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Effects of a Growth Mindset Intervention on First-Year College Student Academic Performance

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EFFECTS OF A GROWTH MINDSET INTERVENTION ON FIRST-YEAR COLLEGE STUDENT ACADEMIC PERFORMANCE

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by

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ABSTRACT

EFFECTS OF A GROWTH MINDSET INTERVENTION

ON FIRST-YEAR COLLEGE STUDENT

ACADEMIC PERFORMANCE

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Student success is influenced by a complex array of factors, including implicit theories of intelligence, or mindset. Previous research has shown that students' mindset, whether they view intelligence as a fixed quantity or something that can be incrementally increased, can predict academic achievement. Students who hold a fixed mindset believe that intelligence is a static trait that cannot be changed and often internalize failure, exert less effort when faced with difficulty, and avoid challenging work in order to preserve their self-image. Conversely, students who hold a growth mindset believe that intelligence can be cultivated by engaging in challenging experiences. These students seek growth opportunities, as they feel most successful when they are learning and developing their intelligence. When facing difficult school transitions and challenging courses, students who hold a growth mindset are more likely to achieve academic success, and interventions can be used to foster this implicit theory of intelligence. Many higher education institutions utilize first-year seminars in order to facilitate student

success, including Central Washington University (CWU). University 101 (UNIV 101) presents a unique opportunity to reach first-year students as they transition to college and may be an appropriate venue to incorporate a growth mindset intervention. This study explored whether including a growth mindset intervention in UNIV 101 had a positive impact on student success for first-year students. It was hypothesized that students whose UNIV 101 section included a growth mindset lesson would earn higher Fall quarter grades and be more likely to enroll in Winter quarter. Instructors were surveyed to ascertain whether and to what extent they included a growth mindset lesson in their UNIV 101 section(s), and student data were collected from institutional effectiveness. A multiple regression analysis and logistic regression analyses were conducted to explore the hypotheses; however, the data did not support either hypothesis.

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Finally, I would like to thank my students. I dedicate this thesis to them.

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CHAPTER I

INTRODUCTION

Academic success in higher education, as measured by grade point average (GPA) and student retention, is often predicted by high school GPA, academic achievement, and aptitude test scores. However, there are a multitude of non-cognitive factors that influence academic success. One of these factors, students' implicit theory of intelligence – their view on whether intelligence is a fixed entity or whether it can be incrementally increased – has been shown to predict students' success in navigating difficult situations such as the transition to college and institutional challenges (Aronson, Fried, & Good, 2002; Blackwell, Trzesniewski, & Dweck, 2007). Additionally, academic self-efficacy – defined as a student's perceived confidence in their ability to successfully complete academic goals – has been shown to be a significant predictor of academic success in first-year college students (Chemers, Hu, & Garcia, 2001; Krumrei-Mancuso, Newton, Kim, & Wilcox, 2013; Zajacova, Lynch, & Espenshade, 2005). Students' academic self-efficacy is closely associated with their implicit theory of intelligence (Komarraju & Nadler, 2013; Wood & Bandura, 1989).

Furthermore, academic success in first-year students is often augmented by institutional initiatives such as the first-year seminar (Mamrick, 2005). Historically, the course content of first-year seminars has ranged from an extended orientation setting, designed to be part of a first-year initiative to support students as they transition to college, to academic and social development courses (Tobolowsky, 2008). The research from studies of first-year seminar courses suggests that fostering an incremental theory of

intelligence, or building a growth mindset, in first-year college students via a first-year seminar has the potential to improve academic self-efficacy, college student adjustment, and college student success.

This study was designed to explore the differences in academic success between students whose first-year seminar class included theory of intelligence curriculum and those whose first-year seminar class did not. It was expected that students whose first-year seminar included curriculum that addressed theories of intelligence would show increased academic success as measured by GPA and retention compared to students whose first-year seminars did not address theories of intelligence and growth mindset.

CHAPTER II

REVIEW OF SELECTED LITERATURE

Implicit Theories of Intelligence

Undergraduate students differ widely in their levels of academic achievement for a multitude of reasons. One of the factors that influences academic achievement is students' perception of their ability to be successful, or their view of intelligence. In her research with elementary-aged students and subsequent publications, developmental and social psychologist Carol Dweck (2000, 2006) established her theory of mindset: that individuals react to challenge and failure in two distinct ways based on whether they hold an incremental theory of intelligence or an entity theory of intelligence.

Incremental Theory/Growth Mindset

Students who believe that intelligence can be cultivated, or that individuals are not born with a set amount of intelligence, are said to have an incremental theory of intelligence, or growth mindset (Dweck, 2000). These individuals have an understanding that intelligence or skills can be developed with effort (Dweck, 2006). In other words, when students challenge themselves, they have the ability to cultivate their intellect and learn that failure is an opportunity for growth. These students believe their intelligence is malleable, and because of this, individuals with a growth mindset seek out learning opportunities regardless of whether the situation would present the prospect for the student to be perceived as less smart. When these students are learning and growing their skills, they feel successful (Dweck, 2000). Additionally, when facing difficult school transitions and demanding courses, students who hold the view that their intelligence is a

malleable quantity are more likely to academically thrive (Yeager & Dweck, 2012). This has been associated with students' resilience, or their capacity to positively adapt when faced with adversity, and their approaches to academically challenging situations. In their research with grade-school children, Dweck and Leggett (1998) found that students who held an incremental theory of intelligence were more likely to set learning-oriented goals, which would build their ability and improve their skills.

Entity Theory/Fixed Mindset

In contrast, students who believe that their intelligence is a stable quantity are said to have an entity theory of intelligence, or fixed mindset (Dweck, 2000). This mindset, the belief that individuals have a set amount of intelligence that cannot be changed, can have detrimental consequences for students. Often, these students will avoid challenging work in order to preserve their self-image, or will internalize failure and begin to exert less effort when faced with difficulty (Dweck, 2006). Perceived success for these individuals lies in low-effort execution of tasks, and outperforming their peers, which can lead to stagnation in learning. Because of this, students who hold a fixed mindset often avoid learning opportunities that may reveal shortcomings in order to preserve their self-image (Dweck, 2000). Additionally, Dweck and Leggett's (1998) research indicated that students who held an entity theory of intelligence were more likely to set performance goals that avoided challenge, which would in turn avoid the negative judgement that those with a fixed mindset associate with adversity.

Research and Interventions

Research has shown that fostering a growth mindset in students can narrow the racial achievement gap (Aronson et al., 2002) and can increase student performance and academic success throughout adolescent transition (Blackwell et al., 2007). Additionally, undergraduate students who report higher levels of incremental theory of intelligence are more likely to report help-seeking behavior (Shively & Ryan, 2013).

