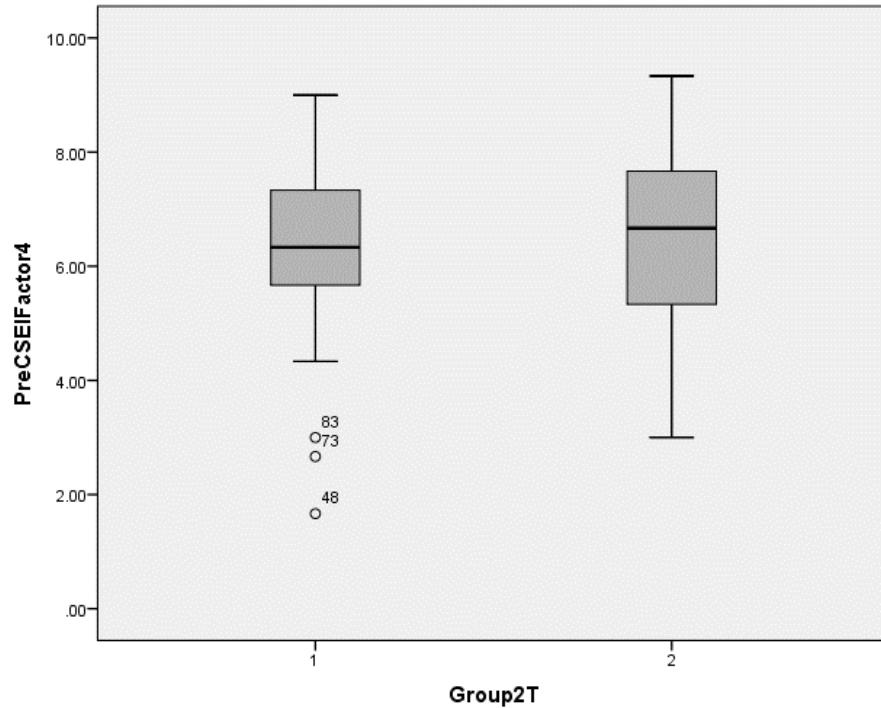


Figure 6. Box Plot for CSEI Social Integration Subscale by Group

Assumption of Normality. To assess the data normality, the researcher conducted an evaluation of outliers. The normality of the distribution of raw scores for the experimental and comparison groups were examined. The Shapiro-Wilk analysis was reported for this study for the CSEI (Solberg, et al., 1993). Results indicated that there was no significant normality assumption violation at the .001 alpha level, between college freshmen students who received mindset language intervention and those who did not. Skewness values for the treatment group included the course self-efficacy subscale at -.37, the social subscale at -.52 and the social integration subscale at -.20. Kurtosis values for the treatment group included the course self-efficacy subscale at -.59, the social subscale at -.28 and the social-integration subscale at -.86. Skewness values for the comparison group included the course subscale at -.83, the social subscale at -.28 and the social-integration subscale at -.86. Kurtosis for the comparison group

included the course subscale at 1.2, the social subscale at -1.01, and the social-integration subscale at .97. Results from the Shapiro-Wilks test between the treatment and comparison groups are displayed in Table 15.

Table 15

Shapiro-Wilk Test of Normality for CSEI Pretest Scores

CSEI Subscales	Significance	
	Treatment	Comparison
Course Self-Efficacy	.212	.109
Social Self-Efficacy	.105	.186
Social Integration Self-Efficacy	.214	.058

Descriptive statistics for research question 1: CSEI. Descriptive statistics were utilized to examine the pretest mean scores between the three areas of collegiate life: course self-efficacy, social self-efficacy, and social-integration self-efficacy. The researcher examined the CSEI pretest analysis. The three subscales reflect standard deviations ranging from 1.42 to 1.70 with means ranging from 6.32 to 7.20 on a 10-point Likert scale. Skewness and kurtosis values fell within acceptable ranges. Descriptive statistics are located in Table 16.

Table 16

Descriptive Statistics for CSEI Pretest Scores on 10-Point Likert Scale

	Mean		SD		Skewness		Kurtosis	
	T	C*	T	C	T	C	T	C
Course Self-Efficacy	7.42	6.93	1.36	1.46	-.37	-.83	-.59	1.20
Social Self-Efficacy	6.95	7.01	1.82	1.55	-.52	-.19	-.28	-1.01
Social Integration Self-Efficacy	6.35	6.28	1.75	1.65	-.20	-.72	-.86	0.97

*T= Treatment, C= Comparison; n =83 (T= 45, C=38)

Correlations. The researcher analyzed Pearson product-moment correlation coefficients to determine the relationship between variables among CSEI (Solberg, et al., 1993) subscales. According to Meyers et al., (2006), in order to test for multivariate effects, correlations must be moderately correlated. Correlations were used to demonstrate positive association between subscales. The following table displays pretest correlations and subscales range from moderately correlated, as they do not exceed .70 (Meyers et al., 2006). Correlations identified the relationship among variables is positive and moderate in strength. Table 17 shows the correlations between pretest variables.

Table 17

Bivariate Correlations for the CSEI Pretest Scores

	1	2	3
1.Course Self-Efficacy	-	.376**	.641**
2.Social Self-Efficacy		-	.648**
3.Social Integration Self-Efficacy			-

** Correlation is significant at the 0.01 level (2-tailed).

Homogeneity of variance-covariance matrices. The researcher examined the assumption of equal variances among both experimental and comparison groups with the Box M test for homogeneity of variance-covariance. Once several outliers had been removed when cleansing data, the researcher ran a Box's Test of Equality of Covariance matrices to assess the following assumptions as stated by Meyers et al. (2006): (a) normality, (b) linearity, (c) homogeneity of variance, (d) independence of samples, and (e) homogeneity of slopes. The assumptions must be met so the researcher could interpret the data accurately. These results were significant ($p < .05$) which indicated that the assumptions of homogeneity were not met and the matrices were unequal, shown in Table 18.

Table 18

Box's Test of Equality of Covariance Matrices for CSEI Pretest Scores

Box's M	19.32
<i>F</i>	1.83
<i>df1</i>	10.00
<i>df2</i>	29359.93
Significance	.02

As displayed in Table 19, a Bartlett's Test of Sphericity was conducted to test if the null hypothesis was proportional to the identity matrix. This demonstrates equal variances across samples. The Bartlett's Test of Sphericity relates to the significance of the study and shows validity and suitability of the responses collected through the study (Meyers, et al, 2006).

Table 19

Bartlett's Test of Sphericity for CSEI Pretest Scores

Likelihood Ratio	.00
Approx. Chi Square	90.70
<i>Df</i>	5.00
Significance	.00

Pre-test data analysis for question 1: CSEI. The researcher ran a Multivariate Analysis of Variance tests (MANOVA) of the CSEI (Solberg, et al, 1993) for three subscales. According to Meyers et al. (2006), when Box M is significant, Meyers et al. (2006) Pillai's Trace is used to address this assumption violation because Pillai's Trace has a "robustness in the presence of

unequal variate variance” (432). The Pillai’s Trace compared the means of the treatment and comparison groups for this study. The multivariate effect for pre-test CSEI was not statistically significant for Pillai’s Trace at .044, $F(3, 79) = 1.211, p = .311$. Refer to Table 20.

Table 20

Results for a MANOVA Test Comparing Treatment and Comparison Groups for Research Question 1 CSEI Pretest Scores

Multivariate Test	Value	<i>F</i>	Hypothesis <i>df</i>	Error <i>df</i>	Sig.
Pillai’s Trace	.044	1.211	3	79	.311

Post-test: Description of the data for College Self-Efficacy Inventory. Again, a sample of convenience was utilized from an intact first-year course groups for both comparison and treatment groups. The researcher utilized the Statistical Package for the Social Sciences (IBM, 2016) to analyze box plots and descriptive statistics to screen all data from the sample ($n = 83$). Data were screened for outliers, missing values, and violations of statistical assumptions.

Posttest data preparation: College Self-Efficacy Inventory. Research Question 1 focused on the self-efficacy and mindset scores of college freshmen. The treatment group were intentionally exposed to mindset-oriented terms used by the professors and the comparison group was not exposed to terms by the course professor. To determine if there was a significant difference between CSEI and ITI posttest scores between the comparison group and the treatment group, the researcher conducted a Multivariate Analysis of Variance (MANOVA). The researcher analyzed descriptive statistics, and box plots to screen all data from the sample ($n = 83$). Data were screened for outliers, missing values, and violations of statistical assumptions.

Assumptions of independence. The researcher considered assumptions of independence by separating the treatment and comparison groups and having the two groups be independent of each other. These groups were separated by having the treatment groups in one school and the comparison groups in different schools.

Assumption of normality. To further evaluate the data normality, the researcher conducted an evaluation of the outliers. The normality of the distribution of CSEI scores were tested. Box plots were reviewed for all variables. No extreme values that were found in both the treatment and comparison groups because they were removed. Outliers 37 and 48 remained; these outliers and the range of values in the population was not as extreme as the other values. As Meyers et al. (2006) recommended, box plots were utilized for the treatment and comparison groups which showed any evidence of multiple outliers.

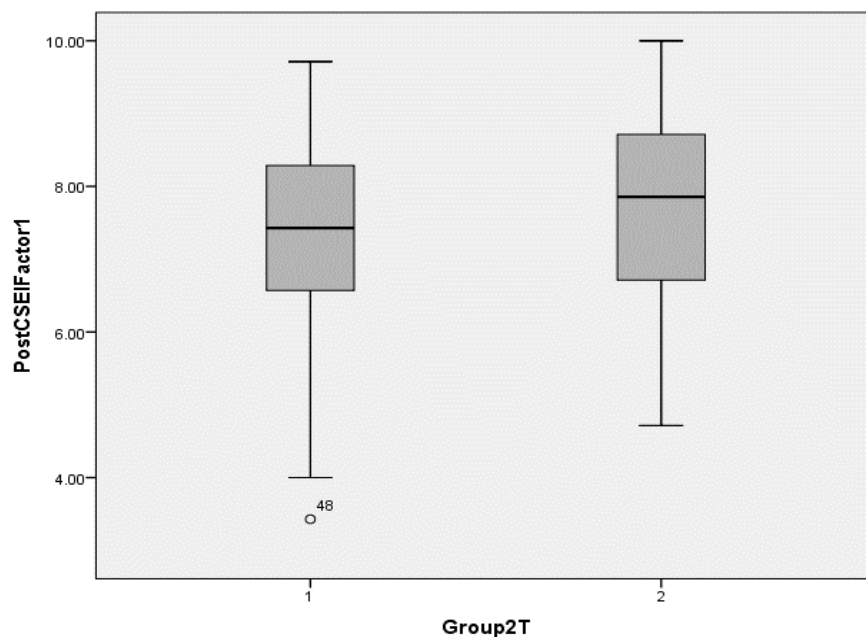


Figure 7. Box Plot for CSEI Course Self-Efficacy Subscale by Group

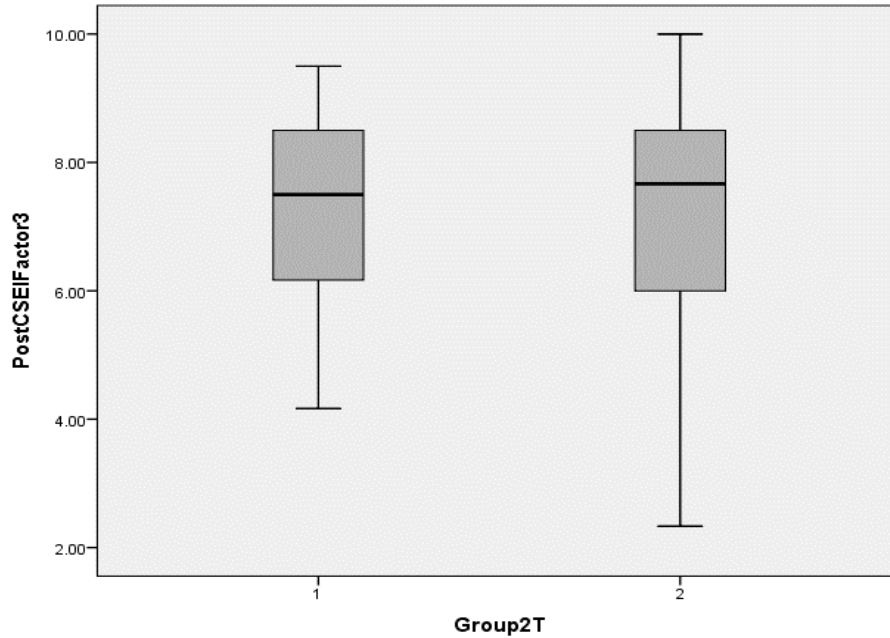


Figure 8. Box Plot for CSEI Social Self-Efficacy Subscale by Group

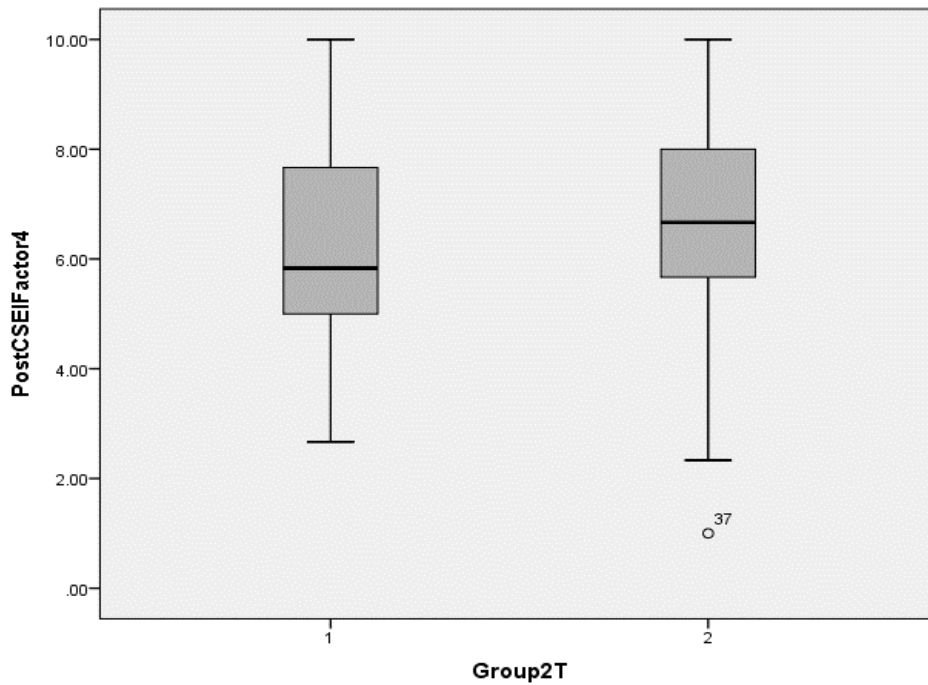


Figure 9. Box Plot for CSEI Social-Integration Self-Efficacy Subscale by Group

The Shapiro-Wilk analysis was reported for this study to analyze normality. Results indicated that there was no significance at the .001 alpha level, between college freshmen who

received Mindset language from their professors for their first semester, and those who did not. The researchers used .001 as the alpha level because it is the recommended as the suitable alpha level when there are small sample sizes (Meyers et al., 2006). Results from the CSEI (Solberg, et al., 1993) multiple analysis of variance test between the treatment and comparison groups are displayed in Table 21.

Table 21

Shapiro-Wilk Test of Normality for CSEI Posttest Scores

Subscales	Treatment	Comparison
Course Self-Efficacy	.020	.159
Social Self-Efficacy	.117	.027
Social Integration Self-Efficacy	.052	.552

Descriptive statistics for the research question 1. Descriptive statistics were utilized to examine the posttest raw scores between the CSEI (Solberg, et al. 1993) scores. Descriptive statistics for the total sample are presented in Table 22. The researcher examined several categories during the CSEI (Solberg, et al., 1993) posttest analysis.

The CSEI (Solberg, et al., 1993) has a ten-point scale to measure confidence, with 10 indicating students are extremely confident in completing collegiate tasks that involve self-efficacy. Therefore, the mean range of 6.37 to 7.53 for the students are in both the treatment and the comparison groups. A “1” indicates “not at all confident” and a “10” indicates “extremely confident” (Solberg, et al., 1993).

