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Mindset matters: The relations between growth mindset and academic and career variables among first-generation college students

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MINDSET MATTERS: THE RELATIONS BETWEEN GROWTH MINDSET AND

ACADEMIC AND CAREER VARIABLES

by

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A Thesis
Submitted to the Graduate School,
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ABSTRACT

Can altering the perception of failure change future performance? Growth Mindset (GM) has been investigated for several decades, and studies have indicated that altering the way people perceive failure can impact certain levels of performance like academic achievement. The individual who endorses a GM views a challenge or failure not as a defeat and submission of inability, but a recognition that further growth, persistence, and effort are required to accomplish the desired task. This project aimed to understand more about first generation college students (FGCS) who endorse a growth mindset. Specifically, the intention of the study was to understand how a GM overlaps with career development variables and relates to academic achievement. Data on a sample of FGCS (N = 191) was collected to assess relationships between GM, career development variables, and academic performance. Contrary to available literature, results showed that GM was not related to academic performance. However, while there was no association between academic performance and GM, there were significant relationships between GM, career optimism, career adaptability, and career decision making self-efficacy.

ACKNOWLEDGMENTS

DEDICATION

I would like to dedicate this work to my wife Sadie and my son Griffin. Their support has been instrumental in completing this work. I would also like to dedicate this work to first-generation college students who feel like they are struggling through the college experience.

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LIST OF ABBREVIATIONS

GM   Growth Mindset

FGCS   First-Generation College Student

CFI   Career Futures Inventory

TIS   Theories of Intelligence Scale

CAAS   Career Adapt-Abilities Scale

CEDSE   Career Exploration and Decision Self-Efficacy

CHAPTER I – LITERATURE REVIEW

Mindset matters: The relations between growth mindset and academic and career

variables among first-generation college students

Adopting a growth mindset (GM) is the belief that skills, talents, and abilities are

malleable (Yeager et al., 2019). Contrarily, a fixed mindset is the belief that an

individual's abilities are unmalleable and cannot be developed (Yeager et al., 2019).

These views reflect implicit theories of intelligence. They are what some theorists may

consider the core belief a person has as it relates to the way they view their own

intelligence (Blackwell et al., 2007). Research has shown a fixed mindset contributes to

underperformance and decreased resilience in different environments (Yeager & Dweck,

2012).

Encouraging dialogue on mindset has been known to be somewhat polarizing and

has bred misconceptions in the scientific community for those who study intelligence.

Many argue that GM studies over exaggerate effect sizes and lack meaningful data

(Dweck et al., 2018; Warne, 2020). This project is not an affront to traditional theories on

intelligence, but to help individuals understand intelligence can be malleable in certain

ways. By adopting a growth mindset or incremental implicit view of intelligence,

learning potential is not necessarily fixed or concrete. This project was intended to

produce additional evidence that, adopting a growth mindset, has important connections

to improved academic and career development than if beliefs of one's abilities than or

innate intelligence was inherently fixed.

In research on GM, academic outcomes, such as grades in individual courses, degree completion, and grade point averages (Dweck, 2008), have been the main focus. As such, the most common testing ground for mindset research has been in the classroom, yet implications for GM can be observed in other settings and current research is beginning to consider how the mindset someone adopts impacts aspects of their professional life (Caniëls et al., 2018).

Literature suggests that GM correlates with positive outcomes in areas related to academic achievement (Claro et al., 2016; Yeager et al., 2019). While much of the current literature has explored growth mindset's effect on adolescent scholarly achievement, it has yet to explore these questions as they relate to career and academic variables with first generation college students (FGCS). Research has shown that FGCS enter college with a lower level of readiness than traditional students (Terenzini, 1999). Studies have consistently found achievement disparities when FGCS are compared to traditional students (Terenzini, 1996). With these consistent gaps in mind, the current project intended on closing those disparities by extending prior relationships found in the mindset literature to FGCS, as an initial step to identifying cost-effective interventions to promote academic achievement for FGCS.

Federal and state funded initiatives to improve students' academic capabilities are oftentimes costly. Yet, interventions aimed at increasing students' GM have shown to be cost-effective in improving academic achievement (Yeager et al., 2019). Thus, the main goal for the current study is to offer empirical evidence that GM is relevant in FGCS who can potentially benefit from mindset interventions. Therefore, the current study had two central research questions:

1.   Do implicit theories of intelligence (growth mindset) relate to academic outcomes

        for FGCS?

2.   Does GM relate to career development in FGCS such as, career adaptability,

        career optimism, and career decision making self-efficacy?