K-12 Studies

Much of Dweck's research was directed toward the effects of fixed and growth mindsets in grade-school aged children; however, there is a body of research that has focused on implicit theories of intelligence in students in junior high and high school. Blackwell et al. (2007) studied a socioecomically and racially diverse group of 373 seventh-grade students by measuring their academic achievement in math following a growth mindset intervention. All students participated in multiple lessons where they studied learning and the brain, but students in the intervention group received material regarding the malleability of their intelligence, using analogies such as exercising one's muscles to grow them. While participants in the intervention group read an article titled "You Can Grow Your Intelligence," students in the control group participated in an academically comparable activity about short term and long term memory. While both the control group and the intervention group's grades began on a downward trajectory – likely a result of the students' transition to junior high from elementary school – the intervention group's grades rebounded following the growth mindset intervention. Completing a growth mindset intervention appeared to stop the decrease in math grades,

and resulted in higher grades than the control group (Blackwell et al., 2007). The challenges that students face as they transition from elementary school to junior high are likely to be similar to those that students face as they transition from high school to college.

Brief interventions using sense-of-purpose materials and growth mindset materials have been shown to increase students' persistence in the face of academic difficulty (Paunesku et al., 2015). Paunesku et al. created two 45-minute online interventions for high school students. The growth mindset intervention consisted of an article relating to brain plasticity with two accompanying writing tasks. The sense-of-purpose intervention included two writing tasks to encourage students to express the ways in which schoolwork could help them make the world a better place and accomplish meaningful goals. Initial and post-intervention beliefs on growth mindset and sense-of-purpose, satisfactory performance, and grade point average in core academic courses were measured in order to ascertain the impact of the two interventions separately and when combined compared to control measures (Paunesku et al., 2015). These interventions, along with a control condition, were randomly assigned to students at 13 high schools that varied in socioeconomic and ethnic demographics, resulting in a sample of 1594 student participants with available pre-study and post-study grades.

Unsurprisingly, when conducting baseline tests, Paunesku et al. (2015) found that pre-study values for growth mindset and sense of purpose were positively correlated with GPA. The researchers found that students' attitudes shifted toward a more malleable view of intelligence after participating in the growth mindset condition, but perhaps the

most impressive finding by Paunesku et al. was that those students who were at risk of dropping out of school and received the growth mindset intervention and the sense-of-purpose intervention significantly increased their post-study core GPA. When Paunesku et al. collapsed interventions into one variable and compared it against the control variable, they found students who received the intervention were significantly more likely to persist to high school graduation than students who participated in the control condition. This research indicated that even brief, large-scale interventions can be effective; however, the effect was only seen in students whose grades placed them in the lowest third of the sample, which the researchers defined as at risk of dropping out of school. The authors suggested that students who were not at risk were not significantly challenged in their high school courses, and would perhaps show a stronger effect when faced with academic challenge in college or AP classes. Because of this, it is likely that as first-year students are faced with the challenges of college-level classes, they may benefit from a growth mindset intervention.

Higher Education Studies

The success of such growth mindset interventions in the elementary and secondary setting has been expanded to research of theories of intelligence in higher education. Hong, Chiu, Dweck, Lin, and Wan (1999) applied Dweck's research with grade school and middle school students to college undergraduate students to examine whether theories of intelligence would predict students' theories of attribution and motivation to learn. Ninety-seven undergraduate students were asked to explain their performance on a task on which they were given negative feedback. Those students who

held a fixed mindset were significantly more likely to attribute their performance to ability than to effort, which is to say that they believed that they simply did not have the ability to perform the task. Students who held a growth mindset attributed similar weight to effort and ability in regard to task performance. In short, these students focused more on effort than students with a fixed mindset, emphasizing their growth mindset mentality (Hong et al., 1999).

Aronson et al. (2002) explored the effects of fostering a growth mindset in African American and Caucasian undergraduate students. The authors created an intervention in which participants wrote pen pal letters to fictitious struggling middle school students, and were told to emphasize a malleable view of intelligence, explaining that intelligence can be increased with hard work and is not a fixed quantity. Two control groups were also created, one in which the participants wrote pen pal letters that did not emphasize a growth mindset, instead focusing on multiple intelligences, and one group that did not write letters to pen pals at all. Following the intervention, participants completed a two-item measure to evaluate their views on the malleability of intelligence. This assessment showed that students who wrote letters emphasizing a growth mindset were significantly more likely to view intelligence as more malleable than participants in both of the control groups, regardless of race.

In addition to the immediate effects of the intervention, long-term outcomes were also explored. The longstanding effectiveness of the malleable pen pal intervention was assessed by measuring participants' attitudes toward the malleability of intelligence, academic attitudes, and academic performance the following term. Of the two pen pal

conditions, those in the malleable pen pal condition were still more likely to endorse a growth mindset. Moreover, at this time, African American participants were more likely to view intelligence as a malleable trait than Caucasian participants. Similar results were seen regarding academic performance, with significant main effects for experimental condition and race. Participants in the malleable pen pal condition performed significantly better than participants in the control group, and Caucasian participants performed better than African American participants. An interesting feature of these results is that African American participants in the malleable pen pal condition performed significantly better than African American participants in the control conditions, while Caucasian participants in the malleable pen pal condition performed only slightly better. In short, African American students who participated in the malleable pen pal condition were more likely to hold a growth mindset, place a higher value on and enjoy their academics more, and earn higher GPAs in the term following the intervention than their peers in the two control conditions (Aronson et al., 2002). In reviewing these findings, it seems that providing a growth mindset intervention to all students does no harm to those students who do not face systemic challenges, and can increase academic success in traditionally underrepresented students.

College algebra students showed similar trends to junior high students with regard to implicit theories of intelligence. Shively and Ryan (2013) surveyed students on their theories of intelligence at the beginning of the semester and the end of the semester, and found that students' views regarding incremental theory of intelligence changed; students were less likely at the end of the quarter to have a growth mindset with regard to math,

and general intelligence. However, students who report a general incremental theory of intelligence over an entity theory of intelligence were significantly more likely to seek help throughout the quarter and those who reported a math-specific incremental theory of intelligence showed a trend toward better grades in the class (Shivley & Ryan, 2013). Similarly, when studying community college math students, Paunesku (2013) found that students who participated in a growth mindset and/or sense-of-purpose intervention earned significantly higher grades than participants in a control condition. Additionally, students were more likely to earn a grade of "satisfactory" if they participated in a growth mindset intervention than if they were in the control group. The growth mindset and sense-of-purpose interventions were administered online and did not affect classroom curriculum, but significantly increased students grades in math, emphasizing the scalability of these interventions (Paunesku, 2013).

Implicit theory of intelligence research in K-12 education and in higher education indicates that growth mindset interventions can bolster academic success in students who are facing adversity. Whether the challenge is navigating university life as a student of color (Aronson et al., 2001), transitioning to junior high (Blackwell et al., 2007), or enrolling in a math class (Paunesku, 2013), participating in an implicit theory of intelligence lesson increased academic success. Furthermore, growth mindset interventions were not shown to have a negative impact on students who were not facing challenge.