The posttest raw scores on the CSEI (Solberg, et al., 1993) Course Self-Efficacy (subscale 1) posttest reflected for CSEI subscale 1 there was no significance difference in means

between treatment and comparison groups after the treatment was completed, though the treatment mean was higher. For CSEI Social Self-Efficacy (subscale 3), there was no significance difference in means between treatment and comparison groups after the treatment was completed. For CSEI Social-Integration Self-Efficacy (subscale 4), there was no significance difference in means between treatment and comparison groups after the treatment was completed, though the treatment mean was higher.

This normal distribution indicates students answered the CSEI (Solberg, et al., 1993) course self-efficacy, social self-efficacy, and social integration self-efficacy posttest items within a normal range. The means are slightly higher in the treatment group for course self-efficacy and social integration self-efficacy posttest items, and nearly the same (within .07) for the social self-efficacy posttest items.

Table 22

Descriptive Statistics for CSEI Posttest Scores

	<i>Mean</i>		<i>SD</i>		<i>Skewness</i>		<i>Kurtosis</i>	
	T	C*	T	C	T	C	T	C
Course Self-Efficacy	7.70	7.32	1.41	1.45	-.57	-.70	-.47	.51
Social Self-Efficacy	7.12	7.19	1.91	1.53	-.58	-.54	-.15	-.74
Social Integration Self-Efficacy	6.55	6.16	1.90	1.86	-.86	.01	.83	-.75

*T= Treatment, C= Comparison; n=81 (T=43, C=38)

Correlations: CSEI. For the CSEI (Solberg, et al., 1993), the researcher analyzed Pearson product-moment correlation coefficients with the outliers removed to determine the relationship between variables. Table 23 shows the Pearson product- moment correlations variables of posttest data. Meyers et al. (2006) stated that a correlation of over .75 is concerning. The following table displays posttest correlations and subscales are mildly to moderately correlated, as they do not exceed .70 (Meyers et al., 2006).

Table 23

Bivariate Correlations for Research Question 1 CSEI Posttest Scores

	1	2	3
1.Course Self-Efficacy	-	.610**	.591**
2.Social Self-Efficacy		-	.699**
3.Social Integration Self-Efficacy			-

** Correlation is significant at the 0.01 level (2-tailed).

Homogeneity of variance-covariance matrices. To inspect the assumption of equal variance among both treatment and comparison groups for the CSEI (Solberg, et al., 1999), the researcher conducted Box M. These results were not significant ($p < .05$) which indicated that the assumptions of homogeneity were met and the matrices were equal for CSEI (Solberg, et al., 1993) Post-test results are displayed in Table 24.

Table 24

Box's Test of Equality of Covariance Matrices for CSEI Post-test Scores

Box's M	7.31
<i>F</i>	1.17
<i>df1</i>	6.00
<i>df2</i>	43972.54
Significance	.32

Additionally, in Table 25, a Bartlett's Test of Sphericity was conducted to test if the null hypothesis was proportional to the identity matrix. This demonstrates equal variances across samples. The Bartlett's Test of Sphericity relates to the significance of the study and shows validity and suitability of the responses collected through the study (Meyers, et al, 2006).

Table 25

Bartlett's Test of Sphericity for CSEI Post-test Scores

Likelihood Ratio	.00
Approx. Chi Square	105.29
<i>Df</i>	5.00
Sig.	.00

Data analysis for Research Question 1: CSEI. To compare the means from the treatment and comparison groups, the Wilks' Lambda was analyzed during this study. The Wilks' Lambda results indicated no significant difference. Refer to Table 26 for the results of a multivariate analysis of variance test comparing treatment and comparison groups of posttest

scores in which the outliers were removed. Results from the posttest for the CSEI did not yield statistically significant results for the effect of mindset language delivered to the freshmen by college professors, $F(3, 79) = 1.289, p = .284$.

Table 26

Results for a MANOVA Comparing Treatment and Comparison Groups of the CSEI Posttest Scores

Multivariate Test	Value	F	Hypothesis df	Error df	Sig.
Wilks' Lambda	.935	.1	3	79	.284

Research Question 2

Description of the Data: Implicit Theories of Intelligence. The researcher identified if there was a statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not, with respect to perceptions of intelligence for the Implicit Theories of Intelligence Scale. An Analysis of Variance (ANOVA) was used to examine the growth and fixed mindsets as demonstrated by the Implicit Theories of Intelligence (ITI) scale (Dweck, 1999). For the purpose of this study, the researcher followed the scoring according to De Castella, & Byrne, (2015) and the National Mentoring Resource Center website (2015) of Australia. The *Implicit Theories of Intelligence (Self-Theory) Scale* (Dweck, 1999) utilized a 6-point Likert scale to identify a mindset score in two broad categories: Incremental (Growth) Mindset and Entity (Fixed) Mindset. Items were scored from 1 (*Strongly disagree*) to 6 (*Strongly agree*). Participants' scores on the measure are obtained by reverse scoring the four Incremental (Growth) items, (Statements 3, 5, 7, 8). Then, according to the National Mentor Resourcing Center (2015), the scores were to be averaged across all eight items.

Once this analysis was complete, for further analysis, the researcher reversed scored all eight items and then arrived at a sum. This sum was recoded low and high, to indicate fixed and growth mindsets using a colored gradation from Mindset Works (2016) entitled Mindset Assessment Profile (MAP). By recoding the ITI scores and utilizing crosstabulations, the research identified the percentages of students in fixed and growth mindsets in the treatment and comparison groups.

Pretest Data Preparation: ITI. The following provides descriptive information for the ITI (Dweck, 1999) utilized in this study. The researcher evaluated the data normality by. The normality of pretest scores distribution on the ITI (Dweck, 1999). Box plots were analyzed and visually inspected and showed the absence of outliers, as indicated in Figure 10.

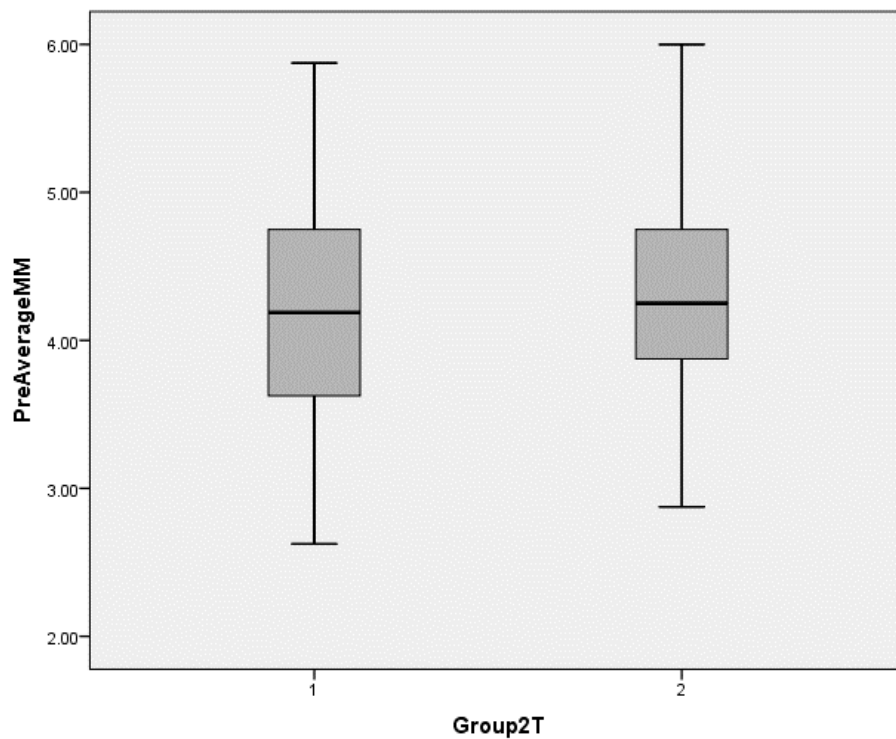


Figure 10. Box Plots for ITI by Group

Assumptions of independence. The researcher considered Assumptions of Independence by separating the treatment and comparison groups and having the two groups be

independent of each other. These groups were separated by having the treatment groups in courses and the comparison groups in different courses, so participants in the comparison group would not receive any components of the treatment.

Assumptions of normality. To assess the data normality, the researcher conducted an evaluation of outliers. The normality of the distribution of experimental and comparison groups were examined. The Shapiro-Wilk analysis was reported for this study for the ITI (Dweck, 1999). Results indicated that there was not significance at the .001 alpha level, between college freshmen students who received mindset language intervention and those who did not. The researchers used .001 as the alpha level between groups (Meyers et al., 2006). Results from the Shapiro-Wilks test between the treatment and comparison groups are displayed in Table 27.

Table 27

Shapiro-Wilk Test of Normality for ITI Pretest Score

	Significance
Overall Average Mindset	
Treatment	.394
Comparison	.758

Assumption of Homogeneity of variance for the ITI. The researcher utilized a Levene’s test to check the assumption of equal variance across both treatment and comparison groups. The Levene’s test did not find significance at $p < .05$, thus indicating variance in all groups. Refer to Table 29 for the Levene’s Test of Equality of Error Variances of Pretest Scores.

Table 29

Levene's Test of Equality of Error Variances for Research Question 1 ITI Pretest Score

	Levene Statistic	Df1	Df2	Sig.
Overall Mindset	.258	1	81	.613

Descriptive statistics for research question 2. Descriptive statistics were utilized to examine the ITI (Dweck, 1999) as well. First, descriptive statistics were utilized in the pretest mean scores of the overall average of the ITI (Dweck, 1999) scores. Descriptive statistics for the total sample are presented in Table 28.

The ITI (Dweck, 1999) is a 6-point Likert scale, and the two groups had similar mindsets (fixed is a score of 6) for the pre-test. A “1” indicates the student strongly agrees with the statement. A “6” indicates the student strongly disagrees with the statement. Data reflect that skewness and kurtosis were acceptable in both the treatment and comparison groups (Meyers et al., 2006). No extreme values, and data was distributed close to the mean.

Table 28

Descriptive Statistics for ITI Pretest Scores

	<i>Mean</i>		<i>SD</i>		<i>Skewness</i>		<i>Kurtosis</i>	
	T	C*	T	C	T	C	T	C
Overall Score	4.34	4.23	.74	.74	.35	.06	-.05	-.56

*T= Treatment, C= Comparison; n=83 (E=45, C=38)

Pre-test data analysis for question 2. The one-way ANOVA was reported to compare the means of the treatment and comparison groups for this study. Results displayed no significant difference between the mean scores for the ITI (Dweck, 1999). Refer to Table 30 for the results of an analysis of variance comparing treatment and comparison groups pretest.

The researcher ran an Analysis of Variance Tests (ANOVA) of the ITI (Dweck, 1999), as the ITI is comprised of eight questions which demonstrate a mean four entity (fixed) items are scores, and four incremental (growth) items are reversed scored. Results displayed no significant difference between the mean scores of the ITI (Dweck, 1999) for the treatment and the comparison groups. This is important to check to see if the two groups are similar to one another in the pretest. The one-way ANOVA, $F(1,81) = .449$, $MSE = 5.60$, $p = .51$, demonstrated no statistically significant differences between the two groups.

Table 30

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.251 ^a	1	.251	.449	.505
Intercept	1518.112	1	1518.112	2712.488	.000
Group2T	.251	1	.251	.449	.505
Error	45.334	81	.560		
Total	1577.891	83			
Corrected Total	45.585	82			

^a R Squared = .006 (Adjusted R Squared = -.007)

Posttest data preparation: Implicit Theories of Intelligence. Research Question 1 focused on the self-efficacy and mindset scores of college freshmen. The treatment group were intentionally exposed to Mindset terms used by the professors and the comparison group was not exposed to Mindset terms by the professor. Posttests assessed were completed after the intervention with both the treatment and comparison groups. Data were reviewed for missing information and accuracy. There were no missing data identified. To determine if there was a significant difference in the ITI posttest scores between the comparison group and the treatment group, the researcher conducted an ANOVA for the ITI (Dweck, 1999), and analyzed the results. The researcher analyzed descriptive statistics and box plots to screen all data from the sample ($n = 83$). Data were screened for outliers, missing values, and violations of statistical assumptions.

Assumptions of independence. The researcher considered assumptions of independence by separating the treatment and comparison groups and having the two groups be independent of each other. These groups were separated by having the treatment groups in courses and the comparison groups in different courses. By having the groups in separate courses, participants in the comparison group would not receive any components of the treatment.

Assumption of normality. To further evaluate the data normality, the researcher conducted an evaluation of the outliers. The normality of the distribution of raw scores for the ITI was tested. Box plots were reviewed for all variables. No extreme values that were found in the treatment and comparison groups. As Meyers et al. (2006) recommended, box plots were utilized for the treatment and comparison groups which showed any evidence of multiple outliers. Outliers 48, 23, 17, and 38 remained as they did not impact skewness and kurtosis.

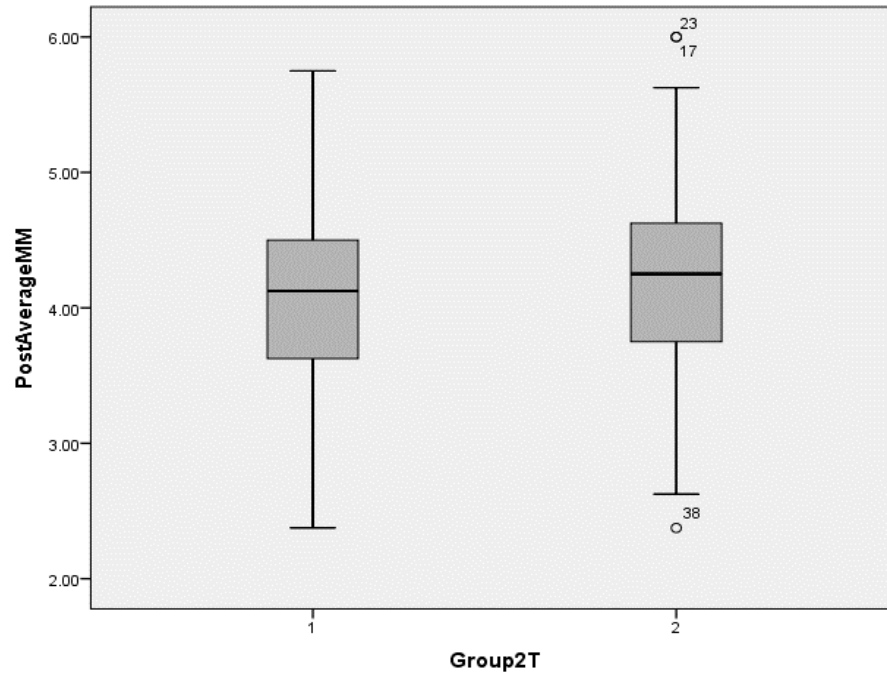


Figure 11. Box Plots for ITI by Group

The Shapiro-Wilk analysis was reported for this study to analyze normality. Results indicated there was no significance at the .001 alpha level, between college freshmen who received the treatment, and those who did not. The researcher used .001 as the alpha level since it is suitable when there are small sample sizes (Meyers et al., 2006). Results from the ITI (Dweck, 1999) analysis of variance test between treatment and comparison groups are in Table 31.

Table 31

Shapiro-Wilk Test of Normality for ITI Posttest Scores

	Significance
Overall ITI	
Treatment	.744
Comparison	.798

Homogeneity of variance. To inspect the assumption of equal variance among both treatment and comparison groups for the ITI (Dweck, 1999), the researcher conducted a Levene’s test for homogeneity of variance, shown in Table 32. The Levene’s test did not result in significance (1, 81) at $p < .05$, indicating there was equal variance between the treatment and comparison groups.

Table 32

Levene’s Test of Equality of Error Variances for ITI Posttest Scores

	Levene Statistic	<i>df1</i>	<i>df2</i>	Sig.
Overall ITI	.018	1	81	.892

Descriptive statistics for the research question 2. Descriptive statistics were utilized to examine the posttest raw scores between the ITI scores. Descriptive statistics for the total sample are presented in Table 33. The ITI (Dweck, 1999) has a 6-point scale requiring reversed scoring, hence measuring growth (low score) and fixed (high score) mindsets. Data reflect that both skewness and kurtosis values in both the treatment and comparison groups were acceptable and fell within the normal limits (Meyers et al., 2006). This indicates the data are normally distributed about the mean. Lower kurtosis scores indicate a data set with few or no outliers. This normal distribution indicates students answered the ITI (Dweck, 1999) posttest items within a normal range. The means, however, are very close in value: 4.26 in the treatment group and 4.09 in the comparison group, with a difference of .17.

