Ready, Set, Succeed!

Growth Mindset Instruction in a Community College Success Class

by

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ABSTRACT

The purpose of this action research study was to explore the relationship between growth mindset instruction in a community college success class with student academic effort and achievement, among students enrolled in a developmental reading class. Community college students, especially those testing into developmental classes, face numerous obstacles to achieving their goal of completing a college degree. Research supports that students with a growth mindset - a psychological concept grounded in the belief of the malleability of traits such as intelligence - embrace challenges, exert more academic effort, and achieve more. Fourteen students enrolled in a community college participated in this convergent parallel mixed methods study. A mindset survey was administered three times, at the beginning and end of the semester as well as at Week 3 after initial introduction to growth mindset. Descriptive statistics indicated a slight increase in students' growth mindset scores by the end of the term. An analysis of variance, however, yielded no statistically significant relationship. Correlational analysis of final mindset scores with effort variables indicated an unexpected result – a negative correlation ($p<.05$) of growth mindset with time in Canvas (the Learning Management System). An ANOVA using a median split for high vs. low mindset scores indicated an unexpectedly significant ($p<.05$) positive relationship between missing assignments and a high mindset score. Statistical analysis of mindset with achievement yielded no significant relationship. Qualitative results included data from three journal assignments and semi-structured interviews and suggest that these students could comprehend and support most of the tenets of Growth Mindset Theory. While quantitative results were not significant in the expected direction, triangulation with qualitative data indicated that

students' goal orientation may be a factor in the unexpected quantitative results. This study adds to the growing literature on Growth Mindset Theory by extending it to a new and different population, first year community college students, with reading challenges. Further study is needed to clarify the relationships of growth mindset, malleability of intelligence, and goal orientation with academic effort and achievement over a longer period.

DEDICATION

I dedicate this dissertation to my sister of the soul M. Judith Quatrani Pasino, B.S., M.S., MDiv, MSW (almost!). Your faith in God and your faith in me has buoyed me up when I was drowning. Your prayerful support, even though from a distance, has surrounded me with God's grace, wisdom, humility, and compassion. I am forever indebted to you. Thanks for the repeat performance!

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

The completion of a college degree is one of the factors that determines individual and societal quality of life. College completion is affected by multiple risk factors, and, community college students may be more vulnerable to these risks due to the demographics of this population. These risk factors include arriving at college underprepared for college-level courses, financial difficulties, family responsibilities, and potentially a lack of familial role models since many community college students may be the first in their families to attend college (American Association of Community Colleges [AACC], 2016). Alternatively, factors that support persistence and success in college include exerting academic effort (Astin, 1993), a sense of belonging in the academic context (Tinto, 1993), and engaging in difficulties for long-term gain (Yan, Thai, and Bork, 2014).

The long-term gains that college provides have been recognized for decades and supported by the government. Since the GI Bill was made available to veterans after World War II, the popularity of college attendance in the United States has been growing (Gates, 2013). One reason for the increased interest in obtaining a college degree is because a college degree is seen as a gateway to the middle class. In the 1900s families could achieve middle class incomes with high-paying manufacturing jobs that did not require college, but as our economy has shifted away from manufacturing, those jobs have decreased or ceased to exist (Carnvale, Smith, & Strohl, 2013). Jobs that pay a middle class wage now primarily require a college degree. College graduates' salaries

are, on average, twice that of those with just a high school diploma (Carnvale et al., 2013). In order to support a stable economy with a vibrant middle class, more students will need to achieve a college credential. In addition to the personal economic benefits of a college education, there are societal benefits as well (AACC, 2015). College education is seen as a benefit to society in creating an informed and active citizenry to maintain the democracy upon which this country was built (Kanter & Geary Schneider, 2013). College educated citizens are more likely to vote and to engage in community service and philanthropy. Finally, college graduates live longer with fewer health problems than those without a college degree (AACC, 2015).

Community college, traditionally a low-cost, geographically convenient, and open enrollment option, is the starting place for many first-time college students as they press forth into higher education. According to the American Association of Community Colleges (AACC), there are over 1,000 community colleges in the country, and 41% of first-time college students start at a community college (AACC, 2016). Community college students typically balance a variety of challenges: 62% attend school part-time, 17% are single parents, 12% have disabilities and 7% are non-citizens. In addition, 36% of community college students are first-generation college students.Without adequate time, resources, or knowledgeable support, community college students often lack the expertise to navigate the college environment. Only 28% obtain any degree within 8.5 years of initially enrolling at a community college (AACC, 2016).

Another potential obstacle to completion is that degree- or university transfer-seeking community college students have to take a placement test in reading, writing, and

math. Fifty-eight percent of those who test need to take at least one developmental or below college-level course before starting college-level courses. Students who start in below college-level courses have a longer path in front of them, incur more expenses, and are less likely to persist (Calcagno & Long, 2008).

Although community colleges traditionally focused on accessibility, they are now shifting their focus toward degree or certificate completion (Mullin, 2010). President Obama challenged community colleges to double their graduates by 2020, "Working in partnership with states and communities, community colleges are well-suited to promote the dual goal of academic and on-the-job preparedness for the next generation of American workers" (White House, 2014, para. 10). Meeting this challenge requires identifying and addressing factors that inhibit completion, as well as those that support increased probability of completing a college degree.

One organization studying community colleges is Community College Research Center (CCRC). The CCRC gathers data, writes reports, and engages in critical discussions with practitioners and politicians in an effort to understand the place community colleges have in higher education and to improve the experience of students. CCRC's Scaling Innovation project conducted interviews with students and faculty and observed classrooms at community colleges that had restructured their developmental coursework to include increased rigor to help students successfully transition into college-level courses and beyond (Barragan, 2013). Results indicated that increased rigor provided a barrier to many students who were unable to meet the intellectual demands of college coursework. The students often perceived their struggles as an indicator of

academic weakness, rather than as productive behavior and evidence of perseverance. The report recommended making "struggle" a productive part of the learning process. One instructional avenue that supports struggle as an important part of the learning process is the philosophy of growth mindset, which values effort and persisting beyond obstacles, as well as learning from feedback and criticism (Dweck, 2006).

Students placed into below college-level or developmental courses may battle feelings of deficiency leading to a feeling of lack of control over their academic achievement (Pizzolato, 2004). Consequently, students may need to establish connections at their institution to support them through their associate's degree. Inducing a growth mindset has been shown as one way to enhance belonging, academic effort, and persistence through difficulties for long-term gain (Blackwell, Trzesniewski , & Dweck, 2007; Fabert, 2014; Sriram, 2014; Yeager & Walton, 2011).

Local Context

In my local context at a large community college in the southwestern United States, the demographics of our students mirror the national statistics of the AACC. Of the approximately 28,000 students a year who attend the college, the majority are first-generation students (62%), and roughly the same percentage are part-time students (64%). Nearly half of the students, 46%, identify as White, 33% identify as Hispanic, while all other ethnicities are under 10% each (GCC, 2016). Of the 3,622 new students who tested for Fall 2016 admission at the college, 67% (slightly above the national average of 58%) tested into developmental courses. Though my institution did not maintain the demographics of how many students were parents, anecdotally my students

tell me of their family responsibilities either as a parent, as an older sibling, or as a young adult living on their own while continuing to support family members. The characteristics mentioned are generally seen as obstacles to student success in a college setting (Tinto, 1993).

In response to the perceived needs of this population, the college administration created an initiative in 2013 to support the success of students placed into developmental courses attending my institution. When a degree-seeking student tests into a developmental course, they must take a college success course during their first year. Instructors of the success course are residential and adjunct counseling faculty. The course is a 100-level, three credit, transferrable course with 15 course outcomes as determined by the community college district (see Appendix A). In order to better support students who are in developmental or below college-level courses, my academic department at the college coordinates learning communities composed of a developmental reading, writing, or math course and the college success course.

I have been teaching a college success course at my community college for 10 years. For the past nine years I have been teaching at least one section of the success course in conjunction with a developmental English, reading, and/or math class. At the time of this study I taught the college success course in a learning community with the lowest-level reading class (with a mean reading level of Grade 3). The success course has three main components: study/self-management skills such as test-taking and time management, career and academic planning, and orientation to campus resources. However, simply being taught skills does not lead to a commitment on the student's part

to use those skills (Sriram, 2014; Yan et al. 2012). Something more is needed to support students in utilizing their burgeoning skills. Inducing a growth mindset (i.e., recognition of the value of effort and the benefits of feedback and criticism) has been shown to increase academic effort (Blackwell et al., 2007; Sriram, 2014), which may increase the likelihood of students using the skills learned (Dweck, 2006). Thus, in this action research study I turned to the potential of facilitating a growth mindset to support the success of community college students in a developmental reading course.

Research Problem

Despite institutional attempts to support under-prepared, primarily first-generation students, each semester between 10 and 20% of my students fail or are withdrawn from the college success course, usually because they have not turned in their work, have had excessive absences, or have not followed through with invitations to redo assignments that needed revision for a passing score. This failure rate is consistent with the high attrition rate of underprepared college students (The National Center for Education Statistics, 2011). First semester success is a strong predictor of future success in college (Tinto, 1993), so failing one's college success class in one's first semester does not bode well for overall college success.

Research Cycles

A part of action research is engaging in cycles of research to hone the method and analysis. In Cycle 1 (Fall 2014) of this action research project, students in a college success class were interviewed to better understand their goals, expectations, and motivation. The interviews yielded rich insight into the students' mindsets and

6

experiences. Cycle 2 (Spring 2015) included development and administration of a survey to better understand students' responses to instruction. In Cycle 3 (Fall 2015) the survey was revised and content analyses were run. Given a small *n* and a survey with positive and reverse items, analysis of reliability co-efficients did not yield significant results. This fourth and final cycle included a simplified and revised survey, semi-structured interviews, and the additional qualitative data of three journal assignments. Quantitative measures of effort and achievement including time on task and the final grade for a companion developmental reading class were also included.

Purpose of the Study

The purpose of this action research study is to explore community college students' adoption of growth mindset beliefs and attitudes following instruction. Students' academic effort in a college success class and their achievement in a companion reading class are also considered. For this study, *growth mindset* is defined as the belief in the malleability of the brain and the belief that with strategic effort, feedback, and learning from mistakes, one is more likely to be successful (Dweck, 2006). To that end, I developed the following research questions.

Research Questions

1. To what extent do community college, developmental reading students' mindset beliefs change after growth mindset instruction?

2. How do community college developmental reading students' self-reported attitudes, behaviors, and beliefs relate to mindset theory?

3. To what extent do students with more more growth-oriented mindsets exert more academic effort?

4. What is the relationship between endorsement of growth mindset beliefs and academic achievment of students in a developmental reading class?

CHAPTER 2

THEORETICAL CONSTRUCT AND RELATED STUDIES

Mindset Theory

Definition/Description

Mindset is a psychological framework that implicitly guides how people think, feel, and act (Dweck, 1999; Yeager & Walton, 2011). Mindsets have come to be known as either growth (incremental) or fixed (entity). Growth Mindset Theory has captivated the attention of educators from pre-school to college as a relatively simple, effective, and reliable way to help students achieve more academic success. Growth mindset is a belief system that supports the idea that attributes such as intelligence or morality, are dynamic and malleable, (Dweck, Chiu, & Hong, 1995). For example, students with a growth mindset will persist and exert effort because they believe that they can develop their intelligence if they work hard. In contrast, a fixed mindset is a belief that attributes, such as intelligence, are immutable, trait-like entities and so are not changeable. According to Dweck (1999), those with a fixed mindset will give up because they believe setbacks are due to their lack of intelligence or that failure will reflect poorly on them. These psychological frameworks influence the extent to which learners will persist (or not) in the face of setbacks and challenges.

For decades Carol Dweck and colleagues have been refining Growth Mindset Theory from its beginnings in implicit self-theories to its current application as growth and fixed mindset (Dweck, 2006; Dweck et al, 1995; Dweck & Leggett, 1988; Yeager & Dweck, 2012). In a 1988 seminal article Dweck and Leggett reviewed earlier studies on

the patterns of adaptive and maladaptive behavior across intellectual tasks in an attempt

to develop a theory linking motivation and personality. By linking implicit self-theories

of intelligence with goal orientation and behavioral responses, they proposed two implicit

self-theories of intelligence, incremental and entity. An incremental self-theory of

intelligence posits the belief that one is able to develop attributes such as intelligence and

talent leading to the construction of *learning* goals, or goals that promote development

and growth. The entity theory of intelligence posits the belief that attributes are fixed and

immutable, which leads to a desire to document one's ability by performing well on tasks

leading to the creation of *performance* goals. The consequent behavioral responses of a

person with performance goals are to shy away from difficult tasks (where they may not

perform well) and when deeply challenged, to deflect attention from the task by making

self-aggrandizing statements. The consequent behavioral response of a person with

learning goals is to try harder in the face of challenges so as to develop intellect (Dweck

& Leggett, 1988; Erdley, Cain, Loomis, Dumas-Hines, & Dweck, 1997).

Continuing research on incremental and entity implicit self-theories, Dweck and

colleagues (1995) explored the accompanying emotions and behaviors. The studies were

performed in labs with subjects from pre-school through college. Implicit self-theories

were identified with a simple three-item questionnaire. Researchers examined behavioral

responses to difficult tasks and morally ambiguous situations and found no link to age,

gender, or political or religious affiliation, but instead discovered links to implicit self

theories. The authors concluded,

> (t)hese findings are consistent with the idea that implicit theories may play a
> causal role in the patterns of judgments and reactions forementioned. In addition,

given the fact that we have been successful in manipulating theories, these findings suggested that it is more appropriate to view implicit theories and their allied judgment and reaction patterns as relatively stable but malleable personal qualities, rather than as fixed dispositions. (Dweck et al., 1995, p. 279)

They also found that implicit theories are domain specific and that a person may hold an incremental theory in one domain (e.g., morality) and an entity theory in another (e.g., intelligence).

In Carol Dweck's 2006 book *Mindset*, she transformed the implicit self-theories of incremental and entity to the now popular terms *growth* and *fixed mindset*. Growth mindset includes a belief in the malleability of intelligence, talent, morality, and other internal characteristics. Fixed mindset adherents believe that they have a certain amount of intelligence or talent that may not be increased. That amount may be extensive compared to others and if so, they usually consider themselves "smart;" or the amount may be considered small compared to others and they may consider themselves "dumb." Dweck offered five additional distinctions between growth and fixed mindset and evidence for associated adaptive or maladaptive behaviors. For those with a growth mindset, effort is seen as the path to mastery; for those with a fixed mindset, effort is seen as fruitless. In the face of challenges, people with a growth mindset embrace them, recognizing challenges as an opportunity to grow; people with a fixed mindset avoid challenges even if they believe they have high intelligence so as to preserve their fixed idea that they are intelligent. In the face of obstacles, those individuals with a growth mindset persist while their counterparts give up. When confronted with criticism or mistakes, those with a growth mindset learn from them and find inspiration in the success of others; whereas, those with a fixed mindset feel threatened by the success of others

(Dweck, 2006). "Thus self-theories play an important (and causal role) in challenge seeking, self-regulation, and resilience, and changing self-theories appears to result in important real-world changes in how people function" (Dweck, 2008, p. 392).