Mindset and Academic Self-Efficacy

Self-efficacy, or the belief in one's ability and agency to achieve one's goals in specific situations (Bandura, 1977), is associated with perseverance, tenacity, and achievement (Chemers et al., 2001). Both Bandura (1986, 2006) and Pajares (1996) have cautioned against the use of generalized and unrelated measures of self-efficacy, which can produce weakened effects, and instead urge researchers to employ specific self-efficacy assessments in analysis. The domain-specific nature of self-efficacy encourages research in distinct fields, such as academic self-efficacy, which is often defined as an individual's belief that they can succeed in specific academic tasks (Bandura, 1977; Pajares, 1996). Academic self-efficacy is one of the best predictors for academic success in college (Chemers et al., 2001; Krumrei-Mancuso et al., 2013; Zajacova, et al., 2005), and students who report higher levels of academic self-efficacy earn higher GPAs in their first year than students who report lower levels of academic self-efficacy (Chemers et al., 2001).

The relationship between self-efficacy and mindset seems to have strong face validity – the higher an individual's confidence in their ability to be successful likely relates to a self-belief of incremental intelligence. Wood and Bandura (1989) explored this relationship in a study that investigated business school students and their perceptions of challenging tasks. Students who held a fixed mindset, or believed that managerial skills are a stable entity, showed a significant decline in self-efficacy compared to students who held a growth mindset and believed that managerial skills

could be acquired. In short, this study supports the connection between self-efficacy and mindset, and suggests that a growth mindset is related to high self-efficacy.

Komarraju and Nadler (2013) found similar results in their study of 407 undergraduate students. Approximately half of their participants were freshmen. Using a means split for high and low self-efficacy, the researchers found that students in the high self-efficacy group were significantly more likely to hold an incremental view of intelligence or growth mindset, and students with low self-efficacy were more likely to hold an entity view of intelligence or fixed mindset. Integrating strategies to build a growth mindset and self-efficacy into classroom curriculum can increase academic achievement (Komarraju & Nadler, 2013).

Pajares (1996) stated that academic-self efficacy is often studied in one of two ways: (1) As academic self-efficacy relates to specific courses, majors, or career choices; and (2) as it relates to academic motivation and achievement. Research has shown (Pintrich & Garcia, 1991, as cited in Pajares, 1996) that academic self-efficacy connects to academic performance as measured by semester and cumulative grades, daily schoolwork, exams, essays and many more items. Pajares (1996) warned future researchers that using generalized or global forms of self-efficacy could lead to weak results, and even suggested that academic self-efficacy could be broken down further into subject-specific categories such as math self-efficacy, operationalized by the individual's "judgments of their capabilities to solve math problems, perform math-related tasks, and succeed in math-related courses," (p. 555) or writing self-efficacy. Math or writing self-

efficacy, however, may be too specific when measuring the relationship between academic self-efficacy and total academic achievement or student success.

Academic self-efficacy is one of the most studied subjects in student success. Krumrei-Mancuso et al. (2013) explored academic achievement, along with student satisfaction, in 557 traditional first-year college students. The researchers used six psychosocial factors from the College Learning Effectiveness Inventory (CLEI), which includes such subscales as "academic self-efficacy," "stress and time management," and "involvement with college activity," to predict first semester and second semester GPA as well as life satisfaction. After testing for a correlation between subscales of the CLEI and student success, and finding significant connections between all subscales of the CLEI and first semester GPA, second semester GPA, and life satisfaction, Krumrei-Mancuso et al. found that the model accounted for a significant amount of the variability in first semester GPA, and that the strongest predictor for first-year GPA was academic self-efficacy. Zajacova et al. (2005) also found academic self-efficacy to be a significant predictor of first-year college GPA in nontraditional, minority, and immigrant students. The authors examined the effect of academic self-efficacy and perceived stress on academic success which was measured by first-year GPA, earned credits, and persistence to second year enrollment. Academic self-efficacy was found to be the strongest predictor of first-year GPA and earned credits.

Chemers et al. (2001) surveyed 256 first-year freshmen once at the end of their first quarter prior to receiving their final grades, and again near the end of the academic year, to assess "academic self-efficacy, optimism, and challenge-threat evaluation" (p.

57). One of Chemers et al.'s (2001) research questions explored the relationship between self-efficacy and challenge-threat evaluations, or students' coping abilities in regard to academic pressure, stating that confident students display composed and attentive social and study habits which would likely correlate with academic self-efficacy. The researchers found that students who demonstrated higher academic self-efficacy were significantly more likely to see difficult academic work as a challenge, rather than a threat, and that coping skills were positively correlated with academic self-efficacy (Chemers et al., 2001). Their findings suggest that confident students may interpret the difficulties they face in a positive light, which may result in more successful adjustment to challenge and change than students who are not confident (Chemers et al., 2001). This challenge-threat assessment is strikingly similar to Dweck's operationalization of growth and fixed mindsets. Viewing difficult academic work as a challenge, and something to be relished, instead of as a road block is a hallmark of a growth mindset mentality. In short, students who possess coping skills and a growth mindset have higher academic-self efficacy and are more adept at adjusting to college.

Student Success and First-Year Seminars

Higher education institutions employ a variety of methods to bolster academic success for their students, including taking measures to increase student involvement (Astin, 1999), and creating specific initiatives to enhance the first-year experience (Barefoot, 2000). Tinto (1999) has found that the first-year seminar, when viewed as an initiative to increase student success, is most effective when connected to the development of first-year students. As a transitional time in students' lives, it is

important to address Tinto's question "How should the first year of college be structured to best promote student learning in that year and beyond?"(1999, p. 9). In a study that reviewed data from 1997 and 1998, Hendel (2007) did not find a significant overall increase in first-year student satisfaction or retention into the second year, but saw individual increases in multiple items, including satisfaction with advising and feelings of connectedness to the university. These data were from a time in which first-year seminars were just beginning to be implemented, though, and should be reviewed critically. More recently, many schools have found strong evidence that students who participate in first-year seminars are more likely to be academically successful (i.e., higher GPA and increased retention to second term and beyond) than students who do not participate (Griffin & Roman, 2008). The impact of the first-year seminar was also studied by Padgett, Keup, and Pascarella (2013), who used data from the National Survey of Student Engagement (NSSE). The authors examined NSSE data from undergraduate students at 48 colleges and universities who entered college in the Fall quarter between 2006 and 2008, and found that students who participate in a first-year seminar were more likely to seek out academic challenge, which is one facet of an academic growth mindset. Additionally, a study from Appalachian State University (Friedman & Marsh, 2008) showed the significance of attending a first-year seminar at that school for students who came to the university with a lower high school GPA. At the time of the study, students at Appalachian State University were not required to enroll in Freshman Seminar, and enrollment data showed that those students who enrolled in the class had a significantly lower predicted grade point average (PGPA) – based on SAT scores, high school GPA,