Table 33

Descriptive Statistics for ITI Posttest Scores

	<i>Mean</i>		<i>SD</i>		<i>Skewness</i>		<i>Kurtosis</i>	
	T	C*	T	C	T	C	T	C
<i>Overall ITI</i>	4.26	4.09	.79	.80	.09	.00	.36	-.16

*T= Treatment, C= Comparison; n=81 (T=43, C=38)

Data analysis for Research Question 1: ITI. To compare the means from the treatment and comparison groups, a one-way ANOVA was conducted during this study. The one-way ANOVA, $F(1,81) = .89$, $MSE = .63$, $p = .35$, results from the posttest for ITI did not yield statistically significant results for the effect of mindset language delivered to the freshmen by college professors.

Table 34

Test of Between-Subject Effects

Source	Type III Sum of Squares	<i>Df</i>	Mean Square	<i>F</i>	<i>Sig.</i>
Corrected Model	.562 ^a	1	.56	.89	.347
Intercept	1440.78	1	1440.78	2290.57	.000
Group2T	.56	1	.56	.89	.347
Error	50.95	81	.63		
Total	1507.45	83			
Corrected Total	51.51	82			

^a R Squared = .011 (Adjusted R Squared = -.001)

The researcher recoded the eight ITI (Dweck, 1999) items and confirmed both treatment and comparison groups showed an increase in growth mindset. The incremental and entity scores were reversed. Then the scores were summed. The sums were put into groups: < 28.5 and > 28.51. The sums less than 28.5 indicated growth mindset. The sums above indicated fixed mindset. The treatment group increased by 6.7% and the comparison group increased by 7.9%. The pretest and posttest ITI breakdown is in Table 35.

Table 35

ITI Pretest and Posttest Percentages of Fixed and Growth Mindsets

	Comparison		Treatment		Overall	
	Fixed %	Growth %	Fixed %	Growth %	Fixed %	Growth %
Pre-Mindset	55.3	44.7	55.6	44.4	55.4	44.6
Post-Mindset	47.4	52.6	48.9	51.1	48.2	51.8

Research Question 3

Description of qualitative data. The third question researched was qualitative in nature as the researcher identified information pertaining to how students perceive self-efficacy in their responses regarding university life.

Self -Assessment Prompts on Performance Accomplishments and Mindset (SAPPAM) Data

The researcher analyzed qualitative data from Self-Assessment Prompts on Performance Accomplishments and Mindset (SAPPAM) written responses from a total sample of 45 by employing in-vivo coding. Direct interpretation of participant responses of themes and patterns emerged and are reported in this study. The researcher requested that students offer responses to eight SAPPAM written prompts during class; prompts were given alternating weeks for the

duration of the semester. The researcher chose a mixed method design, using a case study design (Yin, 2009) for the analysis of the qualitative data and inductive coding to study the use of Mindset language in response to self-efficacious tasks embedded within the SAPPAM questions, bound by students who participated in the treatment. Hand-written SAPPAM responses were transcribed by the researcher at the end of the treatment.

Focused Interview Data

The researcher analyzed qualitative data from three focused interviews with four students (one student attended two of the interviews). In the initial Demographic Survey, students were permitted to voluntarily provide contact information for interview purposes. The researcher reviewed confidentiality and the declaration that it was possible to exit the interview at any time with no repercussions, and she also asked permission to record the session. Once the student participants were aware of their rights, the researcher began the semi-structured, open-ended questions. Interviews of the volunteers were led by the researcher in the college library at noon on three occasions (September, October, and November of the fall semester). The interviews were transcribed and analyzed by the researcher. The interview transcripts revealed information pertaining to two SAPPAM prompts. Each interview lasted 5-10 minutes. The semi-structured interview protocol included a brief introduction and overview of the study.

This chapter presents the definitions of Mindset language terms, codes, categories, and the research question from a data source of student hand-written responses to SAPPAM questions. After a twelve-week treatment and quantitative analysis, the researcher transcribed all the qualitative information that had been gathered from the eight SAPPAM prompts throughout the semester, approximately every other week.

Description of the participants. The 43 treatment participants were given a SAPPAM prompt to respond to using pen or pencil at the end of the class time, approximately every other week for one semester. The SAPPAM self-reported Grade Point Average (GPA) for participants is 3.26. A breakdown of participation by professor, is shown in Table 36. More students participated in the treatment group than the comparison group.

Table 36

Treatment Group Participation Rate by Professor

Professor ID	Total Participants
A (Treatment)	17
B (Treatment)	28
Total	45

Table 37 shows the gender breakdown of the SAPPAM respondents. Table 38 demonstrates the ethnicity of SAPPAM respondents by group.

Table 37

Student SAPPAM Respondents

Gender	Treatment	Percent
Males	29	64
Females	16	36
Total	45	100

Table 38

Breakdown of SAPPAM Respondents' Ethnicity by Group

Ethnicity	Treatment	
	<i>n</i>	%
Asian or Pacific Islander	1	2.2
Black	3	6.7
Hispanic	8	17.8
White	32	71.1
Other	1	2.2
Total	45	100

Table 39 demonstrates the percentage of the 43 participants who responded to each of the eight SAPPAM prompts.

Table 39

Percentage of Treatment Students Who Responded to Each SAPPAM Prompt

	P*1	P 2	P 3	P 4	P 5	P 6	P 7	P 8
% of treatment respondents	84.44	82.22	80.00	88.88	86.66	75.55	86.66	73.33

*P= SAPPAM Prompt

Four students participated in the focused interviews. One student came to two of the three focused interviews. Table 40 shows the description of focus group interviewees.

Table 40

Description of Focus Group Interview Participants

Code	Age	Race	Gender	First Language	Attended Group
6	18	White	Female	English	1
4	23	White	Male	English	1
19	18	African American	Female	English	1, 2
7	18	White	Female	English	2

Data preparation. Research Question three was qualitative in nature and so data were analyzed using cycle coding as described by Creswell (2007). The researcher wanted to understand how mindset-oriented language impacted students' written responses. The researcher wanted to identify terms in the student responses and examine at the context in which the terms were used.

Professors were trained, as indicated earlier, and the four treatment classes received the 60 terms as intended to be delivered verbally by professors. Students responded to the eight SAPAAM reflective prompts over the course of their first semester as freshmen, and the researcher collected these responses at the end of a 5-minute window given at the beginning of class for all four of the treatment courses.

First, the researcher coded the SAPPAM responses and found the frequencies of each of the 60 terms and placed them in one column using HyperRESEARCH (2016). Frequencies of terms with the highest usage and appearance in SAPPAM and interviews were recorded and noted in the Table 41.

Table 41

Observed Frequency of Seven Most Common Mindset-Oriented Terms Used by College Students in the Treatment Group

Seven Most Common Mindset Terms								
	helping others	using strategies, tools, notes	practice and learn	challenge	commun- icate	try	succeed	total
Frequency	94	60	54	41	33	24	16	328

Note: Students used 22 of the 60 terms that were part of the Mindset language design, yet professors delivered 40 terms according to Fidelity of Treatment checks

Next the researcher coded the data again in the adjoining column and examined the data for ongoing themes in a Google Document. Frequencies of all terms used by students in SAPPAM responses are notated in the Table 42, along with definitions of each term.

Table 42

First and Second Code Cycles, and Definitions of Codes for Mindset-Oriented Terms

First Code Cycle: Frequency Across Cases	Second Code Cycle:	Description and Example of Code
3	opportunity	<p>DESCRIPTION: A noun indicating a chance or prospect the student “wants” or “gets.”</p> <p>INSTANCE: “I want to have a better opportunity in life to have a job I not only enjoy but also able to make money” (AS, 14).</p>
13	grow	<p>DESCRIPTION: A verb which expresses a student’s desire to change, enhance, or nurture his or her abilities.</p> <p>INSTANCE: “I have grown as a college student changing the way I act” (AC, 36).</p>
41	challenge (yourself)	<p>DESCRIPTION: The action of a student to articulate a task or trial. Students did not use the reflexive pronoun “yourself” in conjunction with the verb “challenge.”</p> <p>INSTANCES: “I would say that’s challenged my work ethic” (AJ, 21); “College has challenged my intelligence.” (MS, 28).</p>

(continued)

Table 42

First and Second Code Cycles, and Definitions of Codes for Mindset-Oriented Terms

First Code Cycle: Frequency Across Cases	Second Code Cycle:	Description and Example of Code
5	push (yourselves)	<p>DESCRIPTION: The action of a student providing encouragement or self-imitative action toward a task.</p> <p>INSTANCES: “My teammates and I push each other to get our work done” (JB, 4); “College has pushed me to pay more attention and actually learn the material” (AC, 36).</p>
24	try	<p>DESCRIPTION: The action of attempting a task or experience; indicator of effort.</p> <p>INSTANCES: “I try but I am self-conscious” (DK, 63); “I try to participate as much as I can in all my classes” (AJ, 21); “I try to do my homework at work sometimes” (AS, 14).</p>
20	risk-taking	<p>DESCRIPTION: An action whereby a student takes a risk, or chance, during his or her college experience.</p> <p>INSTANCE: “Class participation does not involve risk-taking because a classroom should be safe and judgement-free learning environment” (DJS); “It involves risk-taking because sometimes your opinion may differ from someone else’s” (BI, 22).</p>
33	communicate	<p>DESCRIPTION: The action in which the student describes talking, motioning, emailing, or interconnecting.</p> <p>INSTANCE: “I communicate with my professors if I have a problem” (EB, 3); “The only reason why I would communicate is because I am stuck on something” (RC, 38).</p>

(continued)

Table 42

First and Second Code Cycles, and Definitions of Codes for Mindset-Oriented Terms

First Code Cycle: Frequency Across Cases	Second Code Cycle: Mindset	Description and Example of Code
7	progress	<p>DESCRIPTION: The act of moving forward; advancement.</p> <p>INSTANCE: “Yes I have made great progress getting all my work done and making the changes” (EB, 3); “I’ve progressed in a sense where I need to understand things more” (PC, 18).</p>
3	be proud	<p>DESCRIPTION: The action of feeling pride or a sense of satisfaction.</p> <p>INSTANCE: “Because I want to be able to get a job and make my family proud” (AM, 65); “Yes, b/c you need to feel like you are confident with what you’re saying + say it proudly” (DK, 63).</p>
16	succeed	<p>DESCRIPTION: The action synonymous with flourish or thrive; students also used the derivatives “successful” and “success.”</p> <p>INSTANCE: “Ultimately, to give me the best chance of into a successful career path” (BW, 51); “You need a degree in today’s society to have a successful life after college” (PC, 18); “I want to be successful and have a good job” (CG, 6).</p>
2	learning strategies	<p>DESCRIPTION: Plural noun which indicates a student is using or describing strategies used to master learning.</p> <p>INSTANCE: “I use strategies like setting alarms on my phone so I know when to be done with what I am doing, creating a schedule to follow by” (JE, 59).</p>

(continued)

Table 42

First and Second Code Cycles, and Definitions of Codes for Mindset-Oriented Terms

First Code Cycle: Frequency Across Cases	Second Code Cycle: Mindset	Description and Example of Code
7	struggling	<p>DESCRIPTION: A verb indicating the student is having difficulties.</p> <p>INSTANCES: “Depends on the subject, mostly if I need help on struggling to understand the topic” (AG, 42); “If I am struggling to understand something in class I will discuss it my professor” (KM, 66).</p>
10	write a plan	<p>DESCRIPTION: The action of designing a plan or formulating an idea.</p> <p>INSTANCE: “Use an agenda to plan day” (KM, 66); “I use my planner and I set reminders on my phone and I write on post-its” (KH, 7).</p>
54	practice and learn	<p>DESCRIPTION: The action indicating the student rehearses or prepares information, and then learns or acquires it as knowledge.</p> <p>INSTANCE: “Repeat the practice exams to make sure I understand the material” (AG, 19).</p>
60	using strategies/tools /notes	<p>DESCRIPTION: The principal is knowledgeable of the units of study in writing and is able to work with teachers during grade level teams to support the high leverage areas for student growth.</p> <p>INSTANCES: “I use strategies like setting alarms on my phone so I know when to be done with what I am doing, creating a schedule to follow by” (JE, 59); “usually look over my notes and or study guide until I feel as though I am prepared for the exam” (AJ, 21).</p>

(continued)

Table 42

First and Second Code Cycles, and Definitions of Codes for Mindset-Oriented Terms

First Code Cycle: Frequency Across Cases	Second Code Cycle: Mindset	Description and Example of Code
2	deepen our understanding	<p>DESCRIPTION: The notion of comprehending something on a level beneath the surface.</p> <p>INSTANCE: “I look over my notes and repeat the practice exam to make sure I understand the material” (AG, 19); “No I participate to better understand the material being taught to get a better grade” (KM, 68).</p>
94	helping others	<p>DESCRIPTION: The action of assisting people in the college setting.</p> <p>INSTANCE: “We do homework together a lot. Are usually help them to stop being so stressed” (CG, 6); “I have helped them by doing homework or going places with them” (KM, 68).</p>
3	goal(s)	<p>DESCRIPTION: An achievement that represents a culmination of something desired.</p> <p>INSTANCE: “No but I will by transferring to Pace University to pursue my goal” (NG, 60).</p>
4	achieve those goals	<p>DESCRIPTION: The act of obtaining an achievement or achievements that represent(s) the culmination of something desired.</p> <p>INSTANCE: “To achieve my goals” (ZH, 20).</p>

(continued)

Table 42

First and Second Code Cycles, and Definitions of Codes for Mindset-Oriented Terms

First Code Cycle: Frequency Across Cases	Second Code Cycle: Mindset	Description and Example of Code
1	growth	<p>DESCRIPTION: The noun which describes the building and movement forward; progress.</p> <p>INSTANCE: “College is meant to be an area for opportunity, growth, and things like that” (CG, 6); “Not yet, haven’t changed or grown very much since high school” (JC, 39).</p>
1	mindset	<p>DESCRIPTION: A state of mind or way of thinking; fixed (entity) vs. growth (incremental) are described by Dr. Carol Dweck (1999).</p> <p>INSTANCE: “Yes I have been learning and thinking a different mindset than before” (CM, 12).</p>
11	change	<p>DESCRIPTION: The act of altering something in one’s life while attending college (first year).</p> <p>INSTANCE: “working so little has changed in my day to day life” (AWL, 24; “I have adapted to these changes by having good work ethic and studying” (ELR, 68); “I’m not sure if my IQ has changed but I am learning new things and thinking more” (MS, 28).</p>

The researcher defined each term based upon the context from student responses. The researcher analyzed the context of each term; these words appeared in vivo within the eight SAPPAM writing prompts distributed over the course of one semester. The researcher looked at the terms categorically, asking the research question once more for each response: How do

students perceive self-efficacy in their responses regarding university life? Appendix C shows the mindset language identification process and surface-level contextual analysis.

The same coding process was used when identifying the eight self-efficacious tasks from the SAPPAM. Frequencies of task-oriented terms with the highest usage and appearance in SAPPAM and interviews were recorded and noted in the Table 43.

Table 43

The Frequency of Eight Self-Efficacious Tasks Perceived by College Students in the Treatment Group

Eight College Tasks: College Performance Accomplishments									
	decide to attend	communicate with professors	participate in class	study	manage time	make friends	help others	challenge intelligence	total
Frequency	20	12	17	25	13	29	94	41	251

Note: Students answered prompts every other week for one semester, and the tasks presented are in the order of the table, from left to right.

When the researcher found the frequencies of each word in the first cycle of coding, she looked at the number of times used in the SAPPAM responses in written form, and orally in the focused interviews. Definitions of college tasks, or self-efficacious performance accomplishments, were derived from the second cycle coding, and instances are defined by the context in which students used the term. The student quote is coded by initials and a number. Next the researcher coded the data again in the adjoining column and examined the data for ongoing themes in a Google Document. All the frequencies of self-efficacious task terms used by students in SAPPAM responses are notated in the Table 44, along with definitions of each term.