Applicability to Study

Mindset affects motivation, as well as behavior, within all areas of life—from work and relationships to school and sports (Dweck, 2006; Keating & Heslin, 2015). Students holding a growth mindset are "more open to learning, willing to confront challenges, able to stick to difficult tasks, and capable of bouncing back from failures" (Dweck 1999, quoted in Dweck 2008, p. 392). When growth mindset beliefs are held by students, their motivation propels them to act in goal attainment ways. Students with a growth mindset are motivated to seek support, respond positively to feedback, and persist in the face of setbacks and difficult school transitions, regardless of initial level of academic achievement (Blackwell et al., 2007).

Evidence suggests that students with an incremental or growth mindset are more motivated and have higher levels of academic achievement in spite of negative stereotypes, while students with an entity or fixed mindset struggle to overcome these stereotypes (Aronson, Fried, & Good, 2002; Blackwell et al., 2007; Walton & Cohen, 2007). In one study with urban junior high school math students, Blackwell and colleagues followed nearly 400 seventh grade students. They found that those who entered junior high with an incremental theory of intelligence experienced an upward trajectory in their math scores over the two years of junior high compared to those who

12

endorsed an entity theory, or fixed mindset, who had a flat trajectory in math scores over the same period.

In a second study, Blackwell and colleagues examined the effect of instruction on the malleability of intelligence (growth mindset) on motivation and achievement. The students were again in junior high, a period replete with challenging obstacles and threats to self-esteem and a time when theories of intelligence seem to have a great effect. About 100 students with low sixth-grade math scores were randomly placed in either an experimental or control group. Both groups participated in eight 25-minute sessions once a week, including instruction on the physiology of the brain, anti-stereotypic thinking, and study skills. In addition, the experimental group was taught that intelligence can be developed, intellect is malleable; whereas, the control group was taught about memory and were allowed to choose academic issues of personal interest to them for discussion. Both groups performed well on items testing their knowledge of similar workshop content with the experimental group performing better on the incremental theory content. Also the experimental group endorsed an incremental theory of intelligence more strongly. Participants in the experimental group were perceived by coders (blind to the condition) as more motivated in the classroom and displayed an upward trajectory on their math scores, whereas math scores decreased for the control group (Blackwell et al., 2007).

Yeager and Walton (2011) reviewed numerous randomized experiments of brief psychological interventions targeting students' thinking and sense of belonging and concluded that they could lead to large and lasting gains in student achievement.

13

Interventions were small, but powerful, because they addressed students' beliefs about themselves and their world. They did not focus on skills, but rather beliefs about one's ability to improve their intelligence or about belonging and being valued in school. Interventions included writing about one's core values for 15-20 minutes, being taught that the brain is like a muscle and grows with effort, reading a scientific article, watching video clips, writing a letter of advice or encouragement, and meeting with a mentor. All were effective suggesting that brief instructional concepts to promote growth mindset thinking, hinge on the neuroplasticity of the brain and can be explicitly taught. When students are taught that the brain is malleable, mistakes, effort, obstacles, and challenges are experienced as opportunites for growth and improvement (Blackwell et al., 2007). In addition to explicit instruction about the malleability of the brain, implicit efforts such as praise targeted at effort, rather then a perceived trait, is an additional instructional tool for promoting growth mindset.

Beliefs about the malleability of the brain are important, though perhaps not sufficient with all populations, to support significant differences in effort and achievement. In an exploratory study of a standardized growth mindset intervention (*Brainology*) with 12 high school, learning disabled students with reading difficulites, Caufield (2010) found that her students experienced slight increases in beliefs about intelligence and effort, yet did not show strong patterns of positive motivational change after the intervention. Students expressed confusion about survey questions and dissatisfaction with parts of the intervention. More research with students with differing abilities may promote development of differentiated interventions.

Mindset is particularly important at times of transition. School transitions form the background for much of the literature about mindset, including how to promote resilience academically and socially (Blackwell et al., 2007; Yeager & Dweck, 2012). First year college students experience a notable transition. Mindsets, though stable in college students with no intervention (Robins & Pals, 2002), are also easily induced with instruction (Aronson et al, 2002; Yeager & Dweck, 2012; Yeager & Walton, 2011).

Kuh, Kinzie, Schuh, & Whitt (2005) found that the motivation and energy students apply to their education is the best predictor of their learning and success. They contend that students with a growth mindset are more motivated and apply more energy to their education because they believe their efforts will be rewarded. Certainly this motivation and energy is needed for first-year college students entering with questionable academic qualifications.

In their doctoral dissertations, Sriram (2010) and Fabert (2014) both used growth mindset theory as the basis for intervention in college success/orientation classes designed to help students make the transition to college. Sriram's (2010) research provided evidence to support Kuh et al.'s research. Sriram's experimental study was conducted with nearly 200 first-year university students deemed at risk because of their poor entrance scores combined with high school class rank. Participants were enrolled in a required academic success course and randomly assigned to either a control or experimental condition. Both groups participated in four short, 15-minute, web-based sessions over the course of four weeks. These sessions included a quote, questions to engage the student, a video clip followed by additional questions, a lecture video with a

supportive research study, and, finally, teaser questions to prime the student for the subsequent session. The content of the experimental group sessions focused on growth mindset topics such as the malleability of intelligence and the expectation of exerting effort in the face of obstacles along the academic journey. The quotes and film clips supported those topics. The control group sessions focused on study skills topics with related quotes and film clips. Based on a comparison of pre- and post-intervention surveys, the experimental group's view of intelligence shifted to more of a growth mindset. The students in Sriram's study who were instructed in growth mindset reported exerting more academic effort by engaging in more academic goal-related behaviors than the students who were taught study skills. Ironically, the students in the experimental group reported greater engagement in the actual study skills behaviors than the students in the control group who were explicitly instructed in study skills without the underlying belief system of the malleability of intelligence.

In Fabert's (2014) study of nearly 500 first-year students in a college orientation class, she examined the impact of growth mindset instruction on students and the strength of their beliefs in negative stereotypes about women in STEM (science, technology, engineering, and math) fields. She also analyzed students' academic achievement. Fabert randomly assigned students to one of three groups. One group was engaged in a short web-based training program with instruction on the malleability of intelligence, a comparison group was trained in persuasive writing, and a control group did not receive any training. The experimental and comparison group members then wrote letters of encouragement/persuasion to fictitious seventh grade students struggling in STEM

16

classes. The results indicated that students in the experimental group had stronger growth mindsets and were less likely to believe the negative stereotypes. They also had higher GPAs at the end of the semester (their first in college) compared to the control group, but there was no significant difference between the experimental and comparison groups on end of semester GPA. Gender made a difference; female students with a higher IQ attitude (growth mindset), scored higher in stereotype disbelief; whereas, men with a higher IQ attitude evidenced higher scores in STEM self-efficacy. In other words, students with a fixed mindset found themselves stuck by stereotypes and feeling as though they did not belong; whereas, those with growth mindsets were more able to break free from the limitations of a stereotype and find solutions to problems.

In another experimental study with college students, growth mindset instruction took place in three 60-minute sessions 10 days apart (Aronson et al., 2001). The students were then directed to write letters to a middle school student struggling in school. The experimental group was first instructed in growth mindset concepts and watched a video clip reinforcing the message. They were instructed to write their letters including as much information as possible from what they learned, as well as personal examples to illustrate the concepts. The pen pal control group was instructed in an idea that intelligence is not a single entity. The second control group did not get instruction or write letters, but did take the same surveys as the other two groups. Students who were exposed to the growth mindset ideas expressed more engagement in learning and had higher GPAs. This was especially true for African Americans (Aronson et al., 2002).

Yan, Thai, and Bjork (2014) cast a wider net for their subjects by promoting their study using social media. This was a self-report, on-line correlational study looking at the relationship between mindset, age, and use of study skills. Despite predictions that older participants would have developed more meta-cognitively sophisticated study strategies, the only significant difference was whether a respondent had a growth or a fixed mindset. Participants with a growth mindset seemed more willing to engage in "desirable difficulties" - or effortful study strategies such as testing oneself and spacing out study sessions - that lead to deeper learning and longer retention.

A study that pre-dates Dweck's growth mindset language conducted in 1982 also supported the assertion that one's beliefs can affect motivation and achievement (Wilson & Linville, 1982). Results showed that students who attribute their problems to temporary causes rather than fixed unchangeable causes performed better on GRE questions and had higher grades, as well as improved retention. In addition to problem attribution, two more ways to promote a growth mindset are through praise (Mueller & Dweck, 1998) and mentoring by others who promote a growth orientation (Good, Aronson, & Inzlicht, 2003). All of these qualities will influence the effort a student puts forth.

Academic Effort

As one of the first researchers to study the connection between student effort and learning in higher education, Pace (1984) asserted that what a student gains from college depends upon the involvement and energy that the student puts into college. Pace defined student academic effort as an investment of time and energy in one's own learning and

development. This effort is evidenced by students taking advantage of experiences meant to foster learning. Additionally, Pace stated that once students arrive on campus, what contributes most to their success is what they do in their college experience (Pace, 1982).

Because academic effort is associated with retention rates for first-year students (Upcraft, Gardner, & Barefoot, 2005), colleges have a vested interest in creating programs (academic and extra-curricular) designed to promote student effort. In his influential book *Leaving College,* Tinto (1993) referred to and expanded upon Pace's work by asserting that, beyond the personal responsibility of each student to exert adequate academic effort, institutions of higher education can also influence student effort through their policies, programs, and structures, for example requiring students to meet with an academic advisor before registering for classes and to take a college success class.

Another influential researcher on the college student experience and retention, Astin (1993), coined the term *academic involvement* to describe the quantity of student effort in academic work (1993). His three categories of academic involvement included time allocation, courses taken, and specific learning experiences, such as club or team membership. Astin asserted that students' involvement influences academic development.

Further studies provide additional evidence of the critical role effort plays in student success. In a correlational research study, Strage (2007) examined the attitudes and expectations of approximately 1,300 college students in regard to academic effort. The data revealed that students put forth significantly different levels of effort across several different contexts. The amount of effort correlated positively with GPA, self-

19

reported perceptions of positive changes, levels of perseverance, and relationships with faculty. In addition, Strage found that students were more disposed to expend effort in courses where they connected with the faculty member as well as courses within their major, as opposed to electives.

Svanum and Bigatti (2006, 2009) also examined the effects of academic effort in college students. Initially, they studied the influences of course effort and family, job, and social activities for 230 urban students. After conducting multiple measurements of course effort, hours of work, and activities over a semester, path analyses revealed that course effort had a significant and independent path to college grades. In comparison, outside activities had no direct path to grades, and work hours had a negative influence on course grades through reduced academic effort (2006). In their 2009 study, Svanum and Bigatti explored how academic course engagement, defined as academic skills and effort, during one semester predicted college success in succeeding semesters for 258 students enrolled in a psychology course. The results of their study revealed that academic course engagement was positively associated with both degree attainment and time to degree. They found that students reporting high academic engagement were 1.5 times more likely to complete their degree and did so one semester faster than less engaged students.

Action Research

Action research is any systematic inquiry conducted by teacher-researchers, counselors, or other stakeholders to understand how their schools operate, how they teach, and how their students learn (Mills, 2013). Action researchers begin by first

identifying an area of focus for their study. Action researchers may be curious, for example, to learn about the impact of a new teaching practice or about a phenomenon or about the relationship amongst various student and teacher characteristics. Research questions are then developed to create boundaries within which the study will focus.

Once an area of focus has been chosen, action researchers collect data. In the first cycle of action research, data may alter the research questions. As a problem-solving process, action research is open to refining the research questions and area of focus even while in the process of data collection. Action research acknowledges the complexity of human beings and our situations and so evolves along with the data collection.

Many action research studies use a mixed methods approach allowing for the strengths of quantitative and qualitative data collection to be integrated to more fully answer the research questions. Since much educational action research happens in an educator's sphere of influence, the classroom, care needs to be taken in establishing validity and approaching participants ethically.

Thirdly, action researchers analyze and interpret data, again calling on the research design used. For example, in mixed methods, triangulating quantitative and qualitative data allows for a richer and more nuanced interpretation of the results. The final step of action research is to develop an action plan based on interpretation of study results.

A value of action research is social responsibility (Mills, 2014), for example in giving a voice to those who may feel under-represented or discounted and by creating opportunities for all involved to improve. Action research focuses on the context of the

researcher so she can improve her practice and her students' experiences and outcomes. And the cycle continues – focus, collect, analyze, and respond.

Conclusions

Mindset theory supports the purpose of this study because it has the potential to influence students who begin college facing a crucial transitional period and with a potentially limiting label, *developmental.* The students in this study all tested into the lowest level developmental reading class available on campus, which is equivalent to a third-grade reading level. Even after successful completion of this reading class, a student must pass two more developmental reading classes (each one three credits) before being eligible to take a college-level reading class. Facing this daunting task of taking three semesters of developmental reading courses, and often developmental English and math courses as well, adopting a growth mindset that leads to increased motivation and academic effort may create success for these students in the vulnerable, extended transition of first semester of college.

Increasing academic effort in high-risk college students is critical for improving their success. The influence of an incremental self-theory of intelligence, or growth mindset, may lead to increased motivation and academic effort culminating in more learning and achievement. This study extends the current research by investigating the relationship of growth mindset in college students with a very low reading level throughout a full semester. This study also gives voice to the students' descriptions of their mindset-related attitudes, behaviors, and beliefs in an effort to better understand the relationship between students' beliefs and behaviors.

CHAPTER 3

METHOD

Research Design

This study employed a convergent parallel mixed methods research design (Plano Clark & Creswell, 2015). Quantitative and qualitative data were collected concurrently and with equal priority. Quantitative data included three mindset surveys along with course analytics from the Learning Management System, Canvas. Qualitative data included three journal assignments and transcripts from semi-structured interviews. Both types of data were needed in order to answer the research questions. After all data were collected, quantitative and qualitative results were analyzed separately before comparing the results and synthesizing, or triangulating, in order to develop more complete and valid interpretations.