and class rank – than students who did not enroll. Surprisingly, those students who enrolled in the first-year seminar course earned a significantly higher mean GPA their first term, and students whose PGPA was 3.0 and below earned significantly higher GPAs than those who did not enroll in Freshman Seminar. Additionally, Freshman Seminar enrollment resulted in significantly higher retention to second semester than non-enrollment. As a three-credit elective course, Appalachian State University's Freshman Seminar included developmental course components such as "study strategies, time management, personality type theory, wellness, academic research, personal safety, academic integrity, diversity, the history of Appalachian State university, career planning, and cultural appreciation" (Friedman & Marsh, 2008, p. 13). This type of first-year seminar, focusing more on overall student success and less on simply the transition to college, is an example of one of the ways universities seek to address first-year student retention (Friedman & Marsh, 2008).

Some first-year seminars begin at orientation and continue through the first term of the school year, often categorized as an "extended orientation seminar" (Mamrick, 2005, p. 17). Central Washington University's Academic Advising Seminar (UNIV 101) is a first-year seminar style class that encourages students to reflect on and invest in their own education, and includes many learning outcomes. In order to meet these learning outcomes, instructors use a variety of curriculum units, sometimes including lesson plans that address implicit theories of intelligence and growth mindset. Because not all instructors include this subject in their curriculum, not all students are exposed to growth

mindset lessons in their first-year seminar. This study seeks to explore whether UNIV 101 is an appropriate venue for a growth mindset intervention.

Summary and Hypotheses

As the price of higher education increases and more students enroll in two and four year institutions (US Department of Education, 2016), it is important that higher education institutions employ a multitude of tactics to foster student success. By examining the importance of understanding implicit theories of intelligence and student achievement, higher education institutions can begin to explore different ways to support students through their transition to college. The purpose of this study is to determine the effects of a growth mindset lesson on first-year students' academic success. CWU's UNIV 101 instructors have some leeway in their presentation of classroom material, and some instructors choose to include a growth mindset lesson in their class, while others do not. To understand if the UNIV 101 classroom is an effective environment for encouraging growth mindset, this study explored differences in Fall quarter GPA and retention between students who participated in a growth mindset lesson and those who did not, while taking into account other factors that have been shown to predict student success.

This study explored the following hypotheses:

1. When accounting for high school GPA, demographic factors, and class section, students whose UNIV 101 section included a growth mindset lesson would have higher Fall quarter GPA than students whose UNIV 101 section did not include a growth mindset lesson.

2. When accounting for high school GPA, demographic factors, and class section, students whose UNIV 101 section included a growth mindset lesson would be more likely to return to campus winter quarter than students whose UNIV 101 section did not include a growth mindset lesson.

CHAPTER III

METHOD

Design

This exploratory study employed two separate regression analyses to predict student success, defined in this study as Fall quarter GPA and student enrollment in winter quarter. Winter quarter enrollment (Winter Enroll) was predicted by logistic regression analysis using high school GPA (HSGPA), UNIV 101 growth mindset lesson (0 = no growth mindset lesson, 1 = growth mindset lesson included in class), classification of UNIV 101 section (0 = not major-specific, 1 = major-specific), Pell eligibility (0 = not eligible, 1 = eligible for Pell grant), ethnicity/race (0 = European/Middle Eastern/White, 1 = student of color [African American/Black, Alaskan/Native American, Asian, Hawaiian/Pacific Islander, Latino/Hispanic, Multiracial]), and first generation status (0 = not the first in their family to attend college, 1 = first in their family to attend college). Fall term quarterly GPA (Fall GPA) was predicted by multiple regression analysis using HSGPA, UNIV 101 growth mindset lesson, classification of UNIV 101 section, and traditionally underrepresented status (sum of ethnicity/race, first generation status, and Pell eligibility, 0 [student did not identify as a member of a traditionally underrepresented group] to 3 [student identified as a member of three traditionally underrepresented groups: student of color, Pell eligible, and first generation]).

Participant groups were created based on demographic factors and the inclusion of a growth mindset lesson in students' UNIV 101 curriculum. It is understood that

random assignment is preferred in experimental design, however, cluster sampling by UNIV 101 section was employed in this study to conserve external validity and to reduce disturbance to the accessible population (Fraenkel, Wallen, & Hyun, 2015).

Participants

Undergraduate Students

A total of 1718 anonymized undergraduate student records were collected for this study from Institutional Effectiveness at CWU. Data from students with more than 36 quarter credits were removed from the sample prior to data analysis in order to limit the sample to first-year students. Following extensive data screening and pairing with instructor data, 475 student records were used for data analysis. The demographic breakdown of students in this study reflected that of the CWU 2016 first-year cohort ($\chi^2_{\text{ethnicity/race}}(1, 475) = 0.548$, ns; $\chi^2_{\text{pell eligibility}}(1, 475) = 0.315$, ns; $\chi^2_{\text{first generation}}(1, 475) = 1.019$, ns). See Table 1 for detailed information on the demographics of the sample.

UNIV 101 Instructors

Academic advisors, faculty members, and staff members from CWU who instructed Fall quarter 2016 UNIV 101 sections were invited to participate in this study through a survey. Sixty-one sections of UNIV 101 were offered to first-year students in Fall 2016. Surveys were returned for 26 sections, 12 from "Major Specific" sections (i.e., students who identified a specific major that they intend to pursue at the time of UNIV 101 registration), eight of which included a growth mindset lesson. Thirteen surveys were returned from "exploratory" sections (i.e., students who did not enroll in a major-specific section – often these students have not decided on a specific major yet),

which included two “Student Support Services” sections (i.e., students participating in STAR or TRiO programs); of these 13 sections, 10 included a growth mindset lesson. One survey was returned from an unidentifiable section, which was omitted, resulting in 25 total sections.