<center>Growth Mindset</center>

The theoretical underpinnings of GM are concise and simple. The theory stems from the overarching premise that failure can be embraced as an opportunity for growth through persistence and effort, and by doing so, higher rates of achievement can be produced (Dweck, 2008). Neurocognitive research has indicated that neuroplasticity gives the brain the ability to change and alter neurons in response to environmental factors. This suggests that it is possible for the brain to learn new material (Sarrasin et al., 2018). Similarly, other research has suggested that when people gain a basic understanding about neural plasticity and how it influences learning, it induces a growth mindset. Much of the research conducted on mindset began several decades ago with the hope of gaining an understanding regarding the way students view failure in academics (Dweck, 2008). Dweck and her colleagues observed that some students were able to quickly rebound after academic setbacks while others experienced much more difficulty in adapting and learning from mistakes which resulted in more failure (Dweck, 2008). Her research has consistently found strong associations between mindset and achievement. More specifically, when a student believes their brain or intelligence can be strengthened and grow, they are more likely to succeed (Dweck, 2008; Yeager et al., 2019).

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The idea of mindset and determining whether an individual has or does not have a GM can seem somewhat abstract and esoteric. Fortunately, researchers have been able to develop a measure that captures the construct of mindset quite well. The Theories of Intelligence Scale- Self Form for Adults (TIS-SFA: Dweck, 2000), can reliably classify those who endorse or do not endorse a GM. Additionally, the TIS-SFA has been exposed to rigorous psychometric evaluation that has only reinforced its validity and reliability as a sound instrument for assessing GM (Dweck et al., 1995).

Literature on the topic of mindset has influenced researchers in psychology to reconsider the power and impact that having a GM has on different aspects of the human learning experience. When failure presents itself to the person who endorses a GM, it becomes an evaluative process to examine what is necessary to change the undesired outcome (Dweck, 2008). It is the belief that present failure does not foreshadow future failure. When individuals with a fixed mindset fail, their self-efficacy falters, and they believe they do not possess the ability to succeed, and it creates a cyclical cycle of discouragement and lost achievement (Dweck, 2008).

Given this connection between mindset and learning, much of the current literature indicates GM is associated with positive academic outcomes (Claro et al., 2016; Yeager et al., 2019). In a series of two studies, Blackwell et al. (2007) found that implicit theories of intelligence (i.e., the underlying belief of whether an individual thinks skills and abilities can be changed or are fixed) have a significant influence on mathematics achievement in middle school students. Their study conceptualized two theories; the first was growth mindset theory that posits the assumption of intelligence as malleable (Blackwell et al., 2007). The second theory, fixed mindset, explains intelligence as fixed

and unchangeable (Blackwell et al., 2007). The first study found that those who

possessed a growth mindset showed a positive upward trajectory in grades over the

course of two years compared to those that had a fixed mindset (Blackwell et al., 2007).

Their second study attempted to implement an intervention that taught students to use a

growth mindset. Results of the intervention suggested that those who were taught the

growth mindset intervention had increased motivation and persistence compared to the

control group (Blackwell et al., 2007).

Since the early study by Blackwell et al. (2007), projects on a larger scale have

continued to solidify the relationship between GM and academic achievement. In a study

that was the first to investigate the influence of mindset on a national scale, researchers

found empirical support that mindset can predict achievement (Claro et al., 2016). Using

data from approximately 168,000 10th graders in public schools in Chile, researchers

found that students possessing indicators of a growth mindset (e.g., viewing failure as an

opportunity for growth, embracing challenges, and persistent dedication), academic

outcomes were .20 standard deviations higher than the mean on language grades and .13

standard deviations higher than the mean for mathematics grades than those who showed

indicators of a fixed mindset (Claro et al., 2016). These results reconfirm the strong link

between mindset and achievement.

Furthermore, in a search for scalable interventions that were intended to improve

scholastic outcomes of adolescents, Yeager et al. (2019) found that a brief one-hour

mindset intervention improved grades in mathematics and science courses among lower

achieving high school students. The intervention consisted of two self-administered

online modules that lasted roughly 25 minutes. The modules contained rigorously

investigated content that aimed to reduce negative effort beliefs, fixed-trait attributions, and performance avoidance goals; characteristics all associated with a fixed mindset (Yeager et al., 2019). In a sample of 6,000 thousand adolescent students Yeager et al. (2019) discovered that among lower-achieving students, by the end of the experiment, those receiving the growth mindset intervention achieved higher grade point averages in mathematics and science courses than the control group. This study illustrates that a low-cost intervention, resulted in statistically significant increases in course grades (Yeager et al., 2019). Moreover, these results demonstrate that GM interventions may be particularly helpful for students who are struggling.

Given prior research on GM, the goal of the proposed project is to extend this research to FGCS, a previously unexplored target population. Theoretically speaking, it is plausible, given consistent outcomes in other studies, that FGCS who show indicators of a GM will have a higher grade point average (GPA) and score higher on career-related measures. Prior research has identified that there is an observable association with mindset and academic achievement among adolescent populations (Dweck, 2008). The proposed project is necessary to establish and extend similar findings to FGCS; a population who have historically shown lower academic achievement (Dweck, 2008; Quinn et al., 2019). This project will demonstrate whether previous findings can be replicated and are relevant for this population.