Setting and Participants

Setting. This study took place in a commuter community college in a large metropolitan area in the southwestern United States. The college is part of a multi-college system in a county-wide district. The college serves an ethnically, socio-economically, and age diverse population of approximately 19,000 students each semester (Glendale Community College, 2016, *Facts at a Glance*). This college is fully accredited by the Higher Learning Commission.

The College Success class within which this research was conducted met two days a week for 75 minutes each session over a 16-week semester. This was a three credit, transferrable, college-level class.

Participants. Participants were 14 students in a college success class co-enrolled in a common developmental reading class. All students in the linked classes, or cohort, were invited to participate in the study, but only data from those over 18 who consented to be in the study were included. Fourteen eligible students originally consented, but one was dropped at Week 5 after two weeks of absences and only completing the pre-intervention questionnaire. At Week 16 a student asked to be interviewed who had not originally consented to participate. Because the intervention was given to all students, I had all the necessary data for the additional student to be interviewed. She then signed the consent form. A convenience sample of students who volunteered to be interviewed was used for the semi-structured interviews. Five students participated in Interview 1 and five students participated in Interview 2. Since two students participated in both interviews, a total of eight students were interviewed. Students signed up and were reminded of interviews in class and on-line.

Because of the college's open-entry stance to all interested attendees, the lowest-level reading courses often have English language learners (ELL) and students with learning disabilities. Students in the cohort from which study participants were drawn were no exception - 43% of the participants in the study were English language learners (as indicated by survey responses). These students may have participated in the college's ESL (English as a Second Language) series of courses, they may have taken English courses from their home country, or they may have been in ESL programs in U.S. elementary or high schools. Another 20% of participants were receiving accommodations from the college's Disability Resources (DR) office because of documented learning

disabilities (as indicated by students' self-disclosure). Other study participants may also

have had learning disabilities, but chose not to notify the college, a not uncommon choice

for special education students making the transition to college. Table 1 displays

participant characteristics and data contributions with pseudonyms assigned for actual

names.

Table 1

Participant Characteristics and Data Contributions

Participant	Pseudonym	Age	ELL	DR	Surveys			Journals			Interviews	
					1	2	3	Learning	WCP	Advice	1	2
1	Aaliyah	18	Yes		x	x	x			x		
2	Bella[a]	31			x		x	x	x	x	x	x
3	Cat	24	Yes		x	x	x	x	x	x		
4	David	18	Yes		x	x	x		x	x		x
5	Ebony	20	Yes		x	x	x	x	x	x	x	
6	Flower	18			x	x	x		x	x		
7	Gemma	18	Yes		x	x	x	x	x	x		x
8	Hunter	19			x	x	x	x	x	x	x	
9	Imani[b]	44			x							
10	Jaime	19		x	x	x	x			x	x	
11	Keeley	18		x	x	x	x	x	x	x		
12	Ladonna	19	Yes		x	x	x	x	x	x		
13	Mali	18		x	x	x	x	x	x	x	x	x
14	Niko	18			x	x	x	x		x		
15	Olivia[c]	19			x	x	x	x	x	x		x

[a]Dropped from RDG Week 8. [b]Following intermittent attendance stopped completely Week 5. [c]Signed the consent form at end of semester.

Materials

  Surveys. The initial survey had three demographic questions (ethnicity, age, and English-language status); six mindset questions (three on the malleability of intelligence and three on goal orientation); and a seventh forced choice question, "If I had to choose between getting a good grade and being challenged in class, I would choose *good grade* or *being challenged*." The six mindset questions used a 6-point Likert scale and were in standard use for growth mindset research as recommended by the originator of the theory (Dweck, 1999). Three questions measured implicit self-theory or whether one believed intelligence was malleable or fixed. The version used was one recommended for children aged 10 and over in order to meet the students' elementary reading level (Dweck, 1999, p.177). A second set of three Likert scale questions pit learning goals against performance goals (Dweck, 1999, p.185-186). When respondents have to choose whether they prefer to attempt challenging learning tasks (learning goals) versus "looking smart" (performance goals), the relationship of learning goals to an incremental theory of intelligence is clear (Dweck & Leggett, 1988).

  A readability analysis was performed on the questionnaire using the on-line Flesch Reading Ease Calculator ("Readability Formulas," 2017). Reading level was assessed at "standard/average" which is considered comparable to 8th grade, ages 12-14, slightly higher than age 10 as presented in Dweck (1999). Though the reading level had the potential to be challenging for students in this study, it was used in order to maintain consistency with published research on mindset assessment. In addition, students had the

assistance of a reading teacher in the classroom during administration who was available for questions.

An additional 10 Likert scale items were added to the final survey administered at the end of the semester (Week 15). The additional items were included in hopes of providing supplementary data useful in analyzing students' mindsets and were assessed as easy to read, 4th grade level according to the Flesch Reading Ease Calculator. These items had been piloted in earlier cycles of research and were constructed based on Dweck's depiction of growth mindset (2006, p. 245). Each of five constructs had two questions: one oriented toward a fixed mindset and one oriented toward a growth mindset. The constructs included (a) response to challenges, (b) response to obstacles, (c) view of effort, (d) reaction to criticism and/or mistakes, and (e) reaction to the success of others. Example questions included, "When I don't get something, I don't see a reason to keep working on it" and "I find lessons and inspiration in the success of others."

The questionnaire was administered via paper and pencil on the first day of class prior to introducing growth mindset and in Week 3 of class, following the introduction of growth mindset through two lessons and related journal activities. To keep students from skipping any questions or choosing more than one answer, the final questionnaire was created using an electronic survey design program and was embedded in Canvas. This survey was also administered during class time (see Appendix B for the complete questionnaire).

Interviews. Two sets of semi-structured interviews were conducted. First-round interviews were only four questions, for example, asking students to describe their mindset at the beginning of the semester and whether/how they had experienced change. Interviews were again conducted at the end of the semester and included nine open-ended questions related to growth mindset concepts, for example, "Please describe how you feel when you see others succeed at something you have difficulty doing." And "Please tell me about a time a teacher gave you criticism or feedback. What did you learn from that?" And "Do you believe you can get smarter? Please explain" (see Appendix C for a list of interview questions).

Learning Management System. The course used an electronic Learning Management System called Canvas. Canvas houses the syllabus, announcements, assignment instructions, a calendar, scoring rubrics, discussion boards, grades, and an e-mail system. Students submitted assignments through Canvas. Instructor feedback was delivered electronically through Canvas and included comments, questions, and suggestions for improvement along with opportunities to resubmit within a week of an assignment being graded. There is also a message system within Canvas that provided an additional avenue for student-instructor communication. Several class sessions were conducted in computer labs so that students could practice and get assistance with Canvas. Canvas also maintains course analytics available to the instructor showing how often, for how long, and when students access Canvas.

Procedure

On Day 1, after introduction of the research study, a mindset questionnaire (Appendix B) was administered via paper and pencil to all students in the class. Students who consented to participate in the research study were given a code number so that their data could be confidentially identified and tracked; they were also assigned a pseudonym for purposes of discussion. The researcher entered completed surveys into an electronic survey system and reviewed entries for accuracy. Results were captured in a csv file. Two 60-minute lessons on growth mindset were conducted by the researcher during the first two weeks of class.

The two initial lessons meant to introduce growth mindset were titled "Learning and Your Flexible Brain" and "Fixed and Growth Mindset Language;" each lasting about 60 minutes. The first lesson focused on the malleability of the brain and included a seven-minute video, "The Learning Brain," describing how the brain learns, including the neuroplasticity of the brain and its ability to build neural pathways to facilitate learning. After the video, students met in small groups for discussion and to create a group picture of learning. Students were assigned a section of the text, *On Course, Study Skills Plus* (Downing, 2011), to read which summarized how the brain is involved in learning. Writing a response to a journal prompt about something you are good at and how it was learned was the final piece of this lesson and the first journal response collected for data.

The second growth mindset lesson focused on the differences between a fixed and growth mindset including the language used by someone with a growth mindset—the language of accepting responsibility, looking for possibilities, and creating plans. In the

text it is called "creator" language. Students read a section in the text, I demonstrated in class; and for homework students changed 10 "victim" (or fixed mindset) statements into creator (or growth mindset) statements. Students reflected on and then wrote about what they learned and about what type of language they use more often (see Appendix D for lesson plans).

After the two introductory lessons to promote growth mindset and associated homework, the mid-intervention questionnaire was administered during Week 3. The paper copies were collected and inputted by the researcher into an electronic survey system, double checked, and then saved in a csv file.

During the next 12 weeks of the semester, the remaining course competencies were addressed (e.g., study strategies, time management, and career and academic planning; see Appendix E for the success course syllabus and outline) and growth mindset concepts and language were continually reinforced through short lectures, videos, class discussion, readings, and homework assignments.

Semi-structured interviews were planned for the end of the semester. However, as happens in action research where studies evolve while they are in process (Mills, 2014), I realized a need for more qualitative data following consultation with a faculty advisor in Week 9; therefore, I added an interview in Week 10. Also in Week 9, a journal was assigned to students to consider their current situation (for example, the effort they were putting out and their achievement, or current grade) in the companion developmental reading class. Students were instructed to compare their current situation to how they would like it to be. Students used a process taught in class, the Wise Choice Process

(Downing, 2011), to consider options and likely outcomes as to how to bring their current situation more in line with their hoped-for outcomes. Students were instructed to choose an option and identify how and when they would evaluate it. The journal assignment included a reflection on what they learned from engaging in that process (see Appendix F for journal instructions). This journal was due Week 10. Starting in Week 10, the first round of student interviews was conducted. Two students were interviewed in Week 10 and three students in Week 11. All participants were invited to interview via an announcement made in class and posted in the Learning Management System, as well as via a sign-up sheet distributed in class. Interviews were conducted in an office in the Counseling Department and were recorded using the researcher's smart phone.

In Week 13 the Letter of Advice assignment (see Appendix F) was verbally delivered and available on-line in Canvas. Upon submission of all letters, the expanded mindset questionnaire was administered. In Weeks 14 and 15 students were once again invited to sign up for an interview through Canvas and in class. Interviews took place in Week 16 and one was conducted during finals week. (See Table 2 for a description of mindset instruction and data collection.)

Table 2

Week-by-week Mindset Instruction and Data Collection

	Lesson or Reminder	Data Collection
Week 1	Introduce Study "You and Your Flexible Brain"	Informed consent and Survey 1
Week 2	"The Language of Responsibility"	Journal on Learning
Week 3	*"You have to apply yourself each day to becoming a little better. By applying yourself to the task of becoming a little better each and every day over a period of time, you will become a ___ better."* John Wooden (10 minutes) Wrote quote on board and looked for word that fit blank ("lot"). Discussed as a class.	Survey 2
Week 4	Displayed and discussed visual images of growth and fixed mindsets. Notecard writing about what students knew before and now about growth mindset.	
Week 5	Instructor reminder of growth mindset and building connections in their brains through effort.	
Week 6	Instructor reminder of growth mindset and building connections in their brains through effort.	
Week 7	*"Do not let a failure be an ending. Make it a beginning."* Discussion of quote.	

Table 2 (continued)

Week-by-week Mindset Instruction and Data Collection

	Lesson or Reminder	Data Collection
Week 8	Read and distributed Growth Mindset Manifesto from Train Ugly. Pair share and class discussion	
Week 9	Instructor reminder of growth mindset and building connections in their brains through effort.	
Week 10	Instructor reminder of growth mindset and building connections in their brains through effort.	Journal WCP-Reading Interview 1: 5 students
Week 11	Small group discussion of prepared scenarios with investigation of evidence of growth vs. fixed mindset followed by class discussion.	
Week 12	Instructor reminder of growth mindset and building connections in their brains through effort.	
Week 13	Academic Success Panel	Letter of advice
Week 14	Students invited to sign up for Interview 2	
Week 15	Students again invited to sign up for Interview 2	Survey 3
Week 16	Final reminder of growth mindset and building connections in the brain through effort.	Interview 2: 5 students

Data Analysis

      Quantitative Analysis. After each administration of the questionnaire, responses for the original six Likert scale items were totaled to provide a mindset score. Prior to totaling, responses from the single reverse question were adjusted so that all items were aligned in the same direction. Higher scores indicated a growth mindset; lower scores indicated a fixed mindset. Responses for the additional 10 Likert-scale items on the final questionnaire were also aligned and totaled to provide an expanded mindset score. Repeated measures ANOVA was used to examine differences in the three (six-item) mindset scores. Descriptive statistics such as range and median were also generated. Using the final mindset scores, students were categorized as either high or low mindsetters based on their placement above or below the median. An additional grouping of high vs. low mindsetters was done using visual binning in SPSS. Students more than one standard deviation below the mean were placed in the "low" bin; students more than one standard deviation above the mean were placed in a "high" bin.

      Cronbach alphas were run on the malleability of intelligence construct for each administration of the survey. Levels were above .70 which is the minimum acceptable and consistent with the literature. Inter-item reliability for the goal orientation construct was negative for the first two administrations of the survey and .83 for the final administration of the survey. In addition, Cronbach's alphas were generated for each set of two items measuring Dweck's additional five aspects of mindset which were included only on the final questionnaire. Inter-item reliability was not statistically significant.

Data on five academic effort variables related to the College Success class were gathered for each student (see Appendix G):

1. Course analytics from Canvas regarding page views.

2. Course analytics from Canvas reagarding duration of visits.

3. Students' attendance/participation points. Students could earn up to 10 points per class. The points combined being prepared; being present; and being engaged.

4. The number of missing assignments.

5. Number of absences.

The relationship between academic effort and mindset was examined by running correlations between the final (sum of post-survey questions 1-6) as well as the expanded (sum of post-survey questions 1-16) mindset scores and each of the five academic effort variables.

Academic achievement was measured by the grade earned by students in the companion reading class. (The Reading grade was used instead of the College Success grade to avoid researcher bias.) Grade was designated by the percentage of total points earned (see Appendix G). Correlations were run on academic achievement and mindset scores. In addition, academic achievement and academic effort were also analyzed for correlations.

An Anova was run with high/low mindsetters and both effort and achievement.

Qualitative Analysis. At the end of the semester, the three journal assignments for each student were printed. I read through the journals several times, then started open

coding with in vivo and descriptive codes by highlighting or attaching labels to concepts

expressed by participants. Using constant comparison analysis (Onwuegbuzie & Combs,

2010), codes were expanded or collapsed and revised as needed to be inclusive of data

from each of the journals. I drafted a codebook using the data-driven categories (DeCuir-

Gunby, Marshall, & McCulloch, 2010). The codebook included the category, a

definition, and examples. I then turned to the interview transcripts to code. Within a few

days of each interview, I had sent the recording to a confidential transcription service,

which sent transcripts back within hours. I printed the transcripts for participants and

member-checked by asking each interviewee to read his/her transcript and let me know if

it accurately captured what they said. I reread each verified transcript and then coded

using the data-driven codebook and creating new in vivo codes as needed.