Table 1

Student Participant Demographics and Variables Used for Analyses

Characteristic	*N*	%	*M*	*SD*
Ethnicity/Race				
African American/Black	27	5.7	-	-
Alaskan/Native American	4	0.8	-	-
Asian	24	5.1	-	-
Hawaiian/Pacific Islander	4	0.8	-	-
Latino/Hispanic	89	18.7	-	-
Multiracial	51	10.7	-	-
Student of Color [±]	199	41.9	-	-
European/Middle Eastern/White	276	58.1	-	-
Pell Eligible				
Yes	198	41.7	-	-
No	277	58.3	-	-
First Generation College Student				
Yes	253	53.3	-	-
No	222	46.7	-	-
UNIV 101 Specific Section				
Not Major-Specific	239	50.3	-	-
Major-Specific	236	49.7	-	-
Growth Mindset UNIV 101				
Yes	339	71.4	-	-
No	136	28.6	-	-
HSGPA	-	-	3.08	0.44
Fall GPA	-	-	2.72	1.02
Winter Enroll				
Yes	433	91.2	-	-
No	42	8.8	-	-

[±] Student of Color is an aggregate variable including all non-European/Middle Eastern/White students

Materials

Instructor Survey

UNIV 101 instructors were sent a link to a brief Qualtrics survey via their cwu.edu email in order to assess whether, and to what extent, they included a growth mindset lesson in their UNIV 101 class. Because some instructors teach more than one section of UNIV 101, the survey directed instructors to provide the course numbers for all UNIV 101 sections taught. For each section, instructors were informed that although it was not included in the standard learning outcomes, some instructors choose to include a growth mindset lesson in their UNIV 101 class. The question then defined the difference between a fixed and growth mindset, and asked if the instructor included a growth mindset lesson in each class section listed. If they answered "Yes," instructors were then asked to evaluate the level of engagement of the students for this lesson ("*Extremely disengaged"* to "*Extremely engaged"*). Then, instructors were asked to write a brief description of the lesson in an open text box, including the amount of time spent on the lesson and how students' understanding of the material was assessed. See Appendix A for Survey.

Student Data

Student data were received from Institutional Effectiveness using a Data/Report Request. The information provided in the request that was used for analysis included

students' UNIV 101 section, ethnicity/race, Pell eligibility, first generation status, term GPA for Fall 2016, HSGPA, and winter quarter enrollment.

Procedure

Instructor Survey

Instructor participants were informed of this study via an email from the researcher (see Appendix B). A link to the Qualtrics survey was provided in this email, as well as notification that there would be a random drawing of participants to win a free beverage from the university coffee shop. Instructors were informed that the survey did not serve to pass judgement on their teaching style, curriculum, or students' achievement, and that data for this study would be kept confidential. After following the Qualtrics link, instructor participants read and indicated that they were 19 years or older and their acknowledgement and understanding of the consent form by clicking a button that read "I accept".

Following informed consent, instructor participants completed the brief survey about including a growth mindset lesson in their UNIV 101 curriculum. After completing this survey, instructors were thanked and reminded to close their browser so that their information was not compromised. Two email reminders were sent to instructor participants who did not complete the survey, but those who did participate did not receive additional reminder emails.

Instructors indicated in the survey whether or not they included a growth mindset lesson in their UNIV 101 course – those instructors that answered in the affirmative were

then provided with an open-answer text box and asked to provide a brief description of the lesson. To verify whether a growth mindset lesson was included in the class, instructors' responses were reviewed. Text data from the open-answer questions of this survey were downloaded into a blank spreadsheet in order to blind the researcher from discerning the section code associated with the answer provided. All responses included an in-class discussion on the definitions of and differences between fixed and growth mindset, and 75% of responses referenced watching a growth mindset video in class and then discussing it. The level of detail provided for 77.7% of the responses mirrored the example provided in the survey, which included the amount of time spent in class, classroom activity, and materials used (e.g., "Spent 20 minutes in class defining and discussing the differences between fixed and growth mindset. In class, we watched Eduardo Briceno's video "The Power of Belief." We then discussed it."). Of four responses that went into greater detail, two originated from the same instructor, and outlined the details of the in-class discussion (e.g., "What did students find most interesting from the video? Surprising?"). However, two responses provided a greater level of detail and included multiple growth mindset based activities both in the classroom such as, "We have a class discussion about 'looking smart' vs 'learning'," and out of the classroom such as "By collaborating on the goal-setting process, I am able to encourage/educate/promote growth mindset attitudes and behaviors." These two responses were from instructors who taught student support services sections of UNIV 101. Two instructors indicated that their students were "neither engaged nor disengaged," two responded that their students were "extremely engaged," and the remaining

instructors answered that their students were "somewhat engaged." No instructors responded that their memory of their UNIV 101 sections from Fall quarter was less than moderately accurate.

Student Data

Student participant data were collected in an anonymized report format from CWU's Institutional Effectiveness. Incomplete records were omitted from the dataset as were records for students with over 36 earned quarter credits prior to Fall quarter. The remaining data were then paired with instructor data based on class section to indicate whether a growth mindset lesson was included in their UNIV 101 course. In total, 475 student records were retained for data analysis.

CHAPTER IV

RESULTS

In order to predict Fall quarter GPA of first-year college students, a standard regression analysis was performed using HSGPA, UNIV 101 growth mindset lesson, and traditionally underrepresented status. This model significantly predicted Fall GPA, $F(3, 471) = 58.89$, $p < .001$, and accounted for approximately 27% of the variation in Fall GPA ($R^2 = .273$, adjusted $R^2 = .268$). Table 2 provides a list of regression coefficients of predictor variables with Fall GPA. HSGPA was shown to be the strongest predictor of Fall GPA ($p < .001$), with every one point change in HSGPA accounting for approximately a 1.17 point change in Fall GPA. Traditionally Underrepresented status was also shown to be a marginally significant predictor of Fall GPA ($p = .08$), which was associated with a lower Fall quarter GPA based on more indicators of being traditionally underrepresented (i.e., identifying as a student of color, Pell eligibility, and/or first generation status). UNIV 101 growth mindset lesson was not found to be a significant predictor of Fall GPA, failing to provide support for Hypothesis 1, that students whose UNIV 101 section included a growth mindset lesson would have higher Fall quarter GPAs than students whose UNIV 101 section did not include a growth mindset lesson when accounting for demographic factors and HSGPA. UNIV 101 section classification was not included in the model, as the VIF indicated multicollinearity. No significant occurrence of multicollinearity was found for the other variables, based on evidence provided by low (< 2.5) VIF values (Meyers, Gamst, & Guarino, 2016). In checking the

other assumptions of the model, no linear relationships were between the outcome variable and predictor variables, and data were found to be normally distributed.