Table 44

Definitions of Codes: Self-efficacious Tasks in the Question Stem of SAPPAM and Student Responses

First Level of Coding: Frequency Across Cases	Second Code Cycle: Focus on Self-Efficacy	Description and Instance of Code
20	Task: Decide to attend college	<p>DESCRIPTION: The performance accomplishment in which the student makes an affirmative decision to enroll in college for his or her first year, and to attend courses.</p> <p>INSTANCE: “I decided to go to college in order to get a decent job in the future” (FS, 50); “I decided to attend college as I saw no path for me anywhere else” (AWL, 24); “I decided to attend college to hopefully get a degree and set up a job for myself” (MM, 25).</p>

(continued)

Table 44

*Definitions of Codes: Self-efficacious Tasks in the Question Stem of SAPPAM and Student**Responses*

First Level of Coding: Frequency Across Cases	Second Code Cycle: Focus on Self-Efficacy	Description and Instance of Code
12	Task: Communicate with professors	<p>DESCRIPTION: The ability to talk, email, meet with, and contact professors for first-year courses that students are enrolled in.</p> <p>INSTANCE: “Only communicate with professors if there’s a problem” (CG, 6); “I communicate with professors through speaking, emailing, and meeting with them to help me when needed” (DS, 31).</p>
17	Task: Participate in class	<p>DESCRIPTION: The action of raising a hand in class, volunteering information in some capacity.</p> <p>INSTANCE: “I do participate in class when it is necessary and my grades depend on it” (AG, 19); “I try to participate in class as it helps me learn” (AC, 58); “I try to participate as much as I can because it helps me stay on task” (AJ, 21).</p>
25	Task: Study for exams	<p>DESCRIPTION: The act of preparing for an assessment in college.</p> <p>INSTANCE: “I do study for my exams because I am no longer in high school and can just pass by” (AG, 19); “I take time to study for my exams” (ELR, 68).</p>
13	Task: Manage time in college	<p>DESCRIPTION: The act of managing or organizing time (wisely) while in college, i.e., organization of the course schedule, making time for studying, etc.</p>

(continued)

		<p>INSTANCE: “I use time management to manage most of my time in college” (MM, 25); “I have my own system for time management based on what I know works for me” (DR, 133); “I think I have matured and gotten better with time management” (SM, 67).</p>
29	Task: Make friends on campus	<p>DESCRIPTION: The action in which the students are able to create a social network of friends or associates on campus.</p> <p>INSTANCE: “Yes, I did make friends recently” (AJ, 21); “I also look forward to making friends” (AS, 14); “I have made new friends and joined new organizations and become more adventurous” (DJS, 30).</p>
94	Task: Helping others	<p>DESCRIPTION: The action of the student assisting a fellow student; camaraderie among peers.</p> <p>INSTANCE: “We do homework together a lot. I usually help them stop feeling stressed” (CG, 6); “I have helped them by doing homework or going places with them” (EB, 3).</p>
41	Task: Challenged intelligence in college	<p>DESCRIPTION: The action of feeling challenged of “pushed” beyond normal intelligence levels while attending college.</p> <p>INSTANCE: “I would not say college has challenged my intelligence, but I would say that it’s challenged my work ethic (AJ, 21); College has challenged my intelligence by placing me in classes that I am familiar with” (MS, 28).</p>

A third level of coding was completed, when the researcher looked for derivatives of the 60 terms, with a total of two identified themes. Consolidation of the original coding occurred for the overarching finding to emerge. The researcher returned to HyperRESEARCH (2016) and

revisited frequency tables to identify the number of times the terms were used. These terms were analyzed for themes and commonalities. After careful analysis, the researcher noted that the students utilized 22 of the 60 Mindset Terms given to the professors; the terms were bolded. The professors were to present these 60 terms in class, though 22 pervaded the SAPPAM responses. The 22 terms include: grow, challenge (yourself), push yourself, try, risk-taking, communicate, progress, be proud, succeed, strategies, struggling, write a plan, use strategies/notes, deepen understanding, help others, goals, achieve, growth, mindset, change, comfort zone.

Further analysis was required to see if the professors did in fact employ all 60 terms. During the three Fidelity of Treatment checks, the professors did not use the 60 terms; they used 40. Term use by treatment professors is indicated in the table 45.

Table 45

Fidelity of Treatment: *Mindset Term Usage in the Classroom*

Professor A – MM	Professor B – TZ
<i>Fidelity Terms (Visit 1): 15/60 terms</i>	<i>Fidelity Terms (Visit 1): 15/60 terms</i>
opportunity	opportunity
stretch beyond comfort zone	stretch beyond comfort zone
grow	grow
lesson is learning	push yourselves
learning target	tackle this concept

(continued)

Table 45

Fidelity of Treatment: *Mindset Term Usage in the Classroom*

Professor A – MM	Professor B – TZ
here to help	mistakes are normal
challenge yourself	try
chances to improve	risk-taking
make connections to understand	progress
set the bar high	this isn't easy
communicate	communicate
push you	we learn from our mistakes
put forth effort	solve the problem in different ways
proud	strategizing (strategies)
manage your time	manage your time
<i>Fidelity Terms (Visit 2): 12/60 terms used</i>	
this isn't easy	opportunity

(continued)

Table 45

Fidelity of Treatment: *Mindset Term Usage in the Classroom*

Professor A – MM	Professor B – TZ
learning target	communicate
here to help	here to help
challenge yourself	struggling
try	try
progress	progress
be proud	proud
succeed	write a plan
grow	grown
helping others	manage your time
new strategies	
manage your time	

(continued)

Table 45

Fidelity of Treatment: *Mindset Term Usage in the Classroom*

Professor A – MM	Professor B – TZ
<i>Fidelity Terms (Visit 3): 12/60 terms used</i>	<i>Fidelity Terms (Visit 3): 15/60 terms used</i>
opportunity	challenge yourself
try	chances to improve
communicate	communicate
progress	progress
succeed	succeed
struggling	this isn't easy
practice and learn	practice and learn
realize how much progress	realize how much progress
proud of effort put forth	you didn't quit
Goals	share what is confusing
Proud	be proud
manage your time	manage your time

(continued)

effort paid off

grown

helping others

The researcher tallied each of the Mindset terms used by the professors during the three visits to the treatment classrooms (six visits) using a Google Form. Every time a professor used one of the terms that had been presented up until that point in time, the researcher noted use. The researcher also noted if any of the 60 total terms were used. Table 46 indicates the percentage of the terms presented up until the Fidelity of Treatment observation, and the percentage of overall 60 terms used as well, by each treatment professor.

Table 46

Percentage of Terms Used by Professor in Treatment Classrooms

The researcher then looked at student responses, both written (SAPPAM) and oral

Fidelity of Treatment	Percentage of Terms Used Professor A	Percentage of Terms Used Professor B
1	66.67	66.67
2	33.33	66.67
3	24.00	70.00

(interviews) in order to compare professor term usage with student term usage. The researcher

noted the students used 22 of the overall 60 terms in the SAPPAM prompts, as well as the interviews. The researcher then noted 18 of the terms overlapped with professors, meaning the professors stated the terms in class, and the students used the terms in their written responses, as well as the interviews. The terms used by students and professors are delineated in the Table 47.

Table 47

Overlapping Mindset Term Usage: Students and Professors

Terms Used by Students	Terms Used by Professors	Both Used
Opportunity	opportunity	✓
Grow	grow	✓
challenge (yourself)	challenge (yourself)	✓
push yourself	push yourselves	✓
Try	try	✓
risk-taking	risk taking	✓
communicate	communicate	✓
Progress	progress	✓
be proud	be proud	✓
succeed	succeed	✓
strategies	strategizing (strategies)	✓
struggling	struggling	✓
write a plan	write a plan	✓
use strategies	new strategies	✓
		(continued)

Table 47

Overlapping Mindset Term Usage: Students and Professors

Terms Used by Students	Terms Used by Professors	Both Used
deepen understanding		
help others	helping others	✓
goals	goals	✓
achieve		
growth	grown	✓
mindset		
change		
comfort zone	stretch beyond comfort zone	✓
	lesson is learning	
	learning target	
	here to help	
	chances to improve	
	make connections to understand	
	set the bar high	
	this isn't easy	
	we learn from our mistakes	
	solve the problem in different ways	
	mistakes are normal	
	tackle this concept	
	put forth effort	
	manage your times	

(continued)

Table 47

Overlapping Mindset Term Usage: Students and Professors

Terms Used by Students	Terms Used by Professors	Both Used
	practice and learn	
	realize how much progress	
	you didn't quit	
	share what is confusing	

The final identification of the 18 terms used by both the students and the professors were used for theme development. Both the SAPPAM responses (student written input regarding college tasks) and the Fidelity of Treatment results (usage of mindset-oriented terms in the classroom), as well as the interviews, provided a list of terms used by both students and professors. The researcher derived themes. Table 48 demonstrates the 18 terms used by both.

Table 48

Overlapping Mindset Term Usage: Students and Professors Usage of 18 Terms

Student	Professor	Both
opportunity	opportunity	✓
grow	grow	✓
challenge (yourself)	challenge (yourself)	✓
push yourself	push yourselves	✓
try	try	✓
risk-taking	risk taking	✓
communicate	communicate	✓

(continued)

Table 48

Overlapping Mindset Term Usage: Students and Professors Usage of 18 Terms

Student	Professor	Both
progress	progress	✓
be proud	be proud	✓
succeed	succeed	✓
strategies	strategizing (strategies)	✓
struggling	struggling	✓
write a plan	write a plan	✓
use strategies/notes	new strategies	✓
help others	helping others	✓
goals	goals	✓
growth	grown	✓
comfort zone	stretch beyond comfort zone	✓

Additionally, the researcher returned to the raw data and identified student responses that pertained to college tasks. The tasks were (in order): decide to attend, communication with professors, participation in class, studying for exams, managing time, making friends, helping one another, challenging oneself. Student evidence is recorded in Table 49.

Table 49

Student Use of College Tasks or Performance Accomplishments/Self-Efficacious Terms

8 COLLEGE TASKS	LEVEL 2: CATEGORICAL
decide to attend college	“I decided to go to college in order to get a decent job in the future” (FS, 50).
*This prompt was for week 1 and week 14	(continued)

Table 49

Student Use of College Tasks or Performance Accomplishments/Self-Efficacious Terms

8 COLLEGE TASKS

LEVEL 2: CATEGORICAL

Communicate with professors

(communicate)
(ask professors)
(talk to professors)

“Only communicate with professors if there’s a problem” (CG, 6).

“ I communicate with professors through speaking, emailing and meeting with them to help me when needed” (DS, 31).

Participate in class

(participate)

“I do participate in class when it is necessary and my grades depends on it” (AG, 19)

“I try to participate in class as it helps me learn” (AC, 58).

Study for exams

(study)
(study for tests)

“I do study for my exams because I am no longer in high school” (AG, 19).

“I take time to study for my exams” (ELR, 68).

Manage time in college

(manage time)
(time management)

“I use time management to manage most of my time in college” (MM, 25).

“I think I’ve matured and gotten better with time management” (SM, 67).

Make friends on campus

(make friends)
(social)

“I also look forward to making friends” (AS, 14)

“I have made new friends and joined new organizations and become more adventurous” (DJS, 30).

Helping others

“We do homework together a lot. Are usually help them to stop being stressed” (CG, 6).

“I have help them by doing homework or going places with them” (EB, 3).

College challenge

(challenge)

“College has challenged my intelligence by placing me in classes that I am familiar with” (MS, 28).

The third layer of coding revealed themes; the coding required a synthesis of terms, to overlap the two constructs of mindset and self-efficacy. The researcher looked at the student usage of the mindset language terms in order to observe if and how the mindset language illuminated the students' descriptions of self-efficacious tasks. The students reported on these eight self-efficacious tasks, or performance accomplishments (Bandura, 1977), using the mindset language as analyzed in Table 50. The students' code appears near their quote. Their quotes give context to mindset terms

Table 50

Subtheme Development (I)

Construct: Mindset	Students utilize growth mindset terminology when exposed to mindset terminology in the classroom.
Emerging Subtheme	Students articulate their thoughts regarding mindset using 22 of the 60 terms presented in their first semester: opportunity, grow, challenge (yourself), push yourself, try, risk-taking, communicate, progress, be proud, succeed, strategies, struggling, write a plan, use strategies/notes, deepen understanding, help others, goals, achieve, growth, mindset, change, comfort zone.
Construct: Self- Efficacy	Students describe self-efficacy in greater detail when reflecting upon specific college performance tasks.
Emerging Subtheme	Students revealed thoughts regarding: their decision to attend college, how they communicate with professors, if they participate in class, if they study for exams, how they manage their time, if they made friends, how they help one another, and how they challenge themselves.

The researcher reviewed the language the students used in the interviews once again conducted as well. The researcher located the mindset language in the transcribed copy of the interviews. Five mindset terms appeared, though less frequently because of the duration and

infrequency of the interviews. There were also four self-efficacious college performance accomplishments reported on as well. Table 51 delineates further coding.

Table 51

Subtheme Development (II)

Construct: Mindset	Students utilize growth mindset terminology when exposed to mindset terminology in the classroom.
Subtheme	Students articulate their thoughts regarding mindset using communicate, understand, challenges, change and comfort zone.
Construct: Self- Efficacy	Students describe self-efficacy in greater detail when reflecting upon specific college performance tasks. They responded to the tasks requested in the interviews: decision to attend college, communicating with professors, overcoming challenges and participation in class.
Subtheme	Students revealed thoughts regarding: their decision to attend college, how they communicate with professors, overcoming challenges, and if they participate in class.

By the end of coding, in total consideration of all the written and oral data collected, in terms of both the mindset construct and the self-efficacy construct, the researcher collapsed the themes into five definitive categories, which led to two overarching findings. Students were impacted by mindset language because they can articulate their college experiences (self-efficacious performance tasks) with a vocabulary that conveys their ability to experience growth, accept challenges, have a willingness to take risks, are open to communication, and make a plan.

Results

Students perceive self-efficacy in college through categories identified from the researcher's in vivo coding and contextual coding. The researcher identified terms (in vivo

coding) in student responses, then identified the context of terms and derivatives, to lead to categorical coding, and ultimately themes. Categories indicative of students' perception of college self-efficacy were: experience growth, accept challenges, willingness to take risks, open to communication, and make a plan. The category of experiencing growth included terms such as grow, growth, progress, struggling and be proud. The category of accepting challenges included terms such as challenge yourself, push yourself, and goals. The category of willingness to take risks included try, risk-taking, goals, comfort zone, and succeed. The category of open to communication included terms like help others and communicate. The category of make a plan included write terms such as write a plan, strategies, and use strategies/notes.

Results from the interviews was similar. The researcher first organized the data collected by task and discussion instance. Next, the researcher employed the process of in-vivo coding. The emergent information was similar to the written SAPPAM responses because the questions were identical.

The evidence from student responses indicated they articulate their perceptions of self-efficacy in regard to university life through the discussion of self-efficacious tasks pertaining specifically to college. Mindset language was evident in the students' oral responses when they described their collegiate experiences. The theme that the interviews did not support was the "Make a Plan" category, though the prompts in the interview did not incorporate such a task.

The researcher then generated two overarching themes from the five emergent categories. These two themes were derived from the categorical information through systematic sorting and clustering. The researcher constructed a matrix, according to Stake (1995) building instances and codes to form subthemes and themes. This matrix can be read from the bottom upward in each respective column.

Table 52: *Final Qualitative Findings*

Overarching Finding: Students are impacted by mindset language because they are able to articulate their college experiences (self-efficacious performance tasks) with a vocabulary that conveys their ability to experience growth, accept challenges, have a willingness to take risks, are open to communication, and to make a plan.

Theme 1: Freshmen college students employ Mindset Language articulate self-efficacious college performance accomplishments (actions/behaviors) to demonstrate growth, accept challenges, and the willingness to take risks. The Mindset terms give freshmen a dialect for conveying their thoughts on and reflecting upon college tasks.

Theme 2: Freshmen college students who use Mindset terms can reflect upon collegiate socially and academically oriented tasks; they can describe how they are open to communicate with peers and professors, and how they actively make plans and use strategies.