To facilitate the development of themes, I reviewed the coding categories and

created subcategories that allowed for further definition based on qualities such as

intensity or duration. For example, the category *emotion* might be subcategorized into

positive or negative emotion. Attribute coding (Saldana, 2013) was used to organize the

data by assignment or interview and participant. To produce themes, I reread the data and

determined five themes. I then re-read the data by theme to make assertions.

Triangulation. To create a richer and more nuanced understanding of the data

and to answer the research questions, the quantitative and qualitative data were merged

with an eye toward complementarity across both data sets. Qualitative findings for high

(growth) and low (fixed) mindsetters were compared. Effort and achievement results

37

were also triangulated with qualitative data and examined for complementarity with

high/low mindset scores and preference for learning vs. performance goals.

CHAPTER 4

RESULTS

This mixed methods study employed a concurrent design to explore to what extent students adopted a growth mindset in a college success class and the relationship of mindset to academic effort and achievement. The study also gave voice to students' mindset beliefs, attitudes, and behaviors. Fifteen students in my college success class linked to a developmental reading class consented to participate in the study. One student stopped attending by week 5 so results are based on 14 participants. Results from a pre-, mid-, and post-survey, data from the on-line learning management system, and students' total points earned in the companion reading class comprised the quantitative data. Student journals and semi-structured interviews comprised the qualitative data.

Demographic questions on the survey asked age, ethnicity, and English language learning status. Age range for the participants included in the results was 18 to 31 years, mean = 19.8 years, median = 18.5 years, mode = 18 years. Five students identified as Hispanic, three identified as African American, three as Caucasian/White, two as Asian/Pacific Islanders, and two identified as Other. Six students indicated that English was not their first language and they had been learning English from five to 14 years.

The results of this study are organized by the research questions (RQ).

RQ1: To What Extent Do Community College, Developmental Reading Students' Mindsets Change After Growth Mindset Instruction?

Students completed a brief survey on growth mindset three times during the semester. The survey included two constructs built of three questions each:

(a) malleability of intelligence and (b) goal orientation (see Appendix B). Cronbach's alpha was computed to confirm internal reliability of the constructs using SPSS. Cronbach's alphas for malleability of intelligence were .72, .83, and .76 for the pre-, mid- and post- surveys respectively. Because the reliability coeffecients were all above .70, the minimally acceptable level, the reliabilities for malleability of intelligence were confirmed. Cronbach's alphas for goal orientation were not as consistent, and for the pre- and mid-surveys, were negative. For the post-intervention survey, the Cronbach's alpha was .84 for goal orientation, therefore, the goal orientation construct was only reliable in the post-survey. Cronbach's alpha were also run on the additional five constructs in the expanded final survey (See Appendix B). None of the levels met the minimum reliability standard; however, they were given content validity by colleagues familiar with mindset theory.

The first administration of a survey occurred on the first day of class prior to any instruction. Because growth mindset has been shown to be easily induced by introducing students to the concept of the malleability of the brain (Aronson et al, 2002), the same survey was administered after introduction to growth mindset at Week 3, resulting in a mid-intervention mindset score. Mindset scores could range from 6 to 36; difference scores could range from –30 to 30. Table 3 shows the results of the pre- and mid-mindset scores, the mean mindset score at both administrations, and the difference in scores. Average mid-mindset score is slightly higher. There was no change for three students. Positive change ranged from 2 to 6 and there were three negative scores (ranging from -2

to -9) indicating lower belief in growth mindset tenets after instruction, for a total difference of less than one point.

Table 3

Differences in Pre- to Mid-Mindset Scores

Student	Pre-mindset score	Mid-mindset score	Difference Mid-Pre
1	24	30	6
2	15	Not taken	
3	19	19	0
4	25	27	2
5	19	19	0
6	26	24	-2
7	12	16	4
8	22	24	2
9	21	Not taken	
10	19	25	6
11	17	17	0
12	16	18	2
13	22	20	–2
14	28	30	2
15	24	15	–9
MEAN	21.00	21.85	.85

At the end of the semester, a third mindset score was calculated based on the same six items (post-mindset score). Table 4 displays the pre- and post-mindset scores of the participants along with the mean score at both administrations and the difference scores for each student between administrations. The mean of the post-score (21.79) was slightly

41

higher than the pre-intervention mean (20.57), yet slightly lower than the mid-mindset

score (21.85). There was no change for two students. Positive change ranged from 1 to 12

and there were six negative scores (ranging from -1 to -4) indicating lower belief in

growth mindset tenets after instruction, for a total positive difference of slightly more

than one point.

Table 4

Differences in Pre- to Post-Mindset Scores

Student	Pre-mindset score	Post-mindset score	Diff Post-Pre
1	24	25	1
2	15	13	–2
3	19	26	7
4	25	21	–4
5	19	18	–1
6	26	28	2
7	12	12	0
8	22	22	0
9	21	Not taken	
10	19	17	–2
11	17	19	2
12	16	28	12
13	22	30	8
14	28	25	–3
15	24	21	–3
MEAN	20.57	21.79	1.21

A repeated measures ANOVA was run in SPSS to compare results from all three administrations of the survey and determine any significant effects over time. No significant effect, or difference in mindset scores, was found $F(1.54, 18.51) = 0.54$, $p = .55$, $\eta_p^2 = .05$. In order to see if there might be significance in differences of the single consistently reliable construct, malleability of intelligence, over the semester, another ANOVA was run on sums of only questions 1-3 of each survey. This relationship trended towards significance, $F(1, 13) = 3.52$, $p = .08$, $\eta_p^2 = .213$. The good effect size of .213 means that 21.3% of the variance in malleability of intelligence scores is explained by instruction.

Students were also categorized as growth (high) or fixed (low) mindset using two methods. First, students were grouped based on a median split. The median for the post-mindset score was 21.5. Fixed mindset scores ranged from 12 to 21; growth mindset scores ranged from 22 to 30. The second grouping used visual binning. Students more than one standard deviation from the mean were categorized fixed (low) and students more than one standard deviation above the mean were categorized as growth (high). Visual binning resulted in two students categorized "low" and three students categorized "high." (See Table 5.) High and low mindset scores were used in triangulating with results from RQ2 and complementarity with RQ's 3 and 4.

Table 5

Growth (High) / Fixed (Low) Mindset Score Groupings

Student	Post-mindset score	Median Split	Visual Binning
1	25	Growth	
2	13	Fixed	Low
3	26	Growth	
4	21	Fixed	
5	18	Fixed	
6	28	Growth	High
7	12	Fixed	Low
8	22	Growth	
10	17	Fixed	
11	19	Fixed	
12	28	Growth	High
13	30	Growth	High
14	25	Growth	
15	21	Fixed	
MEAN	21.79	SD	5.56

RQ2: How Do Community College Developmental Reading Students' Self-reported Attitudes, Beliefs, and Behaviors Relate to Mindset Theory?

Results for Research Question 2 came from three journals assigned to all students and two semi-structured interviews with a convenience sample of eight participants who

volunteered to be interviewed following class announcements. Only two of the interviewees volunteered for both the first and second interviews. These qualitative data sources were collected to further understand students' attitudes, beliefs, and behaviors regarding mindset and their college experience. Table 6 displays the types and amount of qualitative data collected.

Table 6

Types and Amount of Qualitative Data

Data source	Number of items	Volume
Journals	35 journal submissions	5,072 coded words
Interviews	10 interviews	79 transcribed minutes

Data were analyzed through a systematic process of open coding using constant comparison to identify categories and themes (Onwuegbuzie & Combs, 2010). The researcher also memoed and member-checked the transcripts. From the initial in vivo and descriptive coding process, 10 categories evolved. An example to demonstrate the accretion of codes into larger categories follows: In vivo codes such as "I was honestly nervous", "I was worried that I won't complete", and "It felt great learning" were combined into the larger category of *emotion.* "I mean it's not a bad thing to relearn everything to become more successful" and "I keep my mind set on what I want to do" and "Homework was always a drag for me having to complete so many papers due within a quick amount of time" all coalesced into the category of *attitude.* After all the data were

coded, I reviewed the categories to determine sub-categories of intensity or direction

(Creswell, 2009; see Table 7).

Table 7

Qualitative Coding: Categories and Subcategories

No	Categories	Subcategories	Title
01	Attitude	ATT.01	College
		ATT.02	Personal
		ATT.03	Circumstance
02	Behavior	BEH	Behavior
03	Beliefs	BEL.01	College
		BEL.02	Personal
04	Connections	CON.01	Seek assist
		CON.02	Offer assist
05	Desire	DE	Desire
06	Emotions	EM	Emotions
07	Goals	GL	Goals
08	Identity	ID.01	Negative
		ID.02	Positive
		ID03	Other
09	Strategic thinking	ST	Strategic thinking
10	Take away	TA.01	Attitude
		TA.02	Behavior
		TA.03	Belief

Multiple reviews of the categories and sub-categories with consideration of the

theoretical orientation of this study led to five themes: (a) importance of college,

(b) persistence; (c) overcoming obstacles, (d) connection with others, and (e) self

awareness and goal orientation. Continuous review of codes, categories, and sub-

categories solidified the themes. Validity was enhanced by having a colleague familiar

with qualitative analysis review the data, codes, categories, and themes several times

These themes resulted in five assertions about the data. (Table 8).

Table 8

Qualitative Data: Themes and Assertions

Themes	Assertions
1. Importance of college	1. Students believe that going through college will teach them many things, develop confidence, and create a better future for themselves and their families.
2. Persistence	2. Students believe that despite things of value being difficult to obtain, they should never give up.
3. Overcoming obstacles	3. Students had a hopeful mood. Despite obstacles and feelings of exhaustion and frustration, they acknowledged learning and growth gained in their first semester of college.
4. Connection with others	4. Students were positively impacted by their connections with others.
5. Self-awareness and goal orientation	5. Students had both performance and learning goals of varying specificities and evidenced both entity and incremental self-theories of intelligence.

Supporting Quotes From Data Sources

The following section provides quotes from participants that support and

strengthen the assertions. Assertion 1 higlighted the unanimous importance students

placed on college as a potentially positive and transforming experience. Assertions 1, 2,

3, and 4 align with growth mindset beliefs common amongst all participants. Assertion 5 indicated students held both growth and fixed mindset beliefs.

Theme 1: Importance of college. Assertion 1. *Students believe that going through college will teach many things, develop confidence, and create a better future for themselves and their families.* Assertion 1 laid the foundation that students believed that college was important and that it would result in personal and positive change. Growth mindset is based on the idea that one can change (Dweck, 2006).

Not surprisingly in a college success class many of the journal assignments included thoughts about college (see Appendix F for instructions for each journal assignment). The predominant attitude of study participants (students facing at least 3 semesters of remedial reading courses before gaining the necessary college-level reading skills) was that college would help them change and grow. (Note: Participants' writing skills were generally below college-level as well. The quotes included below are exactly as written or spoken by the students.)

When writing her letter of advice to a new student like herself that would be coming to college the following term, Mali wrote:

> Lastly i wanna tell you that college is fun and a great resources for your career and you will get far in your life and be happy with the people around who are willing to help you in your career.

Aaliyah wrote in her letter,

> Sometimes people change their major because either they don't like it or don't feel comfortable with it, some of you right now don't know what your major is or what you like for your major to be, but it's okay because this class your in right now would help you with that and you will learn a lot.

In their letters of advice two more students supported the idea of college as helpful to the future. Jaime wrote, "It a good place here for people who what to do get a good job." Ladonna wrote, "College is really important to help yourself." Hunter was enthusiastic in his letter, "But let me tell you something it's going to be a hella of a ride for you but trust me you will become successful in life once you're done with college I tell you that." Olivia wrote, "While being in college I learned a lot of new ways to become successful in my classes that really helped me out."

In their interviews, students reaffirmed the value of college as a change agent in their lives. Bella started with, "I am in college to better myself and my children." She continued,

> I have learned how to get along with a lot of people, and how to, how important degree in college are, because at first, I really didn't think it was going to be that important to me, but now I'm really motivated, and I do want to continue coming to school.

She concluded,

> I wasn't thinking about school but to be a role model for my children. They're going to school and I think it would be a good thing we all go to school together so that can give them like, 'Okay, I want Mom not just sitting home working. She in school too.' It can inspire them and believe like education turn their paths.

David said, "I am in college because I would like to be successful in life." Gemma said, "I'm in college because I want to become a nurse and I want to have a good education and a good future."

Theme 2: Persistence. Assertion 2 states, *Things are difficult; never give up.* Along with acknowledging change, mindset theory suggests that exerting effort is essential for growth and eventual mastery (Dweck, 2006). Students acknowledged the

49

trait of persistence when writing about a skill they had developed before coming to

college as part of their first homework. In her Journal on Learning. Bella wrote,

> I wanted to learn how to cook so I kept cooking even when the food was not
> tasting good. I knew to myself that if I kept trying I was going to be good at it that
> why every stop.

Ebony also wrote about cooking, "That was my first time so I had to do it several times

on that days to make a cake more excellent."

> Hunter wrote about learning to play soccer. "I learned you can't stop if you really

want it." He elaborated,

> I started to practice on my own to get better at soccer. There wasn't a day I
> wouldn't practice. I even bought a size 2 or 3 soccer ball because they said you
> can get better by practicing with a small ball. I would take it to school to play with
> my friends.

 Another student, Ladonna, also wrote about soccer, "The way I learned playing soccer

was by practicing a lot to become better player."

> At Week 10, students were assigned to practice the Wise Choice Process, a

decision-making approach in regards to their status in the companion developmental

reading class. Olivia wrote in her journal,

> I learned that it isn't easy to pass college especially when you're not good at two
> subject. Math and Writing aren't really my thing. The wise Choice help me leaned
> to become a creator not victim. It helped me learned no matter how much you
> struggle in those subject there are ways that can help me pass in college and
> become successful. It helped me realize that I should ask for help and set a goal
> for myself and to not give up. This also helped me realized that I need to study
> more.

> Gemma wrote, "By doing the wise choice process, I learned that every problem

has a solution. There is a lot of ways I can make this situation better."

In their letters of advice journals at the end of the semester students wrote, "Also another advice would be never give always follow yours dreams of becoming somebody" (Olivia). "There will be hard times where you want to give up on throughout the weeks in college but that not an option because you have to keep going to become successful in the future" (Ladonna). And "Going to college is not easy every has problems of their own, But the key words that stuck to me was to never quit school, keep working hard until you make it and be successful" (Aaliyah). Finally, Hunter wrote in his letter, "Just make sure you never give up on college. . . .Always be on time not late or make excuses be on time so your instructor knows you want to be here."