Table 2

Regression Analysis Summary for Fall GPA

Variable	B	SE-B	β	SE-β	*T*	*p*
HSGPA	1.17	.09	0.50	.04	12.54	<.001*
Traditionally Underrepresented	-0.08	.04	-0.07	.04	-1.74	.08’
UNIV 101 Growth Mindset	-0.07	.09	-0.03	.04	-0.65	.52

*‘p<.10, * p<.01*

Three iterations of a logistic regression analysis were performed to predict Winter quarter enrollment in first-year college students. The first version reflected the multiple regression performed to predict Fall GPA by using HSGPA, UNIV 101 growth mindset lesson, and traditionally underrepresented status. This model significantly predicted Winter quarter enrollment, $\chi^2(3, N = 475) = 13.70$, $p = .003$, however, the Cox & Snell pseudo R^2 indicates a small effect size ($R^2 = .028$). Table 3 presents the regression coefficients, Wald test, odds ratio [Exp(B)], and 95% confidence intervals (CI) for odds ratios for the predictor variables of this, and the following, logistic regressions. HSGPA ($p = .03$) was found to be a significant predictor of Winter quarter enrollment within the model based on the Wald test. The odds ratio for HSGPA suggests that for every one-point increase in HSGPA there was approximately a 2.39 (CI = 1.10 – 5.35) times greater likelihood of enrollment in Winter quarter when holding the other variables constant. UNIV 101 growth mindset section ($p = .07$) was found to be a marginally significant predictor within the model, having the opposite effect than was predicted: the odds that students whose UNIV 101 section included a growth mindset lesson would enroll in

Winter quarter were approximately .92 (CI = 0.16 – 1.00) times smaller. Traditionally underrepresented status was not shown to be a significant predictor of Winter enrollment in this model.

The second logistic regression used HSGPA, UNIV 101 growth mindset lesson, and broke out the traditionally underrepresented variable into its component parts, Pell eligibility, race/ethnicity, and first generation status in order to explore these effects on Winter quarter enrollment. This model showed UNIV 101 section classification, ethnicity/race, and first generation status as not significant predictors in the equation. Although the model itself was significant $\chi^2(5, N = 475) = 16.14$, $p = .006$, it also had a paltry Cox & Snell pseudo R^2 of .033. (See Table 3 for further details.)

To drill deeper into the significant effects of the second regression, an additional analysis was performed using only HSGPA, Pell eligibility, and UNIV 101 growth mindset lesson as predictor variables for Winter quarter enrollment. This regression was a significant predictor of Winter quarter enrollment $\chi^2(3, N = 475) = 16.00$, $p = .006$, but similar to the previous models, the calculated Cox & Snell pseudo R^2 indicated a small effect size ($R^2 = 0.033$). Both HSGPA ($p = .036$) and Pell eligibility ($p < 0.037$) were shown by the Wald test to be significant predictors of Winter quarter enrollment. For every one point increase in HSGPA there was approximately a 2.31 (CI = 1.07, 5.17) times greater likelihood of enrollment in Winter quarter, controlling for Pell eligibility and UNIV 101 growth mindset lesson, and the odds that a student who was eligible for the Pell grant would enroll in Winter quarter was 0.71 (CI = 0.25, 0.95) smaller, controlling for HSGPA and UNIV 101 growth mindset lesson. UNIV 101 growth

mindset lesson was not shown to be a significant predictor variable (p = .08). Table 3 provides the regression coefficients, standard errors for the coefficients, Wald test, odds ratio, and 95% CI for the variables of this regression as well.

Table 3

Summary of Regression Analyses for Winter Enrollment

Variable	*B*	*SE-b*	*Wald*	*Exp(B)*	*95% CI Exp(B)*
Regression 1					
HSGPA *	0.84	0.40	4.7	2.39	1.10 – 5.35
UNIV 101 Growth Mindset ’	-0.92	0.45	3.3	0.44	0.16 – 1.00
Traditionally Underrepresented	-0.30	0.16	2.1	0.79	0.58 – 1.08
Regression 2					
HSGPA *	0.84	0.40	4.4	2.33	0.1.07 – 5.22
UNIV 101 Growth Mindset ’	-0.80	0.46	3.0	0.44	0.17 – 1.03
Pell Eligibility *	-0.75	0.37	4.0	0.46	0.22 – 0.97
Ethnicity/Race	-0.04	0.34	0.17	0.88	0.49 – 1.88
First Generation Status	0.13	0.37	0.14	1.05	0.55 – 2.34
Regression 3					
HSGPA *	0.84	0.40	4.4	2.31	1.07 – 5.17
UNIV 101 Growth Mindset ’	-0.80	0.46	3.1	0.45	0.18 – 1.03
Pell Eligibility *	-0.71	0.34	4.3	0.49	0.25 – 0.95

Note. The dependent variable was Winter quarter enrollment, with enrollment as the target category and no enrollment as the reference category; UNIV 101 sections that included a growth mindset were the focus group of the UNIV 101 Growth Mindset variable, Pell eligible students were the focus group of the Pell Eligibility variable, students of color were the focus group of the Ethnicity/Race variable, students who were the first in their family to attend college were the focus of the First Generation Status variable.
* $p < .05$, ’ $p < .10$

A one-way between subjects ANOVA was performed to test for differences in Fall GPA between levels of traditionally underrepresented status, $F(3, 471) = 4.81$, $p < .01$. The only significant difference was shown by the Tukey HSD test to be between

level “3,” i.e., Pell eligible, the first in their family to attend college, and a student of color (M = 2.46, SD = 1.00) and level “0,” i.e., not Pell eligible, not the first in their family to attend college, and not a student of color (M = 2.96, SD = 0.95). No significant differences in Fall GPA were observed between students with one identifier of traditionally underrepresented status (M = 2.75, SD = 1.08), and students at with two identifiers (M = 2.65, SD = 1.01). Students who had enrolled in a major-specific section of UNIV 101 earned significantly higher Fall GPA (M = 2.96, SD = 1.03) than students who did not enroll in a major-specific section (M = 2.50, SD = 1.02). No significant differences in Fall GPA were seen between students whose UNIV 101 included a growth mindset lesson (M = 2.69, SD = 1.07) and students whose UNIV 101 did not include a growth mindset lesson (M = 2.82, SD = 0.88). HSGPA (M = 3.08, SD = 0.44) was significantly correlated with Fall GPA (M = 2.72, SD = 1.02), $t(473) = 11.24$, $p < .001$.

CHAPTER IV

DISCUSSION

The purpose of this study was to explore whether incorporating a growth mindset lesson into a first-year seminar would positively impact students' first quarter GPA and retention. Two hypotheses were formed: (1) Hypothesis 1 predicted that after accounting for HSGPA and demographic factors, students whose UNIV 101 section included a growth mindset lesson would earn higher Fall quarter GPAs than students whose UNIV 101 section did not include a growth mindset lesson; and (2) Hypothesis 2 predicted that after accounting for HSGPA and demographic factors, students whose UNIV 101 section included a growth mindset lesson would be more likely to enroll in Winter quarter than students whose UNIV 101 section did not include a growth mindset lesson. Neither Hypothesis 1 nor Hypothesis 2 were supported by the data; however, some of the results did support previous findings.

Test of Hypotheses

While UNIV 101 growth mindset lesson was not observed as a significant predictor of Fall GPA, HSGPA was shown to significantly predict students' Fall quarter GPA, and students' traditionally underrepresented status was a marginally significant predictor variable. Students who earned higher GPAs in high school tended to earn higher GPAs in college. Additionally, in this study, as students scored higher on the traditionally underrepresented status cumulative variable, indicating membership in one or more traditionally underrepresented student groups, they were predicted to earn lower Fall

quarter GPAs. UNIV 101 growth mindset lesson was not a significant predictor of students' Fall quarter GPA.