Replicating the outcomes of previous studies with a sample of FGCS will provide empirical evidence to set the foundation to create low-cost short-term mindset interventions likely to benefit FGCS. First generation college students have shown predispositions to unique challenges and struggles other college students may not experience (Quinn et al., 2019). First generation college students have traditionally been defined as those in their immediate family to be the first to attend college, although other nuanced definitions such as, one or both parents attending but not completing college, have also been used (Defining first generation, 2017). For the purposes of this research, the traditional definition will be used. First generation college students (FGCS) have shown predispositions to unique challenges and struggles other college students may not experience (Quinn et al., 2019). The disparity in achievement for FGCS is disheartening and illustrates the need for additional assistance to support these students in ways that will foster academic and career success. The proposed project will add to a body of existing literature which is attempting to close the academic disparity between FGCS and their peers. By investigating growth mindset and its association with academic and career variables, it will pave the way for future researchers to design and implement low-cost interventions for FGCS specifically. While this project is not testing the effect of an intervention, it can tremendously aid intervention efforts by the data it yields.

Although there is a lack of research on mindset interventions with FGCS, the scientific community is beginning to recognize the importance of exploring non-cognitive factors in the academic success of FGCS (Macdonald, 2017). Buzzetto-Hollywood et al.,

(2019) contributed valuable information and literature on how a mindset intervention should be constructed and implemented for underserved students in a college setting. While the authors offer a workable template for a mindset intervention, the article does not offer any quantitative data (Buzzetto-Hollywood et al., 2019). The lack of quantitative data is a gap that the proposed project intends to close by supporting the theoretical assumption that GM is applicable to this subset of college students.

Another study does offer some support that GM may be relevant for FCGS. Broda et al. (2017) conducted a study that consisted of 7,686 incoming first year college students, a brief mindset intervention was administered. This study aimed to understand GM and its influence on racial and ethnic minorities. FGCS composed a significant proportion of the sample. The outcome of the study found that grade point averages for Latino/a students increased by .40 points (Broda, et al., 2017). These results show that a minimally involved intervention can offer impactful results. While the study included FGCS, and results supported prior findings, because there were other participants intermixed in the sample, it weakens the applicability of the results to FGCS. The proposed project will circumvent this issue by exclusively using only FGCS in the current study.

Although literature on growth mindset has been extensively studied with different populations, there is an overall lack of research on how similar findings are relevant to FGCS. From the literature that does currently exist on growth mindset and FGCS, there is a lack of quantitative data to support hypotheses that adopting a growth mindset is efficacious for FGCS (Buzzetto-Hollywood et al., 2019). There has also been an overall lack of using FGCS as the target population. Some studies include "first-year students" or

students from "underrepresented groups", these groups are likely to consist of FGCS, but the aim of the project is not directly targeted towards FGCS. By not exclusively including FGCS as the only target population in the literature, it lessens the applicability and relevance of results (Broda, et al., 2017). By using quantitative methods and including FGCS as the target population in the sample, the proposed project will help fill these gaps that have been highlighted in the literature. While similar studies have used a course grade or exam scores to measure academic performance, the academic variable that will be used to assess academic performance for this study will be current GPA. The rationale behind using GPA opposed to an individual course grade is largely due to the assumption that GPA provides a more global indicator of performance.

Career Development and Growth Mindset

To this point, the academic struggles FGCS experience has been emphasized and supported by the literature. Yet, low academic achievement and degree completion can be attributed to issues other than being underprepared or intelligence. While FGCS are less likely to make it to graduation, one of the factors influencing longer degree completion times or dropping out could be a deficit in pursuing the most fitting academic major. In addition to GM and its association with academic variables and degree completion, research has also indicated that GM shares correlations with career development variables. For instance, new research has found that career interests in majors in science, technology, engineering, and math (STEM) may be related to growth mindset. In a study by Lytle and Shin (2020), that included 1,201 first-year undergraduate students, the researchers discovered that when incremental beliefs (e.g., viewing failure as an

opportunity for growth, embracing setbacks, accepting new challenges) were adopted by students, incremental beliefs predicted higher engagement, interest, and persistence in STEM majors (Lytle & Shin, 2020). Relatedly, in an attempt to increase the representation of females in STEM majors, researchers found that when a GM intervention was integrated into classroom instruction, females scored higher than males in math tasks, but they also indicated a stronger interest in pursuing a STEM career as a result of their increased confidence (Degol et al., 2017).