Difficulties participants experienced in their academics led to intense emotions for some; yet none gave up. Cat wrote in her WCP-Reading journal, "I get confused beause there are so many new words that I don't understand. I'm a slow reader and I can't keep up with the amount of reading assigned. I have no idea how to read effectively." David wrote, "I have fallen behind so far that I look at my grades and ask myself why I'm still coming to school if I'm failing" in his letter of advice. Ebony wrote in her letter, "That fail test made my grades go down. I'm so scare because I think I will fail that class." Keeley explained in her decision-making journal, "I'm a fear to ask questions because it might be a wrong question or a stupid one. It makes me feel mad and embarrassment. My problem is how get away from fear of asking questions." Despite those difficult emotions, those students persisted.

Theme 3: Overcoming obstacles. Assertion 3 states, *Students had a hopeful mood. Despite obstacles and feelings of exhaustion and frustration, they acknowledgd*

learning and growth gained in their first semester of college. Students with a growth

mindset do not give up easily in the face of obstacles; instead they continue on. Fixed

mindset students get defensive and give up easily in the face of obstacles. Bella, the

oldest participant, mentioned more obstacles than most students. She said in her

interview,

> It's a lot of things that had got in my way but I just try to keep myself focused and don't let them distract me from my goals. Things like my job, like my boyfriend being away, and basically when it came just me, a single mom, got a lot to do with the children and in school full-time. That's a lot of thing that in my way right now, but I'm still trying to work towards my goal because like I said I want to better myself and give my children a life I never had when I was growing up.

> David had a very specific example of an obstacle during the semester of this

study. He reported in his interview,

> Unfortunately, I was speeding one day and I had a speeding ticket, so I had to work, and that took a time away from my studies, so I got behind in my studies and, fortunately, I've been able to catch up to it. [Researcher request for elaboration.] When I got the speeding ticket I had to work to make up money to pay the ticket, and I would go to work, and on my lunch break I would do homework or after work I would stay up really late until like 2:00 in the morning.

> A sense of accomplishment after overcoming obstacles was evident in students'

writing. For example, Cat, wrote, "[College] was really hard for me. . . . But I like it

because I learn a lot in my first semester." Ladonna wrote in her letter of advice journal,

"There will be many obstacles to go through to succeed you just have to work hard to

help yourself become well educated." And in her second interview, Bella shared,

> When I turn in my work, when I turn in my homework late and I was having hard time understanding my work. I asked my teacher, I was like, "I don't know what this mean." She explained it to me and she gave me a time, say, "Oh, you can do it and bring it back and I'm gonna give you credit for it." She give me a extra day of going well past due, but she give me a extra day, and when I brought it back and she was like, "Good job." I was very proud of myself and I couldn't stop smiling.

Though she sometimes preferred easy tasks, obstacles were not going to stop

Gemma as she indicated in her interview,

> Well, I like to do things that are easy, but I also like to do things that are hard. If it's so hard that I can't do it, then I don't like doing it. It has to be like. It could be hard, but I have to know how to do it. . . .Yeah. I think doing essays is kind of hard, but I would ask my instructor how to. She gives me ideas on what to write, so it becomes easier for me.

Keeley saw her perceived inability to ask questions in class as an obstacle. She

wrote in her WCP-reading journal, "Lastly I can tell that I'm getting out of my

comfortable zone to start practicing asking questions for my instructor."

Jamie's obstacle was his work schedule. He said in an interview,

> In the class, [College Success], I learned about time management, more about it, and how to use that for my advantage. When I used to have work, I would have not time to study and no time for schoolwork. I would get far behind. Now that I don't, I'm back to have my own time management slot, so I take two hours out of my day to study, do homework, all that stuff, for all my classes.

Niko's obstacles were personal and he chose to get help on campus. He wrote in

his letter of advice, "I've been going to a counselor to help me with the problems that

I've been going through to try and figure out what I can do to make it better for me."

Theme 4: Connection with others. Assertion 4 states, *Students were positively*

impacted by their connections with others. Students reported incorporating criticism and

feedback from instructors. Students developed a sense of belonging and were generally

inspired and motivated by the success of others. Being able to accept and learn from

criticism and feedback and to be inspired by the success of others are hallmarks of

growth mindset (Dweck, 2006). For example, Mali said in the first interview,

> Some of the activities we do like a group, I think it's really cool because we get to interact with other people that we might not know, but we get to learn their stuff. Like what career they're going for and what kind of person they are. For me, I met

this girl named [name] and me and her, we started to be group buddies. Now, me and her, we are friends and we help each other with our studies. I try to help her with her nursing. It was really cool that I got to meet someone that's like me and that we help each other. I think that's really nice that we group up and that we know each other. Yeah.

This student also volunteered for the second interview weeks later and continued

that theme:

All of those are good ways for us to find a way to make our lives better or at college. We learn from it, and then we can make it better and understand and try to ask someone for help, maybe they might understand it more than you do, so I think it's good that you ask someone or you have somebody that you met, that maybe they want to help you or you want to help them. I think it's good that you meet people, or they can have the same career you have and you both can study each other or take a test, you know. I think it's good that we meet different people, because they could impact our lives and we need them. I think it's really good that we have people around us who understand what we are all going through.

Mali was more talkative than most of the others in her interview; in answer to

how she used criticism from a teacher she responded with the following:

Let's see. Okay, my writing teacher, we wrote a paragraph and I didn't do so well on that one because I didn't really understand. I didn't understand the assignments, so I told her, "I didn't understand" and she told me that she'll help me and that she'll help me find a topic sentence for me. We both worked on it, and so I wrote my own paragraph.

She sought out feedback by also going for tutoring.

Then I went to the learning center thing, and I had someone check my paper to see if I need to edit more or to see if I'm missing anything. They checked, and they gave me feedback. Most of the feedback I get from my writing is just like those tiny little pieces that I'm missing like comma or misspelled words. I try to understand writing because I'm not really good at writing. I tried to read back before I go to the learning center, and then they sometimes tell me I'm doing a really good job with my writing, that it's just those little mistakes that I need to work on. But I learned that I'm not the only one who has writing problems, that there's other people who are the same thing, like me, though, that they try to help me so I can understand and be a better writer.

David talked in his interview about the helpful connection with peers:

> Since I was in class we do the circle thing with students [Socratic Seminar]. That helps out a lot because you get reflection from other students that maybe they think the same as you do, or they're in the same problems, like they have money issues or they have problems with homework, and they have a specific career but they don't know how to work towards it and maybe they can help.

Niko, who mentioned he addressed his obstacles by seeking counseling in

Assertion 3, encouraged the friend he wrote to in his letter of advice to make connections.

> Now if you have issues with school or life there are counselors on campus that will be open to help you fix your schedule or situation that you need help with. The instructors are very helpful so if you need anything they will be willing to help you out to help you pass the class. That's what's cool about community college, it's a smaller school so the teachers will be able to have that one-on-one with you when you need it.

He finished his letter with, "Now I hope this has been helpful to you and you feel

prepared for when you start."

Ebony wrote about her connection with an international student advisor in her

letter of advice, "I am so lucky because my advisor so nice and she helps me go through

with everthings." The relationships mentioned by Flower in her letter of advice were with

faculty, "What has helped me overcome the difficult obstacles in college has personally

been communicating with my professors." Bella also contributed to the theme of

connecting with others for help and a sense of belonging. She wrote in her letter of

advice, "They have a lot of resources that will help you do great. While you attending

school the teachers are great and so much helpful. And I met some great classmate."

As for how students handled the successes of others, some were inspired, others

envious. All indicated they used it as a motivating factor. For example, David said in an

interview, "When I see others succeed and I have trouble succeeding, I feel like I just

need to push myself more or that I need to put more feeling into what I'm doing." Bella

said, "When I see other people like my friends and/or family succeed, things that I'm getting hard time getting right now, I'm very proud of them. They inspire me because that mean I can reach their goals too and get the same thing or do whatever they doing." Gemma said, "Well, I feel happy for them, but I also wish that could happen to me too."

Theme 5: Self-theories and goal orientation. Assertion 5 states, *Students' had both performance and learning goals of varying specificities and evidenced both entity and incremental self-theories of intelligence.* Growth Mindset Theory suggests that performance goals, along with an entity theory, are part of a fixed mindset, whereas learning goals, along with an incremental theory, are consistent with growth mindset and lead to increased effort and achievement.

Gemma's performance goals were based on an initial sense of deficiency that motivated her to action. She reflected on learning in high school in her first journal and wrote,

> I was worried that I won't complete my classes on time and end up not graduating. I started working at home and I was able to complete all my classes early from everyone else. I got all straight A's, maybe one B. I worked really hard and I am proud of myself.

At Week 10 in her WCP-Reading journal, Gemma labeled herself *lazy.* She wrote, "I get a lot of homework and it's really hard for me to finish all my homework of four classes in one day. Sometimes I get so lazy because I'm tired. This stresses me out a lot." This self-assessment again led to a performance goal,

> I would like to have more time so I can get on townsendpress [the on-line support for the Reading textbook] and complete as much chapters as I can. It's not that I'm behind, but I just want to be ahead of everyone else.

Several weeks later at the end of the semester, perhaps due to her commitment to performance goals, Gemma concluded, "I am doing very well. I am taking more responsibility for my work."

Despite her seeming preference for performance goals, however, Gemma evidenced an incremental self-theory of intelligence in her interview. She said, "I think by studying and working hard I could get smarter" and seemed to attribute that to what she was learning in class, "We did a lot of projects in class that made me realize that I shouldn't give up and that I should keep trying."

Flower, at the beginning of the semester evidenced a learning orientation, "I learned that learning is the most important ability you will need and carry on for the rest of your life." That orientation contrasted with the performance goal orientation she evidenced in her WCP-Reading journal, "I want to end the semester with a better GPA average and overall class grades."

In his WCP-Reading journal, Hunter admitted responsibility for his lack of effort. He wrote,

> I do some of the work and not all of it. When I need to do all my homework. I been coming late to class almost every day. I really don't study for anything when she tell us to study at home. I choose to not do my work when it's due.

His resulting goals included both *performance* goals:

> I would like to pass with all B's or A's. Do my homework when it need to be done or due that day. Be more part of the class and talk more. Keep myself as a successful college student. Have the best GPA in your class.

and *learning* goals, "Be ready to challenge myself every day because you never what's new or what come to you every single day."

David, in his interview, expressed an incremental theory of intelligence, "I do believe I can get smarter" and a related belief in the malleability of the brain, "The more you use them [neurons], the more they connect with each other and the smarter you get." In contrast, he also expressed a performance orientation and fixed mindset that avoids challenges, "I prefer to do things easy."

Ladonna expressed a similar attitude toward challenges, "I would like…a problem that's solvable without running into a lot of trouble fixing it" and she was motivated by a performance goal, "the reward was the feeling of being better than other people on the team." She seemed to straddle learning and performance goals when she wrote,

> I want to start reading more books because I am not a fan of reading unless I have to do it…I can either be a reading geek or don't read at all. Sometimes there are good outcomes to become better at something than just not doing it at all.

She concluded with a specific performance goal, "One thing I desire is to get straight A's in all my classes." and a fixed mindset view of herself, "As of right now I have no problem with anything so far. I learned how to manage all my homework in all my classes."

Mali expressed a learning goal in her interview, "I'm in college because I want to explore new careers and learn more about what I want to do." This hopeful and incremental outlook is in stark contrast to what others had told Mali before she started college. She wrote in her letter of advice, "For the start I thought I wasn't going to make it to college because they said it was going to be hard for me and the reading I won't understand." In her interview, she explained further,

> I've been through hard stuff, and sometimes, for me, I don't get it done, like I'll do halfway, and then I just stop right there and I don't finish it, but like I have to

58

try to get it all the way through because then I won't know what's going to happen if I just stop halfway. I have to push myself to get it all the way through.

In addition to Mali's endorsement of effort in her interview, "I think growth mindset is like you push yourself. You try really hard," Mali expressed a belief in the malleability of intelligence, though she did not claim it for herself, "I do believe you can get smarter."

Olivia also expressed belief in the malleability of intelligence – and she owned it. She said in her interview, "I believe I can get smarter. Just have to put more effort into it and more time on my studying skills." She also endorsed challenges, "I prefer both easy and hard because it challenges me and challenges my brain to function more, and actually teaches me to be successful."

In summary, the qualitative data made explicit many of the study participants' attitudes, behaviors, and beliefs which align primarily with growth mindset theory. Performance goal orientation, however, considered an aspect of fixed mindset, was evident in several of the students despite having also endorsed growth mindset and an incremental theory of intelligence.

RQ3: To What Extent Do Students With More Growth-Oriented Mindsets Exert More Academic Effort?

For this question, I examined the correlation between the final mindset score with five effort variables drawn from the College Success class. The effort variables are described in Table 9.

59

Table 9

Description of Effort Variables

Effort Variable	Description
Attend/part points	10 points per session for a total of 32 sessions = 320 possible points. (Positive correlation expected.) Required behaviors applied with a rubric to all students included: • being present for entire class • coming prepared based on instructions at previous session • turning in in-class work as assigned • following class rules, e.g., no phone use without permission
Total Canvas page views	As a measure of time on task, Canvas (our Learning Management System) page views over the entire semester were drawn for each participant from the course analytics. (Positive correlation expected.)
Total time spent in Canvas	Related to time on task, time spent in Canvas was also drawn from the course analytics. (Positive correlation expected.)
Number of missing assignments	As a measure of academic effort and persistence beyond obstacles, the number of missing graded assignments was also drawn from Canvas. (Note: students were given an opportunity to turn in late assignments for parital credit so this number reflects assignments never turned in. Negative correlation expected.)
Number of absences	Number of times a participant did not show for class. (Negative correlation expected.)

Correlations were run using SPSS for the above five effort variables related to

final mindset scores. Only one statistically significant correlation was found. This

surprising result was a significant negative correlation (-.601, $p < .05$) between final

60

mindset score and total hours spent in Canvas. As might be expected, statistically

significant correlations were found amongst effort variables. A statistically significant

positive correlation ($p < .01$) was found between Canvas variables - time spent in Canvas

and number of page views. A statistically significant negative correlation ($p < .01$) was

found between Attend/Part points and number of absences. (See Table 10.)