In the three regression analyses used to predict Winter quarter enrollment, HSGPA was the only consistent significant predictor. The first regression included the predictor variables HSGPA, UNIV 101 growth mindset lesson, and traditionally underrepresented status. Students' HSGPA was a significant predictor of their odds of enrolling in Winter quarter – those students who earned higher HSGPAs had a higher likelihood of Winter enrollment. UNIV 101 growth mindset lesson trended toward having a negative effect on Winter enrollment based on this model, which showed students to be less likely to enroll in Winter quarter if their UNIV 101 class included a growth mindset lesson. The second, more intermediary, regression also showed HSGPA as a significant positive predictor of Winter enrollment, and indicated a similar trend with UNIV 101 growth mindset lesson, although this variable was not a significant predictor of the model. More telling, though, was that the Pell eligibility variable surfaced as a significant predictor of Winter enrollment when the traditionally underrepresented variable was deconstructed. Students who were eligible for the Pell grant, an indicator of socioeconomic status as Pell eligibility is based on financial need (U.S. Department of Education, 2017), had significantly lower odds of enrolling in Winter quarter. In the modified regression, including only HSGPA, UNIV 101 growth mindset lesson, and Pell eligibility, identical directionality of prediction for these three variables was observed, yet this third model accounted for a smaller proportion of the variance in Winter enrollment than the second model. These three regressions were all significant predictor

models for Winter enrollment; however, they also all showed very small effect sizes, indicating a high amount of variability within the models.

Relation to Previous Literature

Unsurprisingly, in the Fall GPA and the Winter enrollment regressions, HSGPA was the strongest predictor. These results aligned with much of the previous research (Krumrei-Mancuso et al., 2013; Westrick, Le, Robbins, Radunzel, & Schmidt, 2015), which has found HSGPA to be a strong predictor of university academic performance in the first year and beyond. This is likely due to the connection between the ways in which GPAs (both high school and university) are measured and the latent variables that comprise these measures such as "content knowledge and skills critical to success, such as perseverance and self-control" (National Education Association, 2015, p. 1). In fact, for many institutions of higher education, HSGPA has overtaken admission test scores (e.g., SAT and ACT) as the primary factor in admission decisions for first-time first-year students (National Association for College Admission Counseling, 2015). CWU student enrollment in Winter quarter based on HSGPA as shown in this study reflects the findings of many student affairs studies on retention, as reviewed by Reason (2009): HSGPA has long been shown to be one of the most consistent predictors of retention in college. However, previous findings and the current research have shown that the effect sizes of these predictions are not very large, meaning that there are often more complex explanations for the variance in student retention, including student involvement and connection to the institution (Astin, 1999; Tinto, 1999).

Additionally, traditionally underrepresented status showed a negative trend in relation to Fall GPA, which reflected the research from Aronson et al. (2002), and Paunesku et al. (2015). In the current study, this variable was created to serve as a cumulative representation of Pell eligibility, first generation status, and student of color and had a range from "0," representing no group membership in these categories, to "3," representing group membership in all categories. By taking into account the cumulative stress experienced by students who identify as members of these groups, including the intersectionality of multiple group memberships, it is possible that this aggregate variable was a more accurate representation than separate group memberships.

Kuh, Kinzie, Buckley, Bridges, and Hayek (2006) discussed the importance of examining the discrepancy in academic success between White students and students of color, specifically African American and Hispanic students, as compounded by socioeconomic status. The current study attempted to capture the complex nature of this, and intersecting identifies, by creating a cumulative variable. However, in analyzing the Winter Enroll data, it is important to note that for the second and third regressions these factors were disaggregated. One reason for this approach was the importance of funding in a student's education. The negative relationship observed between Pell eligibility and Winter Enroll gave the impression of a logical relationship, in that students who do not have the monetary resources to pay tuition are unlikely to register for classes. It must be noted that Pell eligibility is not a perfect indicator for student socioeconomic status in that one factor in eligibility is financial need, or the difference between cost of attendance and expected family contribution. Not all students who are ineligible for the Pell grant have

the financial support from their family that is indicated in expected family contribution. Additionally, undocumented students are not eligible for the Pell grant because it is a federal source of funding. A further concern with the demographic variables used in this study is related to the ethnicity/race variable, including the aggregation of all non-White students under the label "students of color." Historically, Asian students have graduated at similar rates as White students (Kuh et al., 2006) which can create imprecise data grouping, especially when operating under the assumption that students of color face specific institutional stressors that affect academic success (Aronson et al., 2002). Also, the options from which students choose when they self-identify their race/ethnicity included "White/Middle Eastern/Caucasian" as a single option. Although further research is required, it is possible that students who identified as Middle Eastern felt a similar threat that students of color felt based on the political climate of the Fall 2016 quarter, especially following the attack of a Muslim student in hijab at the University of Washington (Green, 2016).

By separating different classifications of UNIV 101 sections into exploratory, major-specific, and student support services, the current study was able to address one possible reason for GPA differences: student engagement. Student engagement is positively correlated with GPA, and it has been shown that students who are connected to their intended major are more likely to be engaged (Astin, 1999; Kuh et al., 2006). Mean differences between exploratory and major-specific section of UNIV 101 supported this.

While this study hypothesized differences in Fall GPA and Winter enrollment based on the inclusion of a growth mindset lesson in UNIV 101, this was not observed.

There may be a multitude of reasons for this. First, it is possible that UNIV 101 was not an appropriate venue for a growth mindset intervention. In general, this course met once per week for the first 10 weeks of the academic year and covered a large number of detailed learning outcomes. As such, there may have been little room in the course curriculum for additional lessons, and students may have been at capacity for information intake and may not have absorbed the lesson in a meaningful way. Furthermore, the strength of the intervention as a UNIV 101 lesson was likely not analogous to many of the interventions listed in the literature review. For example, the intervention used by Aronson et al. (2002) involved a multi-day process with detailed lessons on the differences between fixed and growth mindset, and follow up activities (i.e., writing letters to pen pals) to ensure participant understanding, while many of the UNIV 101 lessons involved watching a 10 minute video and partaking in an in-class discussion with no follow up.