These findings offer compelling evidence that while adopting a GM benefits students academically, GM may also be correlated to the career students decide to pursue. If a student finds interest in a major but feels as though they lack the skills to succeed in that major, adopting a GM can increase the likelihood that they will select and successfully persist in the major. Moreover, these results suggest that there may be other worthwhile connections between GM and career development variables that have not been identified in the literature. A central facet the proposed project addresses is the issue of career development and its association with career development among FGCS.

The findings from the literature have indicated that the type of major and the career a student chooses can be influenced and determined by the mindset they adhere to, suggesting a relationship between career choice and GM exists. This project aims to bring greater clarity and additional evidence to the issue of career development and its relationship with GM. To shed further light on this relationship, three career development variables were included in the current study. The career development variables that will be assessed are career decision making self-efficacy, career adaptability, and career optimism, all of which, are critical mechanisms for career development and play an

important role in fostering future career success. In addition, all three variables appear to have some conceptual overlap with GM.

<div align="center">Career Adaptability</div>

A career theory that has distinct similarities with GM is Savickas' Career Construction Theory (Savickas, 2013) which includes the component of career adaptability (Rudolph et al., 2019). Career construction theory attempts to offer an explanation of how individuals decide and go about the work they do throughout their lifespan (Rudolph et al., 2019). One critical component of the theory is the concept of career adaptability that explains how an individual copes with different transitions, traumas, challenges, and setbacks in the workplace; an identifiable facet similarly found in growth mindset (Rudolph, et al., 2019). The presence of career adaptability predicts greater skill in solving problems, embracing workplace challenges as an opportunity for growth, and being more likely to benefit from critique (Zacher & Hirschi, 2019). The absence of career adaptability predicts an increased likelihood of employee disengagement and decreased performance (Zacher & Hirschi, 2019).

The foremost parallel between GM and career adaptability revolve around embracing challenges and failures as opportunities for growth. Investigating whether GM and career adaptability share any statistical association with each other would ultimately indicate that when a FGCS endorses a GM, the odds of them also having a higher level of career adaptability are highly probable. Career adaptability has been shown to predict academic performance (Avram, et al., 2019). Among college students, research has suggested that undergraduate students' academic satisfaction and career adaptability are strongly correlated with one another (Duffy et al., 2015). In other words, when career

adaptability is present, increased levels of academic satisfaction are also present. These findings are key because further research has indicated that students with higher academic satisfaction perform better academically (Duffy, et al., 2015; Dhaqane & Afrah, 2016). Upon further investigation, career adaptability has also shown to be positively correlated with academic persistence (Wilkins-Yel et al., 2018). When a student has higher career adaptability, they are more likely to persist through degree completion (Wilkins-Yel et al., 2018). More succinctly, identifying a correlation between GM and career adaptability will retroactively showcase that mindset is strongly correlated with how well someone adapts to workplace challenges, academic achievement, and academic persistence (Avram et al., 2019). Moreover, the current study will help clarify if an overlap between GM and career adaptability explains the relationship between career adaptability and these academic outcomes.

<div align="center">Career Optimism</div>

Career optimism is characterized as the tendency of an individual to hope for and expect the most optimistic outcome or focus on positive aspects of future career growth and development (Rottinghaus, 2004). The origins of career optimism were originally conceptualized during the creation of the Career Futures Inventory; a scale that measures the level of positive career planning attitudes an individual has (Rottinghaus, 2004). Career optimism and career adaptability share many similarities. Career optimism focuses on one's tendency to view the outlook of their career positively while career adaptability focuses on one's ability to successfully adapt to workplace challenges or setbacks and view them as opportunities for growth (Eva et al., 2020). Literature has suggested that the absence of career optimism is correlated with decreased life

satisfaction and can lead to a pessimistic view of the future (Odero, 2020). Contrarily, the presence of career optimism was discovered to be a strong determinant of life satisfaction and predicted whether a person possessed a brighter outlook towards the future (Odero, 2020).

Among college students, research has shown that the career optimism is associated with other important variables such as self-efficacy and social support (Garcia et al., 2015). Identifying a relationship between GM and career optimism can give professionals that work with college students a better target of where they can help struggling students by teaching them how changing their mindset may also help them increase their career optimism (Garcia et al., 2015). Identifying a correlation between GM and career optimism would highlight the profound roles that social support and self-efficacy play in not just increasing career optimism but changing a person's mindset. Connecting these two variables will offer valuable information that can help researchers understand underlying mechanisms that contribute to the increase or decrease of GM because of its correlational relationship with career optimism.

<div align="center">Career decision-making self-efficacy</div>

The concept of career decision making self-efficacy (CDMSE) is understood as the confidence one has in their ability to make career related decisions (Betz, Klein, & Taylor, 1996). Originally introduced by Taylor and Betz (1983), a scale was created to measure five domains of CDMSE. The five subscales are defined as, accurate self-appraisal, gathering occupational information, goal selection, making plans, and problem solving (Betz et al., 1996). CDMSE derives its theoretical underpinnings to John Crite's