Experience Growth	Accept Challenges	Willingness to Take Risks	Open to Communication	Make a Plan
<ul style="list-style-type: none"> -Be proud -Struggling -Growth -Progress -Grow 	<ul style="list-style-type: none"> -Push Yourself -Challenge Yourself -Goals* 	<ul style="list-style-type: none"> -Goals* -Try -Risk-taking -Comfort Zone -Succeed 	<ul style="list-style-type: none"> -Help others -Communicate 	<ul style="list-style-type: none"> -Write a plan -Strategies -Use strategies -Notes
<p>AM 65: “Because I want to be able to get a job and make my family proud.”</p> <p>DK 63: “Yes, b/c you need to feel like you are confident with what you’re saying + say it proudly.”</p>	<p>JB 4: “My teammates and I push each other to get our work done”</p> <p>AC 36: “College has pushed me to pay more attention and actually learn the material.”</p>	<p>ZH 20: “To achieve my goals.”</p>	<p>AJ 21: I have not yet needed to communicate with professors. If necessary I would discuss my challenges in order to look for ways to minimize the challenges I have.</p>	<p>KM 66: “Use an agenda to plan day.”</p> <p>(continued) KH 7: “I use my planner and I set reminders on my phone and I write on post-its.”</p>

Conclusion

The three research questions are different in data collection methods, but the three are thematically related. Research questions 1 and 2 quantitatively measured two constructs: self-efficacy and mindset. Research question 3 was supported by qualitative data. Final results conclude:

1. Freshmen college students who employ mindset-oriented language articulate self-efficacious college performance accomplishments (actions/behaviors) to demonstrate growth, accept challenges, and the willingness to take risks. The mindset terms give freshmen a dialect for conveying their thoughts on and reflecting upon college tasks.

2. Freshmen college students who use mindset terms can reflect upon collegiate socially and academically oriented tasks; they can describe how they are open to communicate with peers and professors, and how they actively make plans and use strategies.

The overarching finding revealed through written and oral verbal responses to SAPPAM questions was: Students are impacted by mindset language because they can articulate their college experiences (self-efficacious performance tasks) with a vocabulary that conveys their ability to experience growth, accept challenges, have a willingness to take risks, are open to communication, and to make a plan. The researcher cannot conclude that the students had knowledge of the mindset vocabulary prior to the study.

CHAPTER FIVE: SUMMARY AND CONCLUSIONS

The following chapter is comprised of six sections that expand on this research study. The first section provides an overview of chapters one through four. The next section provides a discussion of the findings which are displayed by research question, analysis, and synthesis. The next section includes findings, discussion, and implications for each research question. A limitations section is provided next, which elaborates on those issues stated within Chapter Three and found during the study. This chapter concludes with a summary of this research study.

Overview of the Study

The CSEI measures self-efficacy in terms of the broader college experience (Barry & Finney, 2009). Using the CSEI for this particular study was relevant to the age group (ages 18-23) and the college setting (main campus), as well as the student classification (college freshmen). Also, researchers have reported the need to explore the CSEI further (Barry & Finney, 2009) due to the growing interest in college freshmen self-efficacy.

This need to study college student self-efficacy is similar to the desire to research mindset, a term from Dr. Carol Dweck's work (2000) regarding Implicit Theories of Intelligence, directly related to her influential book *Mindset: The New Psychology of Success* (2006). The notion of mindset sparked the creation of programs such as Brainology and Mindset Works (2016). The focus of Dweck's work is to facilitate students and teachers understanding that intelligence and abilities are not fixed and can be developed through effort (Mindset Works, 2016). The entity theory (fixed mindset) and the incremental theory (growth mindset) are impacted from the links that mindset has to performance goals (Dweck, Chiu, & Hong, 1995) or performance accomplishments. Modes of achievement as viewed by the entity theorist may lead students away from effort and challenge, while incremental theorists may be more learning-

oriented, and intrinsically motivated by the notion of attaining and accomplishing achievements (Dweck, Chiu, & Hong, 1995).

Constructs of self-efficacy and self-theory using the Mindset language from Mindsetmaker (2016): Growth Mindset Framing and Feedback Tools were applied to a college freshmen population in this study; this application revealed information about collegiate freshmen, though it has not been researched at length with students beyond high school. Educators prepare students to face life's challenges with resilience (Yeager & Dweck, 2012), and therefore, using Mindset language, educators can influence students' ways of thinking in academic settings, even among high achieving students (Blackwell, Trzesniewski, & Dweck, 2007). Adolescents often perceive school as a setting by which they perform for educators (and peers) who judge them in some manner, and therefore, the implementation of growth mindset changes that pattern of thought, making academic settings places where students may engage in learning for their own benefit (Dweck, 2007).

In this study, professors delivered the language related to growth mindset to students. Language is a social practice, as all language is essentially a dialogic practice (Lyle, 2008), thus language is a concrete mechanism related to the social nature of human mental functions (Bahktin, 1981; Lyle, 2008). The students' self-efficacy and mindsets were measured prior at the beginning and end of their first semester in college, using the CSEI and ITI, to gain insight into freshmen perceived self-efficacy and mindset, as both constructs are important components related to college success.

Keeping students in college impacts an array of factors. When student retention is high, so is his or her persistence, thus a student successfully integrates into the institution academically and socially (Jensen, 2011). Self-efficacy in the academic and social domains are critical

components of the college experience, and both have been studied at length (Barry & Finney, 2009). This study analyzed the results of the CSEI created by Solberg, et al. (1993), which assesses college self-efficacy specifically, or the degree of confidence students have in their ability to successfully perform college-related tasks (Solberg et al., 1993), and the scores of the ITI created by Dr. Carol Dweck in 1999. On the ITI, students identify aspects of their intelligence as fixed vs. malleable, as some students believe that intelligence is more of an unchangeable, fixed “entity” and others think of intelligence as a pliable quality that can be “incrementally” developed (Blackwell, Trzesniewski, & Dweck, 2007).

Four other instruments were utilized. During the first week of the study, all participants completed a demographic survey which contained self-reported data: gender, age, current major, and GPA. Secondly, an instrument used to illuminate the quantitative data was the researcher-created eight Self-Assessment Prompts on Performance Accomplishments and Mindset, or SAPPAM, given to the treatment group. Thirdly, during the semester, the researcher entered the treatment classroom three times to check the fidelity of treatment, or the use of the mindset language, with a researcher-created checklist containing 60 mindset terms from the Mindsetmaker (2016): Growth Mindset Framing and Feedback Tools. Lastly, the researcher conducted interviews using the SAPPAM questions, to identify students’ use of mindset terms when asked orally about college tasks.

The exploration of the six total instruments provided insight into the beliefs constructed by collegiate freshmen in the context of their new academic environment. This was illuminated further through focus group interviews of 2-3 students in both treatment group, two times during the semester. This study essentially investigated the impact of mindset language in the college classroom and the effect upon students’ self-efficacy and mindset, as revealed through the CSEI

and ITI, as well as the SAPPAM responses. The purpose of this study was to use Mindset language and to identify if the language was used in their written (SAPPAM) and oral (interview) responses. Each participating professor involved in the treatment group was observed three times for the study by the researcher, to ensure fidelity of implementation of the treatment.

Permission from an urban, northeastern college's provost and the school deans was acquired prior to the study's commencement, and professors were then requested to participate in the study. Four professors agreed to participate, and consequently, students from eight college courses were asked to sign voluntary consent forms. Participants in this study were college freshmen, or first-time college attendees. There were two professors who delivered the Mindset language to the treatment participants in four courses, as they were trained in May and August prior to the start of the fall semester. Participants in the treatment, or treatment, group were in four courses that met between 9:15am and 1:15pm on weekdays. The other two professors teaching four courses were not given the Mindset language terms and did not communicate with the researcher other than for the coordination of pre and post testing of the students in August and December of the first semester.

Once permission was received and consent forms were filed, students were administered the College Self-Efficacy Inventory (Solberg, et al., 1993), and the Implicit Theories of Intelligence scale (Dweck, 1999; Dweck, 2015). Students also completed a demographic survey. Students in the treatment group received the Mindset language terms embedded in their coursework, and students in the comparison group did not. Upon completion of the 12-week treatment period, all students in the treatment and comparison groups were then administered the CSEI and ITI once again as posttests.

The specific research questions addressed were:

1. Is there a statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not, with respect to three mean sub-scale scores (academic, social, and social integration) for the College Self-Efficacy Inventory?

Non-directional hypothesis: There will be a statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not, with respect to three mean sub-scale scores (academic, social, and social integration) for the College Self-Efficacy Inventory.

2. Is there a statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not, with respect to perceptions of intelligence for the Implicit Theories of Intelligence Scale?

Non-directional hypothesis: There will be a statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not, with respect to perceptions of intelligence for the Implicit Theories of Intelligence Scale.

3. How do students perceive self-efficacy in their responses regarding university life?

To conduct the statistical analyses the researcher utilized SPSS Statistics 23 (IBM, 2016).

The researcher used a mixed-methods design for the study. For the first research question, the researcher utilized a Multiple Analysis of Variance (MANOVA) for the CSEI (Solberg, 1993).

For the second research question, the researcher used an Analysis of Variance (ANOVA) for the

ITI (Dweck, 1999). For the remaining third research question, the researcher conducted qualitative coding processes (Charmaz, 2000; Lincoln & Guba, 1985) and identified term frequencies through HyperRESEARCH (2017) to observe and interpret student responses to eight open-ended Self-Assessment Prompts on Performance Accomplishments and Mindset (SAPPAM) written statements created by the researcher.

Findings, Discussion, and Implications

This section describes the findings, discussion and implications from the statistical analyses completed in Chapter Four. It also includes a discussion and proposes implications for each research question related to the results.

Research Question 1

The first research question asked: Is there a statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not, with respect to three mean sub-scale scores (academic, social, and social integration) for the College Self-Efficacy Inventory?

The researcher sought to investigate the effects of a Mindset language dialect used within the context of professors' delivery of college content in class. The independent variables were the use of Mindset language delivery and the lack of, with two levels: treatment and comparison. The researcher performed a Multiple Analysis of Variance (MANOVA) which revealed no statistically significant difference between those who had participated in a Mindset terminology treatment and those who did not, with respect to the three mean sub-scales (academic self-efficacy, social self-efficacy, and social integration self-efficacy) of the College Self-Efficacy Inventory. It was possible that there was no significant result because the length of the intervention was limited to one semester. One professor, the coordinator for the First-Year

program on campus, suggested it would have been beneficial for students to have received a longer treatment, or to follow students for the duration of their collegiate experiences. Professor training could have been enhanced as well. For example, treatment professors could have been trained longer, pre-assessed on term usage, and given more chances to give feedback.

Statistics reveal national first-to-second year retention rates for public universities (BA/BS) have a mean rate of 64.9 percent retention, and 70.8 percent for private universities (ACT, 2016). The national higher education agenda has an increased emphasis on completion, while grappling with improvement of retention, student success, and graduation (Bettinger, Evans, & Pope, 2013). Though the increase of student achievement and academic progress are influenced by a multitude of variables at the collegiate level, the review of the literature in Chapter Two highlighted the theories that growth mindset, as well as self-efficacy among students, benefit students' academic functioning at the college level (Bandura, 1997; Gore, Leuwerke, & Turley, 2006; Yaeger, et al., 2016). Results from current study did not reveal a statistically significant difference in the college freshmen who participated in a Mindset language classroom and those who did not. However, those in the treatment group had a higher mean than their peers in the comparison group, but it was not statistically higher, and the treatment group began with a higher mean. The post-CSEI treatment mean score for subscale one was 7.705, while the comparison was 7.327. This academic (course) self-efficacy subscale included statements such as, "Manage time effectively" and "Research a term paper." The post-CSEI treatment mean score for subscale three was nearly the same between treatment and control groups, but the post-CSEI treatment mean score for subscale four was 6.556, while the comparison was 6.167. This social-integration subscale included statements such as, "Join a student organization" and "Join an intermural sports team." The means scores did not decrease.

A review of literature displayed a relationship between self-efficacy and academic performance, as well as mindset and performance. Gore, Leuwerke, & Turley (2006) found that self-efficacy contributed significantly to academic performance of college students, and that academic performance in college requires long-term application of knowledge and skills in a strategic manner.

While findings for the current study were not significant regarding the impact of Mindset language on College Self-Efficacy Inventory (CSEI) scores, research indicates students with high self-efficacy have academic success and adjust to college (Barry & Finney, 2009; Solberg, O'Brien, Villareal, Kennel, & Davis, 1993; Zajacova, Lynch & Espenshade, 2005). Table 53 displays implications for educators and future research based on the findings from this study.

Table 53

Implication for Educators and Future Research for Research Question 1

Findings	Literature	Implication for Educators	Implication for Future Research
<p>Results from the CSEI (Solberg, et al., 1993) post-test did not yield statistically significant results for the effect of mindset language delivered to the freshmen by college professors, $F(3, 79) = 1.289, p = .284$.</p>	<p>Students with high self-efficacy have academic success and adjust to college (Barry & Finney, 2009; Solberg, O'Brien, Villareal, Kennel, & Davis, 1993; Zajacova, Lynch & Espenshade, 2005).</p>	<p>If there was no significant difference in CSEI scores of those who participated in Mindset language treatment and those who did not, then this treatment did not detract from the regular course content and delivery.</p>	<p>Using Mindset language in the college classroom for one semester with freshmen may require a more rigorous, activity-related treatment.</p>

Research Question 2

The second research question asked: is there a statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not, with respect to perceptions of intelligence for the Implicit Theories of Intelligence Scale?

The researcher sought to investigate the effects of a Mindset language dialect used within the context of professors' delivery of college content in class. The independent variables were the use of Mindset language delivery and the lack of, with two levels: treatment and comparison. The researcher performed an Analysis of Variance (ANOVA) which revealed no statistically significant difference between those who had participated in a Mindset terminology treatment and those who did not, with respect to the perceptions of intelligence for the Implicit Theories of Intelligence Scale. It was possible that there was no significant result because the length of the intervention was limited to one semester. It is also possible that the instrument used to measure students' mindset did not measure the areas in which the students made the most gains. Identifying a singular manner to interpret the scoring of the ITI (Dweck, 1999) posed difficulties, as the researcher used one source reported by the National Mentoring Resource Center (2015) among several interpretations of the scale. There was no gradation or continuum of mindset offered for the interpretation of the ITI (Dweck, 1999), such as that used in the K-12 mindset measurement tool Mindset Assessment Profile (MAP) by MindsetWorks (2016).

Nevertheless, Dweck (2010) reported that she witnessed the effects of mindset with her colleagues during a previous study (Blackwell, Trzesniewski, & Dweck, 2007), by which she and her colleagues followed several hundred students, measuring their mind-sets at the beginning of the school year and monitoring them over two years. Despite differing mindsets, the students

with the growth mindset outperformed classmates with the fixed mindset and possessing a growth mindset is also related to academic success (Blackwell, Trzesniewski & Dweck, 2007; Castella & Byrne, 2015; Schunk & Zimmerman, 1998; Cohen, 2012; Yeager & Dweck, 2012). While findings for the current study were not significant regarding the impact of Mindset language on Implicit Theory of Intelligence (ITI) scores, research indicates more studies are needed at the collegiate level and the construct of mindset.

Table 54

Implication for Educators and Future Research for Research Question 2

Findings	Literature	Implication for Educators	Implication for Future Research
<p>Results from the ITI (Dweck, 1999) post-test for the effect of mindset language delivered to the freshmen by college professors did not yield statistically significant results, $F(1, 81) = .894, p = .347$.</p>	<p>Possessing a growth mindset is also related to academic success (Blackwell, Trzesniewski, & Dweck, 2007; Castella & Byrne, 2015; Schunk & Zimmerman, 1998; Cohen, 2012); Yeager, and Dweck, 2012).</p>	<p>If there was no significant difference in ITI scores of those who participated in Mindset language treatment and those who did not, then this treatment did not detract from the regular course content and delivery.</p>	<p>Using Mindset language in the college classroom for one semester with freshmen may require a different, more robust and interpretive mindset measurement, rather than the ITI (Dweck, 1999).</p>

Research Question 3

The third research question asked: How do students perceive self-efficacy in their responses regarding university life?

The function of this question was to illuminate the quantitative data collected from the treatment group, and through grounded theory and in vivo coding, the researcher identified information pertaining to students' collegiate experiences as new freshmen. Their perceptions were described in a series of eight prompts given over one semester, and the responses revealed Mindset language usage in written form. Students' experiences were further described orally in their focused interviews, which also revealed Mindset language, recorded by the researcher. The two modes of collection, written and oral, both revealed the use of mindset language in the students' vernacular discourse.