Although the UNIV 101 growth mindset results may not have supported the original hypotheses, the results did align with some research in the field. In fact, Paunesku et al. (2015) found that their growth mindset intervention was only effective in having a positive impact on grades and course completion in the at-risk student group, while having no significant effect on students who were not at risk of failing their courses and/or not graduating. Additionally, some research has shown that students begin to engage in more fixed mindset thinking over their first term in college (Shivley & Ryan, 2013). It is possible that this same change in mindset was occurring throughout the current study, and the growth mindset lessons employed were not robust enough to

counteract this trend. Additionally, this study sought to explore whether a growth mindset lesson could help students mitigate the challenges they often face when transitioning into a new school environment, similar to Blackwell et al. (2007). However, it is possible that the students who enrolled in CWU Fall quarter of 2016 engaged in other campus engagement activities (e.g., the First Six Weeks program) to alleviate this stressor.

Limitations and Directions for Future Research

The most glaring weakness in this study was the lack of control over group membership. While this research sought to preserve natural teaching and learning conditions, without regulating which UNIV 101 sections implemented a growth mindset lesson, there was little control over the only predictor variable that could truly be altered. Future research should take this into account, and consider assigning different sections to include a growth mindset lesson in order to create a true experimental variable among the assortment of intact variables. An additional component of UNIV 101 classifications is the differences in UNIV 101 instructors. Variation in teaching styles, course content, and student evaluation may have had an effect on students' engagement in their UNIV 101 course. This class is often taught by academic advisors; however, in Fall 2016 some sections were taught by faculty members and others were taught by university staff members, which may have resulted in inconsistency between sections as well.

It is possible that the growth mindset lesson itself was not as consistent as the instructor survey indicated. While many instructors wrote a comparable explanation for how they implemented a growth mindset lesson in their class, this explanation was strikingly similar to the example provided in the survey. While it is possible that all of

these instructors taught an equivalent lesson, it seems more likely that the construction of the survey led respondents to alter their explanation of a growth mindset lesson to conform to the example provided. Revision of the instructor survey, and/or observation of growth mindset lessons in UNIV 101 classrooms may provide more clear data. Additionally, UNIV 101 allows other departments to create modules for the class (e.g., library information): perhaps a growth mindset lesson could be created and provided to UNIV 101. Future research should employ a standardized growth mindset lesson based on interventions from the literature, and could include student surveys of growth mindset knowledge prior to and following the lesson.

Conclusion

Although the data did not support either hypothesis originally proposed at the start of this study, they did raise interesting questions and directions for future research. What may be most intriguing within these data was the impact of traditionally underrepresented status on student success. The negative trend seen between the composed variable of traditionally underrepresented status and Fall GPA, and between Pell eligible students and enrollment in Winter quarter, opens the door for further exploration as to how institutions such as CWU could better support students of color, first generation students, and Pell eligible students. Additionally, while the data did support previous research regarding HSGPA as a strong predictor of academic success, there were clearly factors outside of the predictive models that led to variances in student success. This can hearten both students and student affairs professionals alike, in suggesting that students are not

bound by their previous achievements, but have the capacity and responsibility to take ownership of their education and their success.

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Appendix A

Qualtrics Survey for Instructors

Please read the following information about this research study and click the "I accept" button at the bottom of your screen if you are interested in participating. The following survey is a study of University 101 course components. You have been selected to participate in this study because you were an instructor for UNIV 101: Academic Advising Seminar last Fall. This information will be used for master's student research. You must be 18 years or older to participate in this survey. This web-based survey will take approximately 5-10 minutes to complete. By choosing to participate you will help expand the knowledge about best practices for UNIV 101 and student success at CWU. There are no anticipated risks, physical discomforts, or psychological stresses associated with these research procedures. You are free to answer all, some or none of the questions on the survey. You may withdraw from participating at any time and to do so you simply close your internet browser. Declining to participate will involve no penalty to you. If you submit a survey, your responses will be kept completely confidential. Following the usage of your UNIV 101 section number for coding purposes, unique identifiers will be removed from the data. Your responses will be stored securely. The survey is being sent to approximately 30 individuals. Data will be stored on a secure server and can only be accessed by the research team. Reasonable and appropriate safeguards have been used in the creation of the web-based survey to maximize the confidentiality and security of your responses; however, when using information technology, it is never possible to guarantee complete privacy. You can ask

questions about the research by contacting Sarah North Wolfe at 509-963-2036 or snw@cwu.edu. You may also contact the CWU Human Protections Administrator if you have questions about your rights as a participant or if you think you have not been treated fairly. The HSRC office number is (509) 963-3115.

Please click "I accept" if you are 18 years or older and wish to participate.

❍ I accept

Please enter the section number for each University 101 class you taught in the Fall. (You can find this information in your Faculty Center on your MyCWU.)

(1)

(2)

(3)

(4)

While it is not included in the learning outcomes, some instructors include a growth mindset lesson in their Univ 101 class, which helps students understand the difference between a fixed mindset (believing that intelligence is a set trait that cannot be increased or improved) and a growth mindset (believing that intelligence is a malleable trait and can be increased or improved by engaging in challenging work). Did you include a growth mindset lesson in section?

❍ Yes

❍ No

In general, how engaged were students in this lesson?

- ❍ Extremely engaged
- ❍ Somewhat engaged
- ❍ Neither engaged nor disengaged
- ❍ Somewhat disengaged
- ❍ Extremely disengaged

Please provide a brief description of the lesson. Include the amount of time spent on this lesson and how students' understanding of the material was assessed. Example: Spent 20 minutes in class defining and discussing the differences between fixed and growth mindset. For homework, students watched Eduardo Briceno video (10 min) "The Power of Belief" and wrote a letter to a fictitious struggling student encouraging them to persist, using specific growth mindset language.

(Text box provided)

How accurate do you believe your memory is of your specific Univ 101 sections from last Fall quarter?

- ❍ Extremely accurate
- ❍ Very accurate
- ❍ Moderately accurate
- ❍ Slightly accurate
- ❍ Not accurate at all

Thank you for participating. Please close your browser window to exit this survey.

Appendix B

Invitation for Instructors to Participate in Survey

Initial invitation:

Dear University 101 Instructors,

You may be aware that I am in the process of collecting data and completing my Master's Thesis with support from Jason White and my thesis committee. In order to successfully complete this process I need your help.

Please take a moment to complete this brief survey on your University 101 course components. A random winner will be drawn on April 7th for a beverage of your choosing at 1891 Bistro!

Follow this link to the Survey: <link provided>

Thank you so much for your time, and please contact me with any questions.

Sarah North Wolfe

Follow up invitation sent to instructors who had not yet completed the survey:

Dear Colleagues,

As you may be aware, I am collecting data to analyze different course components of UNIV 101. The online survey takes approximately 10 minutes to complete, plus you will be entered to win a free beverage of your choice from 1891 Bistro. To participate now, please follow the link below:

Follow this link to the Survey: <link provided>

Or copy and paste the URL below into your internet browser: <URL provided>

Thank you for your time, and please contact me with any questions.

Sarah North Wolfe

Follow the link to opt out of future emails:
${l://OptOutLink?d=Click here to unsubscribe}