Table 10

Correlations between Effort Variables and Final Mindset Scores (PostSum Q1-6)

		1	2	3	4	5	6
1.Attend/Part Points	Pearson Correlation	1	.448	.221	−.571*	−.951**	.145
	Sig (2-tailed)		.108	.447	.033	.000	.622
	N	14	14	14	14	14	14
2.Total Canvas Page views	Pearson Correlation	.448	1	.797**	−4.70	−.3.51	−.526
	Sig (2-tailed)	.108		.001	.090	.218	.054
	N	14	14	14	14	14	14
3.Total hours spent in Canvas	Pearson Correlation	.221	.797**	1	−.448	−.157	−.601*
	Sig (2-tailed)	.447	.001		.108	.591	.023
	N	14	14	14	14	14	14
4.Number of missing assignments	Pearson Correlation	−.571*	−.470	−.448	1	.570*	.312
	Sig (2-tailed)	.033	.090	.108		.033	.278
	N	14	14	14	14	14	14
5.Number of absences	Pearson Correlation`	−.951*	−.351	−.157	.570*	1	−.152
	Sig (2-tailed)	.000	.218	.591	.033		.603
	N	14	14	14	14	14	14
6.Postsum Q1-6	Pearson Correlation	.145	−.526	−.601*	.312	−.152	1
	Sig (2-tailed)	.622	.054	.023	.278	.603	
	N	14	14	14	14	14	14

 *$p < 0.05$
**$p < 0.01$

Correlations were also run between the expanded mindset score (the six questions from the pre- and mid- surveys plus the additional 10 questions in the final administration of the survey) and the five effort variables. No statistically significant correlations were found between the expanded mindset score and effort. (See Table 11.)

Table 11

Correlations between Effort Variables and Expanded Mindset Scores (PostSumQ1-16)

		1	2	3	4	5	6
1.Attend/Part Points	Pearson Correlation	1	.448	.221	−.571*	−.951**	-.198
	Sig (2-tailed)		.108	.447	.033	.000	.498
	N	14	14	14	14	14	14
2.Total Canvas Page views	Pearson Correlation	.448	1	.797**	−4.70	−.3.51	−.333
	Sig (2-tailed)	.108		.001	.090	.218	.245
	N	14	14	14	14	14	14
3.Total hours spent in Canvas	Pearson Correlation	.221	.797**	1	−.448	−.157	−.356
	Sig (2-tailed)	.447	.001		.108	.591	.211
	N	14	14	14	14	14	14
4.Number of missing assignments	Pearson Correlation	−.571*	−.470	−.448	1	.570*	.319
	Sig (2-tailed)	.033	.090	.108		.033	.266
	N	14	14	14	14	14	14
5.Number of absences	Pearson Correlation`	−.951*	−.351	−.157	.570*	1	.104
	Sig (2-tailed)	.000	.218	.591	.033		.723
	N	14	14	14	14	14	14
6.Postsum Q1-16	Pearson Correlation	-.198	−.333	−.356	.319	.104	1
	Sig (2-tailed)	.498	.245	.211	.266	.723	
	N	14	14	14	14	14	14

*$p < 0.05$
**$p < 0.01$

An ANOVA using the median split of mindset scores for the independent variable, examined the five dependent effort variables. There was one significant result -

surprisingly participants designated low mindsetters, missed fewer assignments (M=.43) than high mindsetters (M=1.57), $p < .05$. When effort was examined based on the visual binning for high/low mindsetters, an unexpected negative result was also found. Participants differed such that low mindsetter participants spent significantly more time in Canvas ($M = 17.71$) than high mindsetter participants ($M = 8.98$). $F(1,3) = 22.89$, $p = .017$.

RQ4: What is the Relationship between Endorsement of Growth Mindset Beliefs and Academic Achievement of Students in a Developmental Reading Class?

Whereas the previous research question examined mindset scores and effort in the College Success class taught by the researcher, this question considered participants' achievement in the companion developmental reading class taught be a different instructor. Achievement in the reading class was measured by percentage of total points at the end of the semester, which ranged from 40 to 104. One participant was missing a reading score because she had been dropped from class by the reading instructor after excessive absences. This participant did, however, continue attending, and passed, the college success class. Reading scores were standardized and an ANOVA was run in SPSS. No statistically significant relationship was found between final mindset score and achievement $F(1, 11) = 5.181$, $p = .101$.

In consideration of the high/low mindsetters based on a median split, an ANOVA did not show statistical difference in achievement $F(1,11) = 1.300$, $p = .280$, $\eta_p^2 = .106$. Nor did high/low mindsetters show a statistical difference in achievement based on visual binning $F(1,2) = 1.397$, $p = .359$, $\eta_p^2 = .411$.

The box plot (Figure 1) shows a broader range, though lower average, mindset score for those who passed the class.
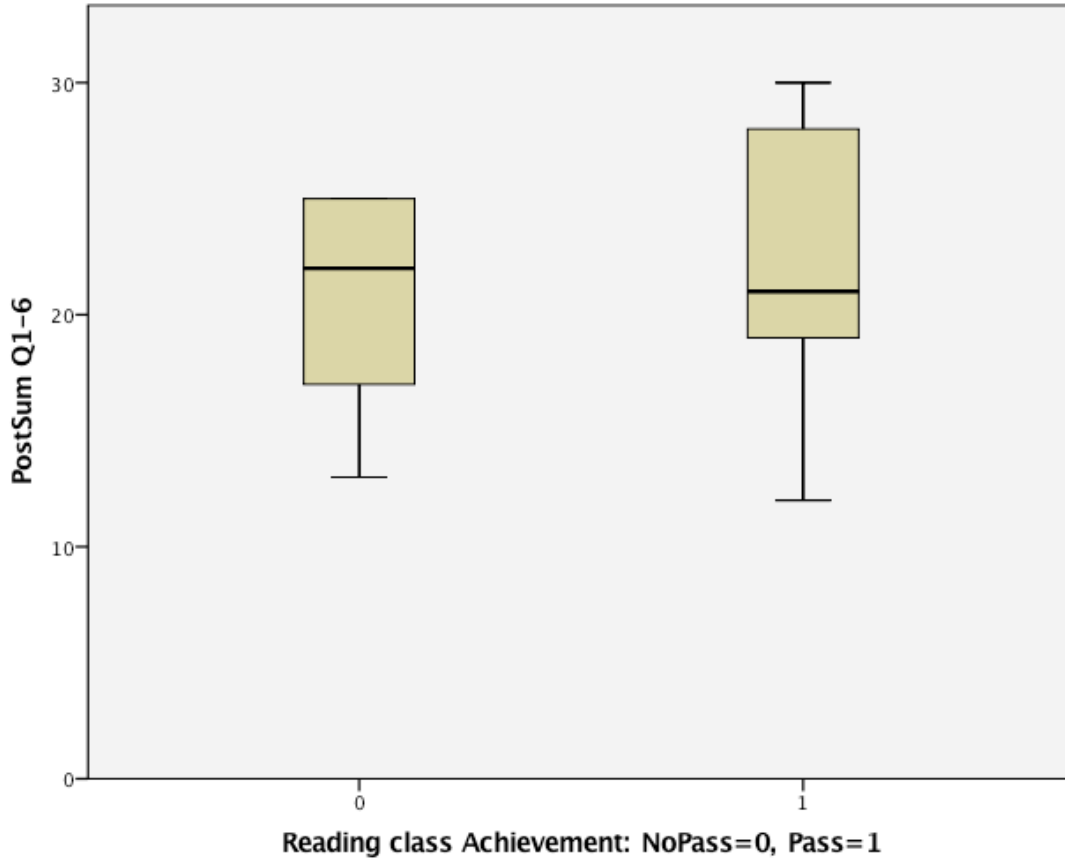
Figure 1. Reading class achievement

An additional note is that even though no expected and statistically significant correlations were found between mindset scores and achievement or effort variables, statistically significant correlations were found between the achievement variable (based on reading grade) and all of the effort variables taken from the College Success course suggesting that students who exerted more effort in the College Success class also achieved a higher score in the companion developmental reading class (see Table 13).

64

Table 12

Correlations Between Effort Variables (1-5) and Achievement Variable (6)

Measure		1	2	3	4	5	6
1.Attend/ Part	Pearson Correlation	-					
	Sig (2-tailed)						
	N	14					
2.Canvas Page views	Pearson Correlation	.448	-				
	Sig (2-tailed)	.108					
	N	14	14				
3.Time spent in Canvas	Pearson Correlation	.221	.797**	-			
	Sig (2-tailed)	.447	.001				
	N	14	14	14			
4.Missing assignments	Pearson Correlation	−.571*	−.470	−.448	-		
	Sig (2-tailed)	.033	.090	.108			
	N	14	14	14	14		
5.Absences	Pearson Correlation`	−.951*	−.351	−.157	.570*	-	
	Sig (2-tailed)	.000	.218	.591	.033		
	N	14	14	14	14	14	
6.RDG071 Final grade	Pearson Correlation	.926**	.732**	.615*	−.817	−.814	-
	Sig (2-tailed)	.000	.004	.025	.001	.001	
	N	13	13	13	13	13	13

$*p < 0.05$
$**p < 0.01$

CHAPTER 5

DISCUSSION

This chapter begins with a discussion of the results including triangulation of the quantitative and qualitative data and how results from this study fit in with existing literature and compare with college data. Limitations of the study are presented next followed by suggestions for future research. In keeping with action research, this study has resulted in lessons learned for my teaching practice which are discussed in the final section.

Summary of Results

In brief, students' growth mindset beliefs increased slightly, although not significantly, by the end of a semester imbued with growth mindset instruction, reminders, and activities. Qualitative data led to four assertions regarding students' self-reported beliefs and behaviors primarily consistent with growth mindset theory. A fifth assertion pointed out that implicit self-theory of intelligence and goal orientation did not always align as predicted by growth mindset theory. Quantitative results did not support the prevailing idea that students with a growth, in contrast to those with a fixed, mindset exert more academic effort and achieve more. As would be expected, however, effort (even though in a different course) and achievement in the reading course were positively correlated (Svanum & Bigatti, 2009).

Though much research supports ease of inducing growth mindset (Blackwell et al., 2007; Fabert, 2014; Sriram, 2014), the students in this study did not show any significant change in mindset scores on the questionnaires after initial instruction or by

66

the end of the semester. Students did show a non-significant increase in mindset scores after initial instruction and by the end of the 16-week course in which growth mindset concepts were continually reinforced. As adult developmental readers, including those learning English and students with learning disabilities, these students may have needed more time to assimilate the concepts. It is also possible that, as students who have overcome numerous obstacles, such as learning disabilities, financial challenges, social struggles, and refugee status, these students began their college careers holding growth mindset attitudes already. In addition, the students who consented to participate in this study evidenced an openness to being observed in a challenging activity, which is also more consistent with a growth mindset orientation.

Although all students interviewed for my study claimed to have a growth mindset, they did not consistently demonstrate consequent effort. The lack of a significant relationship between effort or achievement and mindset beliefs has occasionally been reflected in other literature. In Caufield's (2010) examination of the effects of a growth mindset intervention with 12 learning disabled high school students, results did not support a positive motivational change. In two studies with at-risk college students no relationship was found between achievement and mindset (Romero, 2009; Sriram, 2014). The results of the current study appear to support this literature. Thus, further research on the efficacy of growth mindset instruction on developmental readers needs to be undertaken to determine how best to reach this population.

Triangulation of Quantitative and Qualitative Data

Though all students expressed growth mindset attitudes, beliefs, and behaviors in the qualitative data, their mindset scores and the effort and achievement variables did not always match what students said or wrote about themselves. For example, Bella had a fixed mindset score and numerous absences, yet in both her first and second interviews she clearly displayed a growth mindset attitude and a willingness to learn from her mistakes. Those beliefs took some time to develop during the semester, however, and were too late to save her from being dropped from the reading class due to her excessive absences and lack of work. Another example is Ladonna whose scores indicated a growth mindset and who had the second highest achievement score in the reading class, yet her journal reflections suggested a fixed mindset as evidenced by her desire to compare herself favorably to others and preference for easy assignments (performance goals) over challenging ones (learning goals).

The results showed that a growth or fixed mindset attitude did not translate into the expected behavior as measured by the effort variables. Effort could have been exerted in the college success class by revising and resubmitting assignments based on instructor feedback and increased understanding of the material. Rarely was an assignment submitted without room for improvement on the first attempt; therefore all students were invited to revise multiple times during the semester. In reviewing participants' submissions, I found that a student with one of the highest mindset scores who had trouble submitting assignments electronically (Ladonna), did not overcome that obstacle resulting in a couple of zero's in the grade book. On the other hand, a student with a

mindset score barely over the median (Hunter), resubmitted or met with me for assistance

on at least four assignments. Finally, consistent with growth mindset theory, the only

student who never revised or resubmitted an assignment in the college success class had

one of the lowest mindset scores. Inconsistent with growth mindset theory that same

student, Ebony, had the second highest achievement score in the reading class.

A recent study offered some helpful explanation to the unexpected results.

Burnette and colleagues (2013) conducted a meta-analysis of literature on implicit

theories (they used Dweck's earlier terms of incremental and entity implicit self-theories

when discussing growth and fixed mindsets respectively) and self-regulatory processes,

specifically around goals, in an attempt to create theoretical and empirical coherence.

They reported contradictory results in studies attempting to link growth mindset with

self-regulatory processes such as goal setting. In addition to examining the strength of

associations between implicit self-theories and self-regulatory processes, they considered

which processes promoted the crucial outcome of goal achievement. They introduced a

model called SOMA (setting/operating/monitoring/achievement) that teases out the self-

regulatory processes around goals into goal-setting, goal operating, and goal monitoring.

The surveys used in this study to calculate students' mindset scores included four

questions on goal orientation that were previously believed to correlate clearly with

implicit theories of intelligence. The SOMA model, however, proposes nuances within

goal orientation that may explain the unexpected results in this study. For example,

Burnette and colleagues suggested that in goal setting and goal operating, approach

versus avoidance goals and the specificity of goals interact with implicit theories to predict outcomes.

Gemma, considered a "low mindsestter" in my study, illustrated the nuances of the SOMA model and offered an explanation for the unexpected inverse correlation between high mindsetters and time in Canvas. Gemma had the lowest possible score on the construct malleability of intelligence and a below-average score on the goal orientation construct (meaning she preferred performance goals over learning goals). However, she exerted the most academic effort as evidenced by her spending the most time in the on-line aspect of the class and earning the most attendance/participation points. She was also one of four participants who never missed a class or an assignment. Her approach also yielded the highest achievement score in the study (104 in the Reading class). Her behavior was illustrative of Burnette and colleagues' proposal that a specific goal, even one that is a performance, rather than a learning goal, will likely result in greater effort and achievement.