Findings indicate the students utilized mindset language in their responses to SAPPAM prompts. The mindset language served as a vehicle to describe the eight self-efficacious prompts, regarding college performance tasks for students who participated in a Mindset language treatment. Students utilized 22 of the 60 terms prescribed, or 37% of the terms. However, through Fidelity of treatment checks, professors delivered 40 of the 60 terms, or 66% of the prescribed treatment terms, according to the three Fidelity of Treatment check observations. If the researcher analyzed specifically the 40 terms used by professors, then students used 22 of the 40 terms delivered, or 55% of the terms they received in their freshmen First-Year designated courses, as evident in their written SAPPAM responses and their oral responses in the focused interviews. Furthermore, after careful review, there were only 18 terms that both appeared in student responses and interviews, as well as the three Fidelity of Treatment checks which listened for professor-delivered language; this indicates both professors and

students used an overlapping 18 out of 40 terms, for a final calculation of 45% of the terms were utilized by both professors and students during one semester.

Professors may not have used the full set of 60 terms because the amount was simply too much. The study reveals a set of 18 to 22 terms would most likely be more manageable for both students and professors to utilize. Professors have academic freedom and pertinent content to deliver, and therefore, inserting Mindset terms into their classroom delivery should be concise. The original 60 terms were divided among 12 weeks (five terms per week), but perhaps 18 to 22 terms (1-2 terms per week) or less could have been delivered. This would also allow professors to speak about the terms in depth and use them more often in class in dialectic discussions with students.

There is also the possibility that the professors did in fact use all 60 terms, but the researcher only observed 40 in use. The Fidelity of Treatment check was employed three times in the semester, and there may have been more content-heavy days that did not allow the professor to verbally deliver as many terms. One professor noted she was obligated to explain a midterm project the day of the second Fidelity of Treatment observation. It is understood and respected that professors have agendas for each day, and musty adhere to their curriculum for the semester.

Nevertheless, the treatment group completed the researcher-developed self-reflective instrument consisting of eight Self-Assessment Prompts on Performance Accomplishments and Mindset (SAPPAM). These eight prompts pertain to collegiate experiences, to allow for metacognition and self-assessment in response to receiving mindset language in the classroom; studies demonstrate such written reflection engages students in reflective learning, and enhances metacognition (Schunk, 2001; Sundstrom, 2004).

The rigor of grounded theory offers researchers guidelines to build an explanatory framework to identify relationships among concepts (Charmaz, 2000). Emergent coding (grounded theory) was used when analyzing students' written responses (Charmaz, 2000; Lincoln & Guba, 1985), along with HyperRESEARCH (2016) for frequencies of Mindset language terms used. Gathering such rich data, including written work from respondents, fuels grounded theory analyses, thus allows the researcher to define and categorize data (Charmaz, 2000). Coding allows the researcher to gain a new perspective on material.

Students provided instances by which they explained their thoughts, feelings, and notions of collegiate tasks. As freshmen, the students reported a distinctly new perspective on college life, as they are college students for the first time in their lives. This juxtaposition revealed the use of Mindset language to elucidate thoughts and perceptions regarding this new educational experience.

These eight prompts pertain to collegiate experiences, to allow for metacognition and self-assessment in response to receiving mindset language in the classroom; studies demonstrate such written reflection engages students in reflective learning, and enhances metacognition (Schunk, 2001; Sundstrom, 2004). Furthermore, these responses were to SAPPAM prompts which were purposely worded with self-efficacious tasks, so students were verbally encouraged to include the tasks or perceive the tasks when reflecting upon such collegiate performance accomplishments (Bandura, 1977) as well as thoughts regarding their mindsets. The supportive evidence regarding the reliability of self-assessment is positive in terms of consistency across tasks, across items, and over short time periods (Ross, 2006). This self-reflective practice involves self-monitoring, which leads to higher self-efficacy, persistence, and achievement; such

practices give students opportunities to assess their capabilities or progress in learning (Schunk and Zimmerman, 1998).

Mindset terms permeated their responses, thus educators can in fact foster mindsets in educational settings (Dweck, 2010; Yeager & Dweck, 2012). Performing academically is just one of many challenges adolescents face regularly (Yeager & Dweck, 2012). An intervention to assist such students that emphasize the potential for change, despite difficulties, can influence students' beliefs in their mindsets (Yeager & Dweck, 2012). Therefore, growth mindset language employed in the classroom may be a viable route, as students need growth mindsets to overcome challenges, while developing strategies and seeking help from others. It is important for educators to empathize with the power of people's potential to change. Yeager and Dweck (2012), after exploring several interventions, conclude that discussing the reasoning behind psychological interventions that change students' mindsets allows educators to foster growth mindsets, and create resilience, in students' educational settings. This study resulted in several suggestions for future educators and researchers. A review of the literature revealed there needs to be further examination of the effects of the use of mindset language in the college classroom and regarding the development or enhancing of a growth mindset in college. Fostering a growth mindset in students is pertinent to student success; students with growth mindset think they can develop their intelligence over time (Blackwell, Trzesniewski, & Dweck, 2007; Dweck, 1999), and as noted by Dweck (2010), students with fixed mindsets value looking smart above all, and may sacrifice learning opportunities because they do not want to feel deficient or incapable. The instillation of positive beliefs about effort yields positive results Dweck (2010). Focusing on students' potential can develop their notions of intellectual capacity and benefit them in the academic arena.

Teachers, and professors, need to create a growth mindset culture within their classrooms to prepare students to stretch academically, and in life (Dweck, 2008). A climate of growth mindset is a tone initiated by the teacher or professor allows one to present educational tasks in a manner which fosters long-term achievement (Dweck, 2008), as the emphasis is on challenge rather than success, and development rather than immediacy. With teacher guidance, a student may use meaningful strategies in the classroom, then encourage the student to try another strategy (Dweck, 2010b), as if the investigation in learning is a continuously rewarding challenge. The findings of this study did not show statistical significance, though the development of mindset culture in a classroom can be done by conveying Mindset terms which give students a language to deliver their thoughts about the college experience. Students noted that helping others, using strategies, practicing, challenging themselves and communicating were important aspects of their new college experience. Ultimately, students perceive self-efficacy in regard to university life through the lens of five categories: the experience of growth, the acceptance of challenges, the willingness to take risks, openness to communication, and abilities to make plans.

Additionally, teachers and professors can point out students' efforts to encourage progress and improvement over time (Dweck, 2010a). Certain terms are highly valuable to students when heard directly from an educator; Dweck (2010a) cites the word "yet" as it is a word that can easily answer a student's comment regarding not liking a subject or unit. A professor may use a word such as "yet" in order to explain a student may not have mastered a particular facet of content "yet" or a certain term paper draft is in progress and is not "yet" ready to be handed in for full credit. Teachers and professors can encourage effort and process, thus conveying the joy of tackling new and challenging tasks at hand, so the classroom becomes a

place to breed lifelong learning (Dweck, 2010). This was evident in the qualitative data, and students regularly used terms such as “try” and “challenge” in order to convey their thoughts regarding the newness of the college experience as well as the efforts on their part.

It is important not to simply praise students (Dweck, 2007); praise is counterproductive and prideful, thus stunting students’ abilities to complete tasks to their fullest potentials (Dweck, 2007). Students praised for their efforts make more references to skills and knowledge they can learn from through efforts, thus achieving growth mindsets (Dweck, 2007). Implicit theories and mindset language applies as Dweck (2010a) warns educators to avoid simply praising students’ intelligences and talents, and hopes they teach students how enjoyable challenging tasks can be, and how informative and interesting errors are, as struggle affords progress. As indicated in the research results, students utilize mindset terms such as “challenge” and “communicate” while discussing (or writing about) college-oriented tasks. Tasks include communicating with a professor or studying for exams, as students reflect on undertaking college tasks and navigating university life.

Growth mindset leads to higher achievement (Dweck, 2007) and students who received growth mindset interventions sought to grow as learners through effort. Programs for teachers and students on the computer through Mindset Works (2016) were developed, including Brainology; the pilot testing revealed the mindset potential in teaching when studied in 20 different New York City schools (Dweck, 2010a) and was rolled out online for elementary, middle and high school students. This research indicates further studies must be conducted on the college level, and perhaps long-term. One semester in the freshmen year does not encompass the entire college experience, and thus, longitudinal studies may be beneficial.

Educators can foster mindsets (Dweck, 2010; Yeager & Dweck, 2012). Yeager and Dweck (2012) cite more research will be conducted at the collegiate level; using implicit theories interventions to address high failure rates in community college students who are placed in remedial math classes in one realm of study. Performing academically is just one of many challenges adolescents face regularly (Yeager & Dweck, 2012). Interventions to assist such students that emphasizes the potential for change, despite difficulties, can influence students' beliefs in their mindsets (Yeager & Dweck, 2012). As professors in the treatment group conveyed Mindset language in the college classroom, students embodied such words and phrases, and this is evident by their writing samples. The Mindset language was used in the statements they wrote and spoke in regard to each performance accomplishment (related to self-efficacy). The Mindset terms broadened their college vocabulary and they were able to express themselves, armed with terms to describe their experience.

Research reviewed in Chapter Two of this study indicated there is a relationship between growth mindset and achievement (Blackwell, Trzesniewski, & Dweck, 2007; Dweck, 1999). Researchers may wish to conduct long-term research, studying the relationship between professor delivery of mindset language and the students' internalization of the language. Table 55 displays implications for educators and future research based on the findings from this study.

Table 55

Implication for Educators and Future Research for Research Question 3

Findings	Literature	Implication for Educators	Implication for Future Research
<p>1. There were 60 terms to be delivered in the treatment, yet only 40 were implemented by the professors, according to the three Fidelity of Treatment observations. Of the 40 delivered, 22 were used by students; terms used by both professors and students totaled 18.</p>	<p>1. Educators foster mindsets in educational settings (Yeager & Dweck, 2012).</p>	<p>First year college students benefit from hearing (or reinforcing) Mindset terminology and thus, translate such words and phrases</p>	<p>Conduct further research on a reduced number of terms, rather than the 60 prescribed. Duration of the training may be</p>
<p>2. Educators can encourage growth mindset culture in the classroom using Mindset language.</p>	<p>(Dweck, 2007).</p>	<p>into their reflective thinking. Terms are used to describe their</p>	<p>longer and followed by an assessment.</p>
<p>3. Educators accentuate effort through mindset language.</p>	<p>3. Yeager and Dweck (2012) cite more research will be conducted at the collegiate level.</p>	<p>collegiate tasks at hand.</p>	

There are several suggestions for future educators and researchers that stemmed from this study. While no significance was found for self-efficacy between the treatment and comparison groups, it should be noted that literature supports verbal persuasion (Bandura, 1977); encouragement to engage on a target behavior (Solberg, et al., 1993) in the class may influence self-efficacy. Furthermore, this social persuasion, or persuasive communication and evaluative feedback, heightens self-efficacy among students, though it can be limiting (Bandura, 1997; Dinther, Dochy, & Segers, 2011). Additionally, Dinther, Dochy, and Segers (2011) state patterns of teacher interactions with students can enhance students' self-efficacy, as self-efficacy is a vital component in obtaining academic mastery. Their literature review of 39 empirical studies concluded that student self-efficacy is an important construct in educational research for the past thirty years, especially starting in the early 1990s.

Providing a classroom environment deemed "safe" and actively stimulating self-efficacy of students through a program, may benefit students and educational institutions. Furthermore, Dinther, Dochy, and Segers (2011) conclude that it is possible to influence students' self-efficacy within higher education programs, particularly those that are based in social cognitive theory. Practical experiences, vicarious experiences, and verbal persuasion were mentioned as influencers of self-efficacy. They mentioned there is a need for investigators to examine verbal persuasion further. An implication for future research is to explore the enhancement of student self-efficacy as related to reading, writing, and hearing about college tasks. Researchers may also consider implementing a study with a strong focus on self-efficacy in college freshmen.

Limitations of the Study

There were multiple limitations to both the internal and external validity of this study. The greatest limitation to the study was the reduced sample size, or limitation of the number of students. The study started with 135 participants and dwindled to 83 participants. Statistical power escalates inevitably when sample size increases, which generates more constant and accurate estimates of sample parameters (Gall, et al., 2003; Meyers et al., 2006).

Threats to Internal Validity

There were several threats to internal validity that the researcher attempted to mitigate. To control the instrumentation, the researcher was the sole administrator for every instrument that was administered for the pre-tests and post-tests. In addition, the researcher also allowed time to pass (nearly four months). The researcher attempted to control the implementation of the treatment by providing all teachers who were implementing the treatment with two professional development sessions: one in May and one in August, both prior to the start of the fall semester. During these sessions, professors were provided with materials, trained using segments of Mindset Works (2016), and given an opportunity to ask questions. Mindset language was delivered on a weekly basis via email, as a reminder to professors to implement the diction into their class plan.

Professor demographic surveys were used to collect information about participants to identify potential differences that could impact the study outcomes, such as background and teaching experience. The differences in professor implementers were identified, however, were unable to be controlled because this study was a sample of convenience. These differences could have impacted the study, so training of Mindset language delivery was provided, including the

same text, binder, and video presentation during training sessions for treatment professors as a method to have a uniform presentation for all curriculum.

To address for maturation, which may have occurred due to physical or psychological changes in the research participants resulting in variation in pre-test and post-test scores, the researcher used a 15-week semester with a 12-week treatment during one single college semester (Fall). The researcher also used a comparison group to mitigate the threat of maturation. This decreased the likelihood of biological, psychological, and physiological changes of the participants.

To mitigate the threat of treatment diffusion, in which the comparison group may have desired to receive the conditions that the treatment group was receiving, the researcher did not enter courses led by the comparison professors, nor did comparison professors share that the researcher was conducting the study in different courses. In fact, the treatment was facilitated in the Business School and the Liberal Arts School, while the comparison was done in the Psychology Department. The treatment and comparison groups were therefore in different majors and even schools (and buildings), decreasing the possibility of the treatment group sharing information with the comparison group.

To control for the threat of history, the treatment lasted for only one 15-week semester with a 12-week time frame to deliver mindset language, and the pretests and posttests were administered close to the intervention. In addition, teachers were contacted via email to report if any events occurred to ensure if these events could be related to student performance.

The final threat related to internal validity was subject characteristics. During this study, any student who met the qualifications and agreed to participate were accepted. Pretests were administered prior to the intervention being implemented to determine if differences in

participants existed prior to the study. The participants were from the same urban area and, therefore, had similar demographic characteristics. Student demographic surveys were used to collect information about participants to identify potential differences. The student demographic data indicated that the freshmen students in the treatment were of a sample similar to the overall freshmen class of the urban college they attended.

Threats to External Validity

The researcher acknowledges there were multiple threats to the external validity of this study. The reliability of implementation of the treatment was one threat which was monitored in several ways. The researcher provided all teachers with the same professional development and the same scripted lessons and materials. The implementation of the treatment was monitored through observations of the teachers with an implementation fidelity checklist three times in the semester, and focused interviews with students (three times in the semester) as well.

Novelty and disruption effects may have been a threat to the treatment group, since the use of Mindset language may not have been an initiative that the students were used to, and changes in routine may have altered the student's attitude or ability. The researcher monitored this issue through using the fidelity of treatment checklists, and the researcher found that students responded well to the researcher's presence in the classroom when fidelity was reviewed.

The pretest and posttest design may have led to a threat to external validity as post-test scores might have been due to familiarity with the instrument. This threat was mitigated using valid and reliable instruments administered over a four-month period.

Trustworthiness

Lincoln and Guba (1985) report trustworthiness is important when assessing a study. Trustworthiness requires the establishment of credibility (confidence in truthful findings), transferability (findings can be applied in other contexts), dependability (findings are consistent and can be repeated), and confirmability (the study is shaped by the participants and the researcher is not biased). These four areas of trustworthiness are important for truth value, applicability, consistency, and neutrality (Guba & Lincoln, 1989).

The researcher triangulated the data as one way to establish trustworthiness. Students completed a pretest and posttest CSEI exam which has 20 questions on a 10-point confidence-based scale. Students completed a pretest and posttest ITI exam which has eight questions on a 6-point scale. The treatment group completed eight self-assessment writing prompts pertaining to collegiate performance accomplishments, while receiving Mindset language from the professor, monitored with a Fidelity Checklist. There were focus group interviews to add oral language to data collection.

A lack of trustworthiness would encompass the lack of credibility, transferability, dependability, and confirmability. Therefore, the researcher included a transcript of interviews, an auditing trail, a simultaneous literature review, and a field journal/binder with notes. Purposeful sampling, triangulation, thick descriptions, and a peer review, as well as an audit trail were employed for credibility, as illustrated in Figure 12.