The literature on the relationship between growth mindset and achievement in college students was not as robust as that of the literature on the relationship between growth mindset and effort. This study found no correlation between mindset and academic achievement. A striking example of the lack of correlation was that the student with the lowest score in achievement (40% of possible points in reading) had the second highest score on malleability of intelligence (16 out of 18). Continuing with the SOMA model (Burnette et al., 2013), suggested that goal monitoring carries the most weight of

70

the three self-regulatory processes because incremental beliefs (i.e., belief in the

malleability of intelligence),

> are likely to exhibit indirect effects on goal achievement by decreasing the
> tendency to experience anxiety and other negative emotions regarding one's goal
> pursuit and by increasing the tendency to adopt optimistic expectations about
> one's ability to achieve one's goals (Burnette et al., 2013, p. 674).

Limitations of the Study: Threats to Validity

As an action research project this study was undertaken with the goal of "gaining

insight, developing reflective practice, effecting positive changes and improving student

outcomes" not necessarily to generalize to other settings (Mills, 2014, p. 8). The focus,

then, was to minimize threat by enhancing internal validity. Even so, there were several

threats to internal validity with this study. Historical threat, or exposure to other

influences, may have affected the dependent variable of growth mindset score. Students

who experienced this intervention in the College Success class were also in a reading

class with a different teacher. The reading teacher often talked about "grit" in her class

and encouraged students to take responsibility for their lives and persist beyond

obstacles. Because that message is similar to growth mindset instruction, it may share

responsibility for students' slight increase in growth mindset scores. However, these two

classes were taught as a learning community so they were meant to integrate and

occasionally overlap with each other. It is conceivable, though, that in a College Success

class taught outside a learning community, the effect of growth mindset instruction may

be decreased without the reinforcement of a second instructor.

Instrumentation may have posed a threat to the internal validity of this study as

well. For the first and second administrations of the survey, students answered the

questions on paper. The paper version allowed students to skip questions or give multiple answers that created confusion over subjects' preferred answers in a couple of cases. For the final survey, an electronic version was created and used. This change in instrumentation condition as well as including a reverse-scored item may have contributed to errors. However, the reverse item was included as it was recommended by Dweck (1999) as a means of creating a clear distinction between learning and performance goals.

Although this survey was piloted successfully with students in a similar college success class, those students were higher level readers. It is possible the participants in this study did not fully comprehend the survey questions as they read them. Having the reading teacher read the questions aloud to the class may have enhanced comprehension. Dweck's (1999) children's version survey questions used in this study tested at an eighth grade reading level, but these students were reading at approximately third grade level based on their placement in the companion reading class. Although assistance from the reading teacher was available, no students asked for help. If students did not understand the survey questions, the value of survey data is limited. In addition, if students were struggling with comprehension of the questions, their frustration may have created barriers to their learning.

A further internal threat to this study was test sensitization. At the first survey, subjects had not yet been exposed to any growth mindset instruction, but by the end of the semester, students had been reminded weekly. At that time, students may have chosen the answers they knew related to growth mindset. Validity was maximized in this case by

choosing only the entity theory items limiting the drift to incremental items over time (Dweck, 1999).

A final threat to internal validity was attrition. In an already small subject set, six of the 14 participants did not submit all of the assignments used for qualitative data, which may have biased the results. In addition, I have no qualitative data for Imani, the one student who stopped attending class at Week 5. Her initial mindset score was 21, slightly above the mean of 20.57, though the obstacles apparently became too much to overcome. Another example of attrition as a threat to validity is that only two students who participated in Interview 1 also participated in Interview 2. Having more overlap could have contributed to the depth and breadth of qualitative data. Perhaps incentives would have encouraged more participants to interview. Quantitative data was complete for Surveys 1 and 3 so mindset scores were not affected. Interestingly, half of the students with missing qualitative data had growth mindset scores and the other half had fixed.

External threats to the validity of this action research project included the Hawthorne and experimenter effects. In the Hawthorne effect, subjects know they are being studied, which may lead to a change in behavior. Ethical considerations require that participants are informed, consequently my students knew they were part of this research project. In addition, qualitative data was gathered through assignments with specific instructions so students may have been prompted by instructions to use growth mindset language. In interviews as well, because the teacher/researcher acted as the interviewer,

students may have felt compelled to answer questions in a way they thought their teacher would want to hear.

A final threat to external validity, and perhaps one of the most salient, was the experimenter effect. A researcher may pose a threat to validity by influencing the dependent variable by force of charm or energy rather than by the intervention. Conversely, the researcher may be a poor implementer of the intervention. For example, I may not be skilled in teaching about growth mindset. Standardized programs have been created to introduce growth mindset in elementary schools. My curriculum was an assortment of materials and activities gathered from a variety of sources. It is also possible that my intervention did not speak to students' psychological experiences, which Paunesku and colleagues (2015) indicated was essential to effectively promote growth mindset. Another experimenter shortfall was my inability to gather more data from student interviews. The average time for an interview was 7.9 minutes. In a previous research cycle, the average interview was twice that. Though the questions were open-ended and assessed at a third grade reading level, all but the two students who interviewed both times expressed and maintained a shyness about being recorded and were very brief in their answers. I may benefit from training in interviewing skills with many different types of students. Another potential solution to that unease and brevity could be to create a culture of interviewing in the classroom by having more pair-share activities where students ask each other targeted questions.

A design limitation is that, while there was a pre-survey, there was no pre-interview prior to instruction to complement or triangulate with the quantitative data.

74

Having qualitative data gathered prior to instruction may have provided insight into students' initial mindset attitudes and beliefs.

Finally, quantitative variables used to measure academic effort may have created limitations as well. Though time spent in Canvas approximates time on task, it does not necessarily equate to meaningful and strategic effort. A student could log in to Canvas and do nothing, as automatic log out does not happen until 50 minutes of inactivity has lapsed. In addition, time spent in Canvas, even if a student was reviewing powerpoints or instructions, does not assure that students are engaged in the metacognitive practices that are essential to learning (Wiersema et al., 2015). However, having these quantitative variables did provide additional data to the qualitative self-report measures of student effort.

Students in this study began with significant reading comprehension difficulties and, even by the end of the semester, a number of the participants did not pass the reading class. This may have been a particularly difficult semester for students at this reading level as evidenced by their low pass rate compared to previous semesters. According to data from the college's research department, the pass rate for all students (study participants and others in the class) in this particular cohort was 57%. The previous semester, in a cohort comprised of the same instructors and course curriculum, the pass rate for reading was 70%. Over the past four semesters, the pass rate of all reading classes at this level ranged from 23 – 100%, with the average pass rate being 74%.

Participants' limited reading comprehension may be a factor in students' sometimes mixed messages regarding adoption of growth mindset attitudes, beliefs, and behaviors. Students may have been including words and phrases presented in class in their journals and interviews, but may still not have understood enough to act on what they could say and write (Cartwright et al., 2016).

Suggestions for Future Research

As an action researcher, suggestions for future research surface from my practice, professional reading, and conversations with colleagues regularly. Given the Burnette and colleagues' (2013) article and the results of this study, developing a future study that separates measurements of implicit self theories from goal setting, goal operating, and goal monitoring processes could prove valuable to further understanding the nuances of effort and achievement as relates to implicit mindset beliefs.

I would like to look more closely at the experiences of students who are in the developmental classes for different reasons. For example, I could compare students who are fluent in another language to students who have gone through a U.S. special education system or to students who did not finish high school—Do their experiences differ or cluster in some way? Perhaps a longitudinal study following those students' experiences more closely over a longer period of time would illuminate differences in the adoption of growth mindset, effort behaviors, and achievement among readers who are challenged for different reasons. Those results could be compared to adoption of growth mindset by college students without reading challenges.

Paunesku and colleagues (2015) suggested "sense-of-purpose" interventions help students maintain motivation when they become disinterested or frustrated by learning, especially when that learning is foundational for progress. These interventions focus on reflecting on how hard work helps students make a difference in the lives of others by being an example or contributing to their community. An experimental study integrating a service learning component into a class with students at the same basic reading level may illuminate the impact of "sense of purpose" interventions when compared to simple mindset instruction with similar students.

Though this was an action research project and, therefore, most relevant for my specific context, research with larger groups of students and examining a more standardized growth mindset intervention would expand the scalability of lessons learned. Paunesku and colleagues (2015) also promoted larger-scale interventions, and more standardization of instruction, recognizing "it is ultimately students themselves who must capitalize on learning opportunities." (p. 785). Our college is working on creating instructional standards for our more than 100 sections of the college success class taught each academic year. Instituting a standard lesson and measuring attitude and effort across all sections could illuminate our understanding of what works with our students in persisting and achieving their goals.

Lessons Learned and Implications for Practice

I began this doctoral journey with the hope of becoming a better teacher. I was attracted to the action research model—systematic inquiry undertaken to gain insight, develop a reflective practice, and effect positive changes in the educational environment

to improve student outcomes and the lives of those involved (Mills, 2014). Having

engaged in this action research project for the past three years has begun yielding results.

I believe the lessons learned in this study will improve my students' lives, my

instructional practices, and the practices of my colleague teachers as I share my results.

Lessons learned that may improve my students' lives and academic outcomes

include the need to listen more closely to what my students are saying. In rereading

students' journals during my data analysis process, I found that several were likely asking

for help in a way that I did not recognize at the time. In reviewing student assignments in

the past, I may have been too focused on performance goals for the students rather than

learning goals. My experience with qualitative coding reinforced the importance of being

open to seeing anything and then comparing all of what I see to extract meaning. In

addition, triangulating data helped me pay more attention to the interplay of students'

words and actions.

Another lesson learned is that given the diversity of students in my classes, I may

need to better differentiate instruction, for example teaching strategies for LD and ELL

students may vary from strategies I currently use. For the ELL students in this study, my

class was the first college level class they were in with non-ELL students. Again, with the

close examination of journal assignments for qualitative data, I noticed repeated

comments indicating that they did not understand instruction and reading material in

English. For the LD students who may struggle with cognitive flexibility, they may need

more scaffolding and immediate feedback to help them solidify a foundation upon which

they can build new skills. Collaborating more closely with instructors of ESL classes and with staff in the Disability Services office may help me differentiate my instruction.

Another lesson learned is the importance of developing a clear research question and consequent method to answer it. I have been searching for ways to better serve my students for the past 10 years. Having to articulate a particular problem of practice and a way to address it, is promoting a more disciplined approach (based in literature) to my attempts to assist students in achieving their academic, personal, and career goals.

Participating in this action research project has also led me to become better acquainted with professional education literature. Most importantly, as to my current interests, I was introduced to growth mindset, motivation literature, and the SOMA model. I am a more discerning consumer of research literature and consequently more appreciative of the need to contextualize innovations for my setting.

As I continue to develop as a researcher and a leader, I intend to engage in more opportunities to learn and share with my colleagues. As an example, recently, a small group of colleagues started an informal monthly meeting to share what we are learning from readings, conferences, and practice. In addition, I also hope to engage in scalable practices. Through a member of my dissertation committee I have been introduced to the PERTS research team at Stanford that is working on pushing out growth mindset promotion practices. I am coordinating efforts at my college to participate in PERTS' pilot roll out of an on-line Growth Mindset promotion module geared for community college students. We intend to use the module in the over 100 sections of the college success class we will offer next semester.

In summary, along with being able to help students in more effective ways, I believe my own personal and professional growth is inevitable if I continue with the strategic efforts I have learned in this program. The "power of yet" is a mantra of growth mindset. I feel, along with my students, as though I am engrossed in that process of becoming.

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APPENDIX A

COLLEGE SUCCESS COURSE OUTCOMES

College Success Course Outcomes

1. Identify and describe campus student support resources.
2. Identify and apply time-management strategies.
3. Identify and apply goal-setting strategies.
4. Identify preferred learning style and describe its relationship to teaching and learning strategies.
5. Identify and utilize interpersonal communication skills.
6. Identify and utilize strategies to organize study materials.
7. Identify and utilize note-taking strategies.
8. Identify and utilize textbook, academic, and classroom strategies.
9. Identify and utilize test-taking strategies.
10. Identify and utilize strategies to improve memory.
11. Identify and utilize strategies for critical and creative thinking.
12. Describe the process of educational and career planning.
13. Describe current occupational trends and outlooks.
14. Utilize career planning resources.
15. Develop an education plan.

APPENDIX B

MINDSET QUESTIONNAIRE AND CRONBACH'S ALPHAS

Mindset Questionnaire

Read each sentence below and then circle the *one* number that shows how much you agree with it. Everyone may have a different opinion. There are no right or wrong answers.

Part I:
1) You have a certain amount of intelligence, and you really can't do much to change it.

1	2	3	4	5	6
Strongly Agree	Agree	Mostly Agree	Mostly Disagree	Disagree	Strongly Disagree

2) Your intelligence is something about you that you can't change very much.

1	2	3	4	5	6
Strongly Agree	Agree	Mostly Agree	Mostly Disagree	Disagree	Strongly Disagree

3) You can learn new things, but you can't really change your basic intelligence.

1	2	3	4	5	6
Strongly Agree	Agree	Mostly Agree	Mostly Disagree	Disagree	Strongly Disagree

4) If I knew I wasn't going to do well at a task, I probably wouldn't do it even if I might learn a lot from it.

1	2	3	4	5	6
Strongly Agree	Agree	Mostly Agree	Mostly Disagree	Disagree	Strongly Disagree

5) It's much more important for me to learn things in my classes than it is to get the best grades.

1	2	3	4	5	6
Strongly Agree	Agree	Mostly Agree	Mostly Disagree	Disagree	Strongly Disagree

6) Although I hate to admit it, I sometimes would rather do well in a class than learn a lot.

1	2	3	4	5	6
Strongly Agree	Agree	Mostly Agree	Mostly Disagree	Disagree	Strongly Disagree

If I *had* to choose between getting a good grade and being challenged in class, I would choose…(Circle **one**)

"good grade"   "being challenged"

Additional questions for final administration of the survey during Week 15, also on a 6 point Likert scale:

7) When I have a problem, I look for a solution or help.
8) I enjoy taking on new challenges.
9) If I work hard, I know that I will succeed academically.
10) When teachers tell me how I can improve, I follow their advice.
11) I find lessons and inspiration in the success of others.
12) Doing challenging things frustrates me, so I quit.
13) When I don't get something, I don't see any reason to continue working on it.
14) I like work the best when I can do well without putting a lot of effort in.
15) When teachers tell me something I am doing wrong, I think they don't know what they're talking about.
16) I feel threatened by others' success.