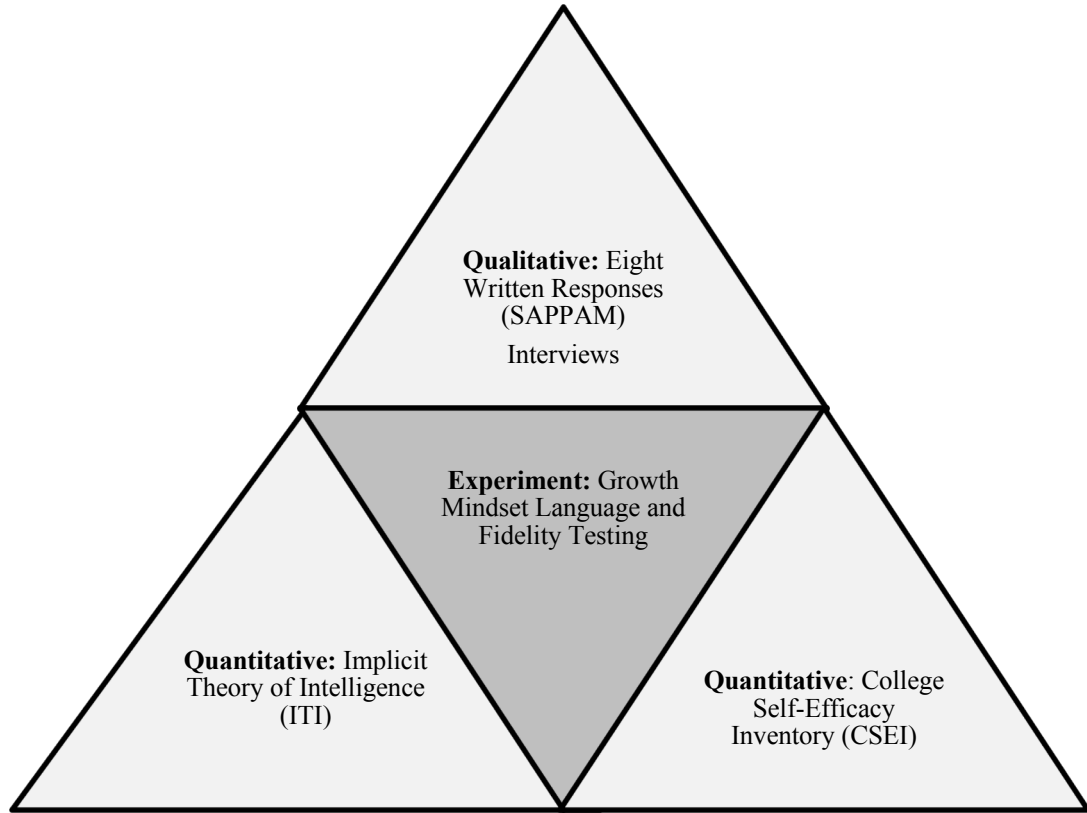


Figure 12. Triangulation for Trustworthiness

Summary

The purpose of this research study was to investigate the effects of Mindset language on self-efficacy and mindset development of college freshmen. The initial question of this research study was to see if there was a statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not, with respect to three mean sub-scale scores (academic, social, and social integration) for the College Self-Efficacy Inventory (CSEI). Findings indicated that there were no significant differences between students who participated in the treatment group receiving Mindset language from professors, and those who did not. Indications from various research studies suggest the need to investigate the most effective way to improve self-efficacy and students' growth mindsets in college. In order to advance the research and improve student achievement, researchers should continue to investigate the impact of self-efficacy, particularly in relation to language that promotes self-efficacy and growth mindset.

The second question of this research study was to see if there was a statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not, with respect to the Implicit Theories of Intelligence (ITI) scale. Findings indicated that there were no significant differences between students who participated in the treatment group receiving Mindset language from professors, and those who did not. Indications from various research studies suggest the need to investigate the most effective way to understand mindset before and after college, and students' growth mindsets within the higher educational system. In order to advance the research and improve student achievement, researchers should continue to investigate the impact of mindset, particularly in relation to language that promotes self-efficacy and growth mindset.

The third and final question was regarding Mindset language and if the terms permeated the writings of the students, to understand how students perceive self-efficacy in their responses regarding university life. Emergent coding (grounded theory) was used when analyzing students' written responses (Charmaz, 2000; Lincoln & Guba, 1985). HyperRESEARCH (2016) software purchased through ResearchWare, Inc. was used for the first level of coding of the written responses. The responses revealed supportive evidence regarding the reliability of self-assessment is positive in terms of consistency across tasks, across items, and over short time periods (Ross, 2006).

The final question examined if college freshmen expressed their self-efficacy via observed responses in focused interviews for students who have participated in a treatment. In the second interview, two students arrived and answered a performance accomplishment (Bandura, 1977) based line of questioning pertaining to an academic skill needed in college such as: "Do you communicate with professors? If so, have you encountered any challenges? Why or why not?" To improve student self-efficacy, researchers should continue to investigate the effects of discussing performance accomplishments on self-efficacy.

Researchers and educators should consider the findings and implications from this study as they evaluate the most efficient methods to improve student self-efficacy and growth mindset abilities within the own collegiate educational system. There is a need to develop instruments which pertain to mindset, self-efficacy, and college students.

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Appendix A: Focused Interviews and Protocol

Focus Group Interviews

Interviews are conducted both with the treatment and comparison groups. The questions are derived from the Self-Assessment Prompts on Performance Accomplishments and Mindset SAPPAM. One group of 2-3 students will be interviewed in treatment and comparison groups in weeks 3, 9, and 15. Student responses will be recorded and analyzed using open coding (grounded theory). The researcher will tally the mindset language terms when applicable.

Week 3

How do you feel about your decision to attend college? How do you stretch beyond your comfort zone?

Week 9

How do you study for your exams? What strategies are you using?

Week 15

How will you grow, or not grow, as a college student? Have you deepened your understanding of being a college student? Why?

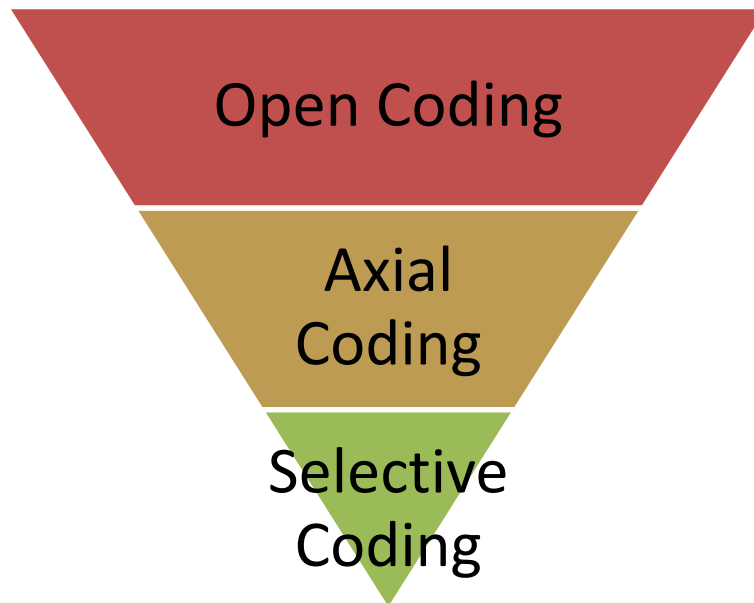
Appendix B: Instrumentation and Analysis Table

<i>Research Question</i>	<i>Variable and Instrument</i>	<i>Type</i>	<i>Analysis</i>
Is there a statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not, with respect to three mean sub-scale scores (academic, social, and social integration) for the College Self-Efficacy Inventory?	<i>Treatment (IV)</i> <i>CSEI Scores (DV)</i>	<i>Quantitative Data</i>	<i>SPSS Analysis of variance (MANOVA) on mean scores of three subscales of the CSEI</i> <i>SPSS Analysis of variance (ANOVA) of the ITI</i>
Is there a statistically significant difference between program type of students in classrooms that provide mindset terminology treatment and classrooms that do not, with respect to perceptions of intelligence for the Implicit Theories of Intelligence Scale?	<i>Treatment (IV)</i> <i>ITI Scores (DV)</i>	<i>Quantitative Data</i>	<i>SPSS Analysis of variance (ANOVA) of the ITI</i>
How do students perceive self-efficacy in their responses regarding university life?	<i>SAPPAM</i> <i>Interviews</i>	<i>Quantitative Data</i>	<i>Open Coding</i> <i>Fidelity Checklist to see if professor is using mindset language</i> <i>Focused Interviews</i>

A Demographic Survey for students was used to identify gender, age, chosen major, and GPA.

A Demographic Survey for professors was used to reveal gender and experience.

Appendix C: Coding of Students' Written Responses



- Open Coding: Form initial categories by tabulating frequencies of mindset terms and self-efficacious tasks in SAPPAM and focused interviews.
- Axial Coding: Identify central phenomenon in the context of the student responses and define all terms based upon contextual use.
- Selective Coding: Relate terms and categories, validate relationships among subthemes, allow larger themes to emerge with supportive data

Appendix D: Demographic Survey

Demographics

Code: _____

Course: _____

Demographic Survey

Please answer to the best of your ability.

1. Age: _____

2. Gender: _____

3. Major: _____

4. GPA at the end of High School: _____

5. Circle your ethnicity:

African American

Asian/Pacific Islander

Hispanic

Native American

White

Multi-Racial (Please list all)

6.A. Is English your primary language?

Yes

No

6.B. If no, please identify primary language: _____

7. Would you be willing to participate in three focus groups this semester (10 minutes each: one in September, one in October, one in November)? _____

If YES, please write your email so you may be contacted:

Phone number (texts permitted): _____

Thank you ☺

Appendix E: 60 Mindset Terms

opportunity
stretch beyond comfort zone
grow
lesson is learning
learning target
here to help
challenge yourself
chances to improve
push yourselves
tackle this concept
mistakes are normal
try
risk-taking
make connections to understand
set the bar high
communicate
progress
push you
master this learning
be proud
Succeed
this isn't easy
learning strategies
mistakes are welcome
we learn from our mistakes
Struggling
break it down into steps
admire your persistence
appreciate your mental effort
describe your process

fix mistakes
write a plan
practice and learn
reassess
discuss a plan
realize how much progress
you didn't quit
using strategies/tools/notes
proud of effort put forth
ready for something more difficult
solve the problem in different ways
deepen our understanding
helping others
deepen our understanding
goals
achieve those goals
put forth effort
new strategies
barriers to your success
improvement is your goal
choices contribute to outcomes
growth
mindset
change
admire persistence
effort put forth
desire to change
overcome barriers to success
reflect on your own learning
ability to make progress

Appendix F: Self-Assessment Prompts on Performance Accomplishments and Mindset

**Self-Assessment Prompts of Performance Accomplishments and Mindset
(SAPPAM)**

Directions: Please do not spend more than five minutes on the following prompts.

1. Why did you decide to attend college? Did you leave your comfort zone?
2. Do you communicate with professors? If so, do you discuss your challenges?
Why or why not?
3. Do you participate in class? If so, does it involve risk-taking? Why or why not?
4. Do you study for your exams? If so, what strategies are you using?
5. Do you manage your time in college? If so, what strategies are you using?
6. Did you make friends on campus? If so, how have they helped you, and have you helped them?
7. Has college challenged your intelligence? If so, how? Did you make progress? If so, how?
8. Why did you decide to attend college? Did you grow as college student? Why or why not?

Question 1-8 pertain to the performance accomplishment of attending college (self-efficacy theory). The latter portion is directed toward Growth Mindset language. Language is taken from the CSEI and ITI tests.

Appendix G: Data Collection and Treatment Matrix

Treatment Matrix: Delivering Mindset Language

Week(s)	Mindset Tool: Language Focus	Reflective Prompt
Week 1: Pre-testing of CSEI and ITI Instruments (control and treatment) and Professional Development/Training	-	-
Weeks 2-3 [Focused Interviews]	Communicating Learning Goals	Prompt 1 in Week 3: How do you feel about your decision to attend college? How do you stretch beyond your comfort zone?
Weeks 4-5	Communicating Learning Goals	Prompt 2 in Week 5: How do you communicate effectively with professors? How do you discuss progress and challenges?
Weeks 6-7 [Fidelity Checklist]	Communicating Learning Goals	Prompt 3 in Week 7: How do you participate in class? Does it involve risk-taking? Why or why not?
Weeks 8-9 [Focused Interviews]	Communicating High Expectations	Prompt 4 in Week 9: How do you study for your exams? What strategies are you using?
Weeks 10-11 [Fidelity Checklist]	Communicating High Expectations	Prompt 5 in Week 10: How do you manage your time? What strategies are you using?

Week 12	Effort, Progress, and Improvement Language (Growth Feedback Tool)	Prompt 6: How do you socialize on campus? How have you made progress?
Week 13	Effort, Progress, and Improvement Language (Growth Feedback Tool)	Prompt 7 How do you use your intelligence in college? How do you plan to improve?
Week 14: Make-up Week (storms, holidays, etc)	-	-
Week 15: Post-testing of CSEI and ITI Instruments (control and treatment)		Prompt 8: How will you grow, or not grow, as a college student? Have you deepened your understanding of being a college student? Why?
[Focused Interviews]		

Appendix H: IRB Consent Forms

Letter and Consent Form (Dean of College)



Date

Dear (Dean):

I am currently enrolled in the doctoral program for Instructional Leadership at Western Connecticut State University. This program requires that I conduct research in Fall 2017. The purpose of the research is to understand college freshmen perceptions of self-efficacy (Bandura, 1977) and mindset (Dweck, 2006). I will administer the CSEI (College Self-Efficacy Inventory) and the ITI (Implicit Theory of Intelligence) to about 120 college freshmen in six classes. The students in the treatment group (about 60) will receive Mindset Works (2016) Mindset Framing and Feedback language in their course. The language was designed by Mindset Works in conjunction with Dr. Carol Dweck.

The researcher will enter the class three times to observe and administer a fidelity checklist, which pertains to the professors' usage of the mindset language. Self-Assessment Prompts on Performance Accomplishments and Mindset will be given to the 60 students in the treatment group. Each of the eight prompts require 100 word responses (5-7 minutes). Also, 2-3 students will be asked three times in the semester (both treatment and comparison groups) to participate in a ten minute focused interview.

This research study has been reviewed and approved by Western Connecticut State University's Institutional Review Board (Protocol # 1617-103). Participation in this study is completely voluntary and participants may withdraw at any time without any penalties.

I wish to thank faculty and students at Western Connecticut State University for considering participation in this research. If you have any questions, please feel free to contact me, or my advisor, Dr. Katie O'Callaghan.

Sincerely,

Jeanette Moore
Jemoore203@hotmail.com

I agree that the study described above can be conducted at Western Connecticut State University.

Please Print Name

Signature

Date

Consent Form (Treatment Professors)



Date

Dear (Professor):

I am currently enrolled in the doctoral program for Instructional Leadership at Western Connecticut State University. This program requires that I conduct research in Fall 2017. The purpose of the research is to understand college freshmen perceptions of self-efficacy (Bandura, 1977) and mindset (Dweck, 2006). I will administer the CSEI (College Self-Efficacy Inventory) and the ITI (Implicit Theory of Intelligence) to about 120 college freshmen in six classes. The students in the treatment group (about 60) will receive Mindset Works (2016) Mindset Framing and Feedback language in their course. The language was designed by Mindset Works in conjunction with Dr. Carol Dweck.

A treatment professor is to deliver mindset language. This professor receives training during the first week of the semester which consists of reading Dweck's *Mindset: The New Psychology for Success* (2006), watching a 17-minute training module on mindset language usage, and reading three pages of mindset language words and phrases.

The researcher will enter the class three times to administer a fidelity checklist, which pertains to the professors' usage of the mindset language. Self-Assessment Prompts on Performance Accomplishments and Mindset will be given to the 60 students in the treatment group, and three ten minute focused-interviews will occur with 2-3 students three time in the semester.

This research study has been reviewed and approved by Western Connecticut State University's Institutional Review Board (Protocol # 1617-103). Participation in this study is completely voluntary.

I wish to thank faculty and students at Western Connecticut State University for considering participation in this research. If you have any questions, please feel free to contact me, or my advisor, Dr. Katie O'Callaghan.

Sincerely,

Jeanette Moore
Jemoore203@hotmail.com

I agree that the study described above can be conducted in my classroom.

Please Print Name

Signature

Date

Consent Form (Comparison Professors)



Date

Dear (Professor):

I am currently enrolled in the doctoral program for Instructional Leadership at Western Connecticut State University. This program requires that I conduct research in Fall 2017. The purpose of the research is to understand college freshmen perceptions of self-efficacy (Bandura, 1977) and mindset (Dweck, 2006). I will administer the CSEI (College Self-Efficacy Inventory) and the ITI (Implicit Theory of Intelligence) to about 120 college freshmen in six classes. The students in the treatment group (about 60) will receive Mindset Works (2016) Mindset Framing and Feedback language in their course. The language was designed by Mindset Works in conjunction with Dr. Carol Dweck.

The researcher will also ask 2-3 of your students to participate in ten minute focused-interviews three time in the semester.

This research study has been reviewed and approved by Western Connecticut State University's Institutional Review Board (Protocol # 1617-103). Participation in this study is completely voluntary.

I wish to thank faculty and students at Western Connecticut State University for considering participation in this research. If you have any questions, please feel free to contact me, or my advisor, Dr. Katie O'Callaghan.

Sincerely,

Jeanette Moore
Jemoore203@hotmail.com

I agree that the study described above can be conducted in my classroom.

Please Print Name

Signature

Date

Consent Form (Treatment Student)



Date

Dear Student,

I am in a doctoral program at Western Connecticut State University. I am doing an exciting research study about self-efficacy and growth mindset.

There are three surveys which take approximately five to ten minutes to complete at the start and finish of the semester. One asks for your high school GPA. There are also three observations I will do in your classroom this semester. There are eight reflective writing prompts you will answer this semester as well (no more than 100 words each). You may be asked to participate in a focused interview. If you are asked, the interview takes about ten minutes, and will happen three times in the semester.

I will not use your name in the study; I will use numbers. The surveys will have nothing to do with grades in your class. All the information will be kept private. If you have any questions, please ask me.

If you would like to be in my study, please print and sign your name below:

Print student name

X _____
Student signature

Sincerely,
Jeanette Moore

Jemoore203@hotmail.com

Consent Form (Comparison Student)



Date

Dear Student,

I am in a doctoral program at Western Connecticut State University. I am doing an exciting research study about self-efficacy and growth mindset.

There are three surveys which take approximately five to ten minutes to complete at the start and finish of the semester. One asks for your high school GPA. You may be asked to participate in a focused interview. If you are asked, the interview takes about ten minutes, and will happen three times in the semester.

I will not use your name in the study; I will use numbers. The surveys will have nothing to do with grades in your class. All of the information will be kept private. If you have any questions, please ask me.

If you would like to be in my study, please print and sign your name below:

Print student name

X _____

Student signature

Sincerely,

Jeanette Moore

Jemoore203@hotmail.com

Appendix I: Fidelity of Treatment Checklist

Fidelity Checklist: Professor Usage of Mindset Language in Treatment Group

The researcher enters the classroom three times in the semester (three of the following: weeks 6, 7, 10, 11). She checks off whether these 60 mindset language words or phrases extracted from the Mindworks (2016): Mindset Framing and Feedback tools are used.

Growth Mindset Language (Mindset Works, 2016)	Number of Instances Used	Context
opportunity		
stretch beyond comfort zone		
grow		
lesson is learning		
learning target		
here to help		
challenge yourself		
chances to improve		
push yourselves		
tackle this concept		
mistakes are normal		
try		
risk-taking		
make connections to understand		
set the bar high		
communicate		
progress		
push you		
master this learning		
be proud		
succeed		
this isn't easy		
learning strategies		
mistakes are welcome		
we learn from our mistakes		
struggling		
break it down into steps		
admire your persistence		
appreciate your mental effort		
describe your process		

fix mistakes		
write a plan		
practice and learn		
reassess		
discuss a plan		
realize how much progress		
you didn't quit		
using strategies/tools/notes		
proud of effort put forth		
ready for something more difficult		
solve the problem in different ways		
deepen our understanding		
helping others		
deepen our understanding		
goals		
achieve those goals		
put forth effort		
new strategies		
barriers to your success		
improvement is your goal		
choices contribute to outcomes		
growth		
mindset		
change		
admire persistence		
effort put forth		
desire to change		
overcome barriers to success		
reflect on your own learning		
ability to make progress		

Appendix J: Training Protocol

Professor Training Protocol

The researcher will meet with treatment professors during the first week of the semester.

The following will be reviewed:

1. Read Mindset: The New Psychology of Success (Dweck, 2006)
2. Watch the 17-minute training module from Mind Works regarding the mindset language.
3. Read and review the Growth Mindset Framing and Feedback Tools.
 1. Look at SAPPAM students will respond to eight times in the semester.
 2. Receive and review the five mindset language terms for delivery to the class each week (5 mindset words/phrases x 14 weeks)
 3. Open discussion in regard to delivering language to the classes.

Appendix K: Further CSEI Description

The first exploration of the CSEI was implemented by Solberg, et al (1993), with second and third-year students who attended Hispanic University ($n = 164$). Participants completed the original CSEI instrument with 19 items, “because only 19 of the 20 items had pattern coefficients greater than .50” (Barry & Finney, 2009, p. 199). The second study of the CSEI was implemented in 1998, again by Solberg and his colleagues, with a reexamination of the instrument “by conducting a principal components analysis with varimax rotation using first and second-year students” (Barry & Finney, 2009, p. 199) with a total of 388 participants ($n = 388$).

The researchers felt a “more adequate validation procedures seem(ed) necessary” (Barry & Finney, 2009, p. 200). Participants constituted a sample of convenience because the researchers were in the doctoral program at James Madison University, so they studied incoming freshmen to their university ($n = 3,187$). The sample consisted of college freshmen who were ages 17-19. There were male and female students, 68% and 32% of the population, respectively. There were 85.1% White and 14.9% Minority students in the sample.

This was an exploratory study where the authors tended to “clarify the dimensionality of the CSEI by testing several CFA models” (Barry & Finney, 2009, p. 209). The variables were the scores derived from the CSEI, with 20 different items. The purpose of the study was to identify subscales among the 20 items, and explore potential relationships among social anxiety, academic anxiety, self-regulated learning, and academic achievement.

Data collection used solely the CSEI instrument. The instrument is a college self-efficacy inventory, which measures confidence on a Likert scale of 1-10, through 20 questions. Students are given a brief set of instructions to explain briefly how the 20 items concern confidence in

various aspects of college (Barry & Finney, 2009). Individual items were categorized under three subgroups: Course Efficacy, Roommate Efficacy, and Social Efficacy.

There is an interest in revealing the variables, which contribute to a student's ability to adjust and develop while in college (Barry & Finney, 2009). The authors gathered validity and reported on the exact functioning of the instrument. The authors suggested revisiting college self-efficacy to ensure it truly represents all aspects of the experience (Barry & Finney, 2009).

There were many limitations reported by the authors. The demographic was overly representative of females, particularly Caucasian. This threatens generalizability to other college populations. The authors felt the CSEI should be studied with different populations of students. Also, a three-factor structure was implemented with 15 questions; however, a future study may be conducted to make additional modifications to the CSEI.

The researchers conducted this dichotomous study because the CSEI instrument was claimed to focus on the dimensionality of first-year college students, which needed to be further investigated. The authors used factor analysis and correlations, where they reported evidence of criterion-related validity.

Appendix L

Raw Data: Mindset Terms

Coding of Raw Data: Mindset Term Identification

60 MINDSET TERMS	LEVEL 2: CATEGORICAL - CONTEXT OF MINDSET TERMS
opportunity	AS - 14 “I want to have a better opportunity in life to have a job I not only enjoyable also make money.” JB - 4 “If I get the opportunity to I will tell them but I won’t force it on them. I do this because I know they are great help”
stretch beyond comfort zone	0
grow	AC - 36 “I have grown as a college student changing the way I act”
lesson is learning	0
learning target	0
here to help	0
(challenge) yourself	AJ - 21 “I would say that’s challenge my work ethic” MS - 28 “College has challenged my intelligence”
chances to improve	0
push yourselves	JB - 4 “My teammates and I push each other to get our work done” AC - 36 “College has pushed me to pay more attention and actually learn the material.”
tackle this (concept)	0
mistakes are normal	0

try	DK - 63 "I try, but I'm self conscious" AJ - 21 "I try to participate as much as I can in all my classes" AS - 14 "I try to do homework at work sometimes."
risk-taking	DJS - 30 "Class participation does not involve risk-taking because a classroom should be safe and judgement-free learning environment" BI - 22 "It involves risk-taking because sometimes your opinion may differ from someone else's."
make connections to understand	0
(set) the bar (high)	0
communicate	EB - 3 "I communicate with my professors if I have a problem" RC - 38 "The only reason why I would communicate is because I am stuck on something."
progress	EB - 3 "Yes I have made progress getting all my work done and making the changes." PC - 18 "I've progressed in a sense where I need to understand things more."
push you	0
master this learning	0
be proud	AM - 65 "Because I want to be able to get a job and make my family proud." DK - 63 "Yes, b/c you need to feel like you are confident with what you're saying + say it proudly."

succeed	BW - 51 “Ultimately, to give me the best chance of into a successful career path.” PC - 18 “You need a degree in today’s society to have a successful life after college.” CG - 6 “I want to be successful and have a good job.”
this isn’t easy	0
learning strategies	JE - 59 “I use strategies like: setting alarms on my phone so I know when o be done with what I’m doing, creating a schedule to follow by.”
mistakes are welcome	0
we learn from our mistakes	0
struggling	AG - 42 “Depends on the subject, mostly if I need help on struggling to understand the topic.” KM - 66 “If I am struggling to understand something in class I will discuss it my professor.”
break it down into steps	0
admire your persistence	0
appreciate your mental effort	0
describe your process	0
fix mistakes	0
write a plan	KM - 66 “Use an agenda to plan day.”

	KH - 7 "I use my planner and I set reminders on my phone and I write on post-its."
practice and learn	AG - 19 "Repeat the practice exam to make sure I understand the material."
reassess	0
discuss a plan	0
realize how much progress	0
you didn't quit	0
using strategies/tools/notes	JE - 59 "I use strategies like: setting alarms on my phone so I know when o be done with what I'm doing, creating a schedule to follow by." AJ - 21 "usually look over my notes and or study guide until I feel as though I am prepared for the exam."
proud of effort put forth	0
ready for something more difficult	0
solve the problem in different ways	0
deepen our understanding	AG - 19 "I look over my notes and repeat the practice exam to make sure I understand the material." KM - 68 "No I participate to better understand the material being taught in order to get a better grade."
helping others	CG - 6 "We do homework together a lot. Are usually help them to stop being stressed" EB - 3

	“I have help them by doing homework or going places with them.”
deepen our understanding	0
goals	NG - 60 “No but I will by transferring to pace university to pursue my goal. “
achieve those goals	ZH - 20 “To achieve my goals.”
put forth effort	0
new strategies	0
barriers to your success	0
improvement is your goal	0
choices contribute to outcomes	0
growth	CG - 6 “College is meant to be an area for opportunity, growth, and things like that.” JC - 39 “Not yet, haven’t changed or grown very much since high school.”
mindset	CM - 12 “Yes I have been learning and thinking a different mindset than before.”
change	AWL - 24 “working so little has changed in my day to day life.” ELR - 68 “I have adapted to these changes by having good work ethic and studying.” MS - 28 “I’m not sure if my IQ has changed but I am learning new things and thinking more.”
admire persistence	0

effort put forth	0
desire to change	0
overcome barriers to success	0
reflect on your own learning	0
ability to make progress	0

Appendix M: Audit Review

Auditor's Report for the Results of Qualitative Questions

Dissertation by Jeanette Moore

Susan H. Guertin, Ed.D, Auditor

April 23, 2018

The auditor and the author of the dissertation met in person on April 10, 2018. Prior to the meeting, Mrs. Moore provided all five chapters of her dissertation, including tables that expressed her codes and their meanings. I reviewed all of this *inabformation* before our meeting. During the ensuing conversation, we discussed the coding process Mrs. Moore used. She explained her thoughts and reasons underlying the coding decisions she made. I asked some clarifying questions.

I found that Mrs. Moore did an exemplary job of coding and recoding, searching for emerging themes, and applying her work to the results she found through her qualitative investigation. Her coding and grouping of codes into themes was logical and easy to follow, and the codes and themes were very clear. There were no disagreements. Because the information was available ahead of time, I was able to review all of the coding instead of just a sample. I agree with all of her decisions.

Mrs. Moore had not written about the process of triangulation she employed, but will add a section explaining it to her dissertation. In review, the audit process for Mrs. Moore's qualitative portion of her dissertation was successful.

Appendix N: IRB Approval

From: Carol O'Connor
Sent: Wednesday, February 8, 2017 1:16 PM
To: Jeanette Moore
Cc: WCSU IRB; Catherine O'Callaghan
Subject: IRB approval

Hello Jeanette Moore,

I am pleased to inform you that your I.R.B. protocol number 1617-103 has been approved by full review. This email is documentation of your official approval to start your research. If you need a copy of this official approval for funding purposes, please let me know occonnorc@wcsu.edu. The WCSU I.R.B. wishes you the best with your research.

You have 1 year from the date of this email to complete your research; if you are still conducting that date, you will need to fill out a renewal application. When are you finished with your study please fill out and return via email a Termination/Completion Report (available here: <http://wcsu.edu/irb/forms.asp>) so we know your study is complete.

Finally – and most importantly! – we have recently learned that current BOR technology policies do *not* guarantee privacy of *any* info stored on work computers physically, remotely, or otherwise (i.e., laptop, Dropbox, etc.). As such, to maintain the truth of any anonymity or confidentiality promises you make to participants (consent form, for example), you will need to store all electronic data obtained from those human subjects on a system/computer/file *not* connected to any CSU system. It is your responsibility as the primary researcher to make sure personal data of participants remains securely private – something not guaranteed in the currently existing CSU system. *Rest assured, (because it's ridiculous to expect faculty to store work-related research on non-work-related systems and/or to conduct research where participants are not guaranteed anonymity/confidentiality), we are working to gain an exception for research purposes to this policy. But until then, it's technically and legally possible for anyone in the system office to access your participants' data at any time – without your consent or knowledge before doing so... which makes any guarantees made on research documents (e.g., consent forms) deceptive unless info is stored elsewhere.*

Thanks,

Jessica Eckstein, Ph.D.
Chair, Institutional Review Board
Western Connecticut State University
www.wcsu.edu/irb

Carol O'Connor
Psychology/Philosophy Department Secretary

Appendix O:
Professor Survey

Professor Demographic Survey

Code: _____

Directions: Please answer the questions as they best apply to you.

1. Gender:

Male

Female

2. Ethnicity:

Hispanic-American

African-American

Native-American

Caucasian American

Asian-American/Pacific Islander

Other: Please specify _____

3. College-level Teaching Experience (years): _____

4. First-Year Teaching Experience (years): _____

5. Level of Education (Please circle the highest degree completed):

Bachelor's (BA/BS)

Master's (MA/MS)

Sixth-year/Ed. Spec.

Doctorate (Ph.D/Ed.D)

Thank You!

Appendix P: Communication with Mindset Works (2016)

ri 6/22
ri 6/22
tu 6/21
re 6/19



Lisa Blackwell <lasblackwell@mindsetworks.com>

Today, 10:43 AM

Jeanette Moore: sroberts@mindsetworks.com; jamaral@mindsetworks.com

Reply all

Hi Jeanette,

Congratulations on finishing your dissertation defense! And no objections to your publishing in Pro Quest as described below.

Best regards,
Lisa

Lisa S. Blackwell, Ph.D.
VP of Design, Implementation & Evaluation
Mindset Works, Inc.

**EdD in Instructional Leadership
Department of Education and Educational Psychology
Dissertation Registration Form**

Student Jeanette E. Moore Date 6/27/18

Dissertation Title: MINDSET, SELF-EFFICACY, AND FIRST YEAR COLLEGE STUDENTS:
PERCEPTIONS OF PERFORMANCE ACCOMPLISHMENTS

Dissertation Committee Members: See attached Dissertation Approval Page

For Office Use Only.

Catherine O'Callaghan, PhD *Catherine O'Callaghan* _____
Primary Advisor Signature Date

Marcia A. B. Delcourt, PhD *Marcia A. B. Delcourt* _____
Program Coordinator Signature Date

Maryann Rossi, PhD *Maryann Rossi* 7/3/18
Dean, School of Professional Studies Signature Date

Christopher Shankle, EdD *Christopher A. Shankle* 3 July 2018
Associate Director, Division of Graduate Studies Signature Date