Part II:
1) Please circle your ethnicity:
      American Indian
      Asian-Pacific Islander
      African-American
      Hispanic
      Caucasian/White
      Two or more races
      Other

2) Please write your age: _____

3) Is English your first language? Yes   No
      If no, how long have you been learning English? _____

Your MEID _____

RELIABILITY SCORES FOR QUESTIONNAIRE CONSTRUCTS

Construct	Cronbach's alpha - Pre	Cronbach's alpha – Mid	Cronbach's alpha - Post
Malleability of intelligence (Q1-3)	.72	.83	.76
Goal orientation (Q4-6)	-.91	-.16	.84
Handling obstacles (Q7, 13)	x	x	-.67
Approach to challenges (Q8,12)	x	x	.64
View of effort (Q9,14)	x	x	.68
Response to criticism (Q10,15)	x	x	-.07
Response to success of others (Q11,16)	x	x	-.38

APPENDIX C

SEMI-STRUCTURED INTERVIEW QUESTIONS

Semi-structured Interview Questions

Interview 1 – weeks 10-12

1. How did you feel at the start of this semester about your ability to be successful in college?

2. How do you feel now?

3. What has influenced your sense of success?

4. Please describe what you believe growth mindset is.

Interview 2 – weeks 16-17

1. What are your reasons for being in college?

2. Please describe a time when obstacles got in the way of your desired goal? What did you do about it?

3. Tell me about a time when hard work contributed to your desired outcome.

4. Please describe how you feel when you see others succeed at something you have difficulty doing?

5. In school, do you prefer to do things that are easy or hard? Please explain and give an example.

6. What is something you wanted to achieve, but didn't? What got in your way?

7. Please tell me about a time a teacher gave you criticism or feedback on a recent assignment. What did you learn from that?

8. What do you believe about your intelligence and whether it can change or not?

9. Please explain whether you feel you have adopted a growth mindset this semester.

APPENDIX D

GROWTH MINDSET LESSON PLANS

Lesson Plans

Lesson One: Learning and Your Flexible Brain

Learning Outcomes:

After this lessons, students will be able to

1. Identify growth mindset as belief that the brain is flexible and learning happens with effort.
2. Recall the three principles of deep and lasting learning.
3. Produce a group picture of what learning looks like.
4. Identify something that s/he has learned well and write about how the three principles of deep and lasting learning were met.

Summary:

Introduce principle of malleability of the brain through video, student-created visual representation, discussion, reflection of personal experience, and theory.

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Step-by-Step Description:

After a brief announcement of topic, show a 7 minute video   "The Learning Brain."

Put students in groups of 3 to discuss the video and draw a picture of what learning looks like for them (offer reassurance that this is not a drawing contest). 15-20 minutes.

Gallery Walk. Groups place their pictures around the room so all pictures can be seen. (5-8 minutes)

Llecture briefly on growth mindset, the malleability of the brain, and the three principles of deep and lasting learning. (12-15 minutes)

Students share in their groups something that they are very good at and reflect on how they learned it. (10-15 minutes)

Students are assigned to read related section in the text and to write a journal reflection

about something they learned for fun and how they learned it incorporating ideas from the lesson on learning.

Required Reading "Becoming an Active Learner" pp 21-28 in *On Course, Study Skills Plus 2ⁿᵈ Edition* (Downing, 2011)

Lesson Two: Growth vs. Fixed Mindset Language

Learning Outcomes:

1. Students will be able to recognize the difference between growth and fixed mindset beliefs.
2. Students will be able to recognize growth (creator) and fixed (victim) mindset language.
3. Students will be able to change victim statements into creator statements.
4. Students will recognize creator and victim attitudes in themselves.

Summary:

Use visual images and reading from the text as well as instruction, discussion, and practice to help students recognize and adapt creator (growth) and victim (fixed) mindset language.

Step by Step:

Introduce topic with a powerpoint and discussion.

Show "Stuck on an Escalator" video to assess for understanding of creator and victim mindsets. (30 minutes)

Practice changing first of 10 victim statements into a creator statement in class. Invite students to work in pairs for remainder of class. (20 minutes)

For homework complete transforming victim statements into creator statements. Reflect on which type of language you use. Write about lessons learned.

Required Reading: pp 51-54 "The Language of Responsibility"

On Course, Study Skills Plus 2nd Edition (Downing, 2011)

APPENDIX E

SUCCESS COURSE SYLLABUS AND OUTLINE

Fall 2016
FYE Learning Community
Basic Reading
College Success

RDG Instructor:	**College Success Instructor:**
(name and contact information)	Lynn Mizzi Brysacz, M.C.
	(contact information)

Welcome! Our learning community will allow you to practice reading and college success strategies together. Our class material will be presented through brief lecture, readings, discussions, activities, and writing. Technology will be integrated in your assignments. There is a tremendous opportunity to learn - from your classmates, through personal reflection, by reading and listening. This class will feel more like a workshop than a lecture. The more you participate and practice, the more you can expect to learn and benefit.

Course Description
Focus on increasing student success through college orientation and personal growth, study skills development, and educational and career planning. Prerequisites: None.

Official course outcomes for College Success:
1. Identify and describe campus student support resources.
2. Identify and apply time-management strategies.
3. Identify and apply goal-setting strategies.
4. Identify preferred learning style and describe its relationship to teaching and learning strategies.
5. Identify and utilize interpersonal communication skills.
6. Identify and utilize strategies to organize study materials.
7. Identify and utilize note-taking strategies.
8. Identify and utilize textbook, academic, and classroom strategies.
9. Identify and utilize test-taking strategies.
10. Identify and utilize strategies to improve memory.
11. Identify and utilize strategies for critical and creative thinking.
12. Describe the process of educational and career planning.
13. Describe current occupational trends and outlooks.

14. Utilize career planning resources.
15. Develop an education plan.

<u>Required Resources</u>
<u>On Course Study Skills Plus</u> 2nd edition by Skip Downing ISBN-10: 1-133-30974-7
Flash drive and/or Binder/Folder for class materials and assignments
Access to the Internet and a computer to complete assignments

Attendance/Participation: Regular and prompt attendance is required. Occasionally, unexpected situations may keep you from class; if so, connect with another student, check Canvas, or schedule an appointment with me to discuss what you missed. If you miss more than three classes, you risk being dropped from the course. To avoid being dropped, schedule an appointment with me to discuss a plan for your success. The official withdrawal policy of the College District can be found in the General Catalog & Student Handbook. See (link) or me for more information.

You may earn up to a total of **10 points per class period** for attendance and participation. You will lose up to **5 points** for each **tardy.** If you are more than 30 minutes late, you will be counted as absent. The same point deductions apply for leaving early. An **absence** will result in the **loss** of your **10 attend/part points** for that particular day. Arriving on time, prepared, and respectfully participating in class activities earns you attend/part points.

Regular participation in discussions and class exercises is expected and rewarded. Side conversations, sleeping, reading, working on other material, using your cell phone, text messaging, etc., indicates to me your lack of investment and will negatively affect your attendance/participation points for the day. Further, if the behavior is not readily corrected, you may be asked to leave and as a result, be marked absent for the class period.

Confidentiality, honesty, and respect are important factors in a positive learning environment. Note that whatever personal information is shared in the classroom should remain in the classroom.
Visitors: Only persons registered for a class may attend that class.

Audio taping Policy: Due to disclosure of personal information, audio taping is not allowed.

Electronics: You will be expected to use technology to help you be successful AND to keep your personal electronic communication **outside** of class. Place all electronic devices on vibrate or silent when you come to class.

Food and Beverage Policy: All students are expected to support the college policy of no food or beverage in the classroom. Water in a container with a secure lid is permissible.

Special Needs: If you have special needs because of a disability, contact Disability Services by the end of the first week of the semester at (phone number and location). They will determine reasonable accommodations and help you communicate your needs to your instructors. Please let me know if you have further questions about special needs or services.

Student Responsibility for College Policies: Every student is expected to know and comply with all current published policies, rules, and regulations as printed in the college catalog, class schedule, and/or student handbook. See the Student Handbook at (link).

Misconduct:
1. Academic: Any cheating or plagiarizing will result in an automatic lowering of the grade. Other consequences include failing the course, suspension, and expulsion.
2. Behavioral: If you demonstrate disrespectful/disruptive behavior (e.g. whispering, belittling another's opinions, disruptive side conversations, etc.) toward other students or an instructor, you will be asked to stop; if the behavior continues, you will be asked to leave the classroom and will be considered absent. If the behavior continues, you will be reported to the Dean of Students.

Refer to the General Catalog and, as with all things, ask questions if you need clarification.

Assignments: Assignments are meant to give you the chance to practice what you are learning. Practice is very important! At times, you may be offered a chance to practice by redoing an assignment. Many assignments will be submitted electronically in Canvas, our Learning Management System. Assignments are due at the beginning of class, on the day they are due unless otherwise noted. If you miss class, it is your responsibility to know what is due for the next class session, as you will be expected to hand in any assignments that were given. Contact a fellow classmate, check Canvas, and/or meet with me to find out what you missed. ***Absence will not be accepted as an excuse for late work***. Further, if an assignment is due on the day you are out, it is your responsibility to make sure I receive it before class time on the due date, or to make arrangements for turning it in. If no arrangements are made, and it is not handed in on the due date, it will be considered late on the day it is received. Late work is not accepted unless you have a "Life Happens" coupon to submit (see below).

Several assignments given will be part of research your instructor is conducting – the mindset questionnaires and several journal assignments. If you do not want

your submissions to be included in the research you will have a chance to say that on the letter of consent. All submissions will be kept confidential – only your instructor and the other investigators will be able to view your data. Even if you are not participating in the research, you are still required to complete and turn in all assignments.

You will receive two "Life Happens" coupons as part of your syllabus packet. You can turn in an out-of-class assignment within **one week of the due date** with no penalty if a coupon is attached. If you have not used the coupons **and** you have turned in all of your assignments, you can receive extra credit for submitting the coupons at the end of the semester.

Your **final grade** is based on your percentage of points earned divided by points possible.
(Total points possible = 1000).

90-100% =   A
80-89%   =   B
70-79%   =   C
60-69%   =   D
Below 60%= F

Extra credit: May occasionally be offered at the discretion of the instructor and will be announced in class or on-line.

activity	#	value	subtotal	%
attend/part	32	10	320	0.32
journals	7	20	140	0.14
projects	4	65	260	0.26
tests	1	40	40	0.04
pre/post	2	20	40	0.04
conference	1	20	20	
final	1	180	180	0.18
TOTAL			**1000**	

COURSE OUTLINE
College Success Fall 2016/Brysacz

Dates	Week	Topic	Assignment	Points
			Activity	
Aug 23 & 25	1	Welcome and Introductions	Pre-test	20
			Chapter 1	

Date	Week	Topic	Assignment	Points
		Learning	Poster	
			Journal (Learning)	20
Aug 30&Sept1	2	Personal Responsibility Chapter 2	Resource Activity	
			Journal (V->C)	20
			Begin Time Project	
Sept 6 & 8	3	Personal Responsibility	Journal (WCP)	20
			Chapter 3	
Sept 13 &15	4	Self-Management	Chapter 4	
			Time Project due	65
Sept 20 &22	5	Career Exploration		
Sept 27 &29	6	Career, continued	Career Project due	65
Oct 4 &6	7	Education Planning	Teacher-Student Conference	20
Oct 11 &13	8	Note-taking and Organization Strategies	Education Project due	65
Oct 18 &20	9	Midterm	Midterm	40
Oct 25 &27	10	Memory	Journal (Acad Plan)	20
Nov 1 & 3	11	Interdependence	Assign Group Project	20
Nov 8 &10	12	Emotional Intelligence	Group Project Presentation	65
Nov 15 &17	13	Critical thinking	Journal (Letter of advice)	20
Nov 22 & Nov 24	14	Summarizing THANKSGIVING	Journal (College Grad) NO CLASS	20
Nov 29&Dec1	15	Next Steps	Journal (Gratitude) Post-test	20 20
Dec 6 & 8	16	Wrapping Up	Final - Game Show	20
TH Dec 15	FINAL	10-11:50 a.m.	Common Final	60
			Final - Presentations	100
			Attend/Participation	320
			Total points	**1000**

Note: Students are responsible for the information contained in this syllabus. The instructor reserves the right to change the contents of the syllabus as necessary to meet the specific needs of this class. Students will be informed in class and/or on Canvas of changes.

Additional Readings and Videos:

Week 3   "Making Wise Decisions" pp 55-59

Week 4   "One Student's Story" p 155 followed by Socratic Seminar

"How to Set a Goal" p102-103

"Growth Mindset Video" produced by University of California Agriculture and Natural Resources

Week 8   "Manifesto" by Train Ugly video

Week 9   Midterm

"One Student's Story" p. 218. Review pp 55-58 for Wise Choice Process-Reading journal assignment

Week 10   Post-midterm review

"Red Hands – Walk off the Face of the Earth (Big Guitar Version!)" video (4:07)

Week 11   Puzzle Activity

Week 12   "Ash Beckham" TedX Boulder video

Week 13   Academic Success Panel

Week 14   "An Experiment in Gratitude - The Science of Happiness" video by Soul Pancake (7:13)

APPENDIX F

INSTRUCTIONS FOR JOURNALS

Instructions for Journals Used as Qualitative Data

Journal	Week	Instructions
Learning	1	Identify something you learned for your own enjoyment. Describe how you learned it. Connect what you learned from this journal to how it may apply in college.
WCP-Reading	10	Use the 6-step Wise Choice Process (WCP) to consider your status in the Reading class and what you will do about it. 1.What is my current situation? 2. How would I like it to be? 3. What are my choices (at least 3) for what I could do? 4. What's the likely outcome of each choice? 5. Which choice will I make? 6. When and how will I evaluate my choice?
Letter of Advice	13	Write a letter of encouragement/advice to a student like you who will start at this school next year. - Tell them what you have learned this semester that is helping you progress towards your goals and dreams. - Include at least one example from your own life about how you have dealt with school-related difficulties this semester. - Be as specific and personal as you can with your advice. Write 1-3 paragraphs.

APPENDIX G

EFFORT AND ACHIEVEMENT DATA

Effort Data (College Success class) and Achievment Data (Reading class)

Student	Attend/Part points	Total Canvas page views	Total hours spent in Canvas	Number of missing assignments	Number of Absences	Reading final grade
1	261	198	5.77	2	2	47
2	241	569	15.95	0	5	
3	282	496	14.23	1	2	81
4	287	585	13.02	1	1	73
5	297	530	11.08	0	1	92
6	290	353	8.95	2	1	79
7	303	1223	19.47	0	0	104
8	257	461	10.25	3	4	64
9*						
10	280	296	6.88	1	2	66
11	308	655	15.42	1	0	87
12	309	666	7.30	0	0	100
13	305	386	10.70	0	0	90
14	245	216	6.72	3	5	40
15	289	294	10.22	0	0	79

*Student stopped attending by Week 5 so no data was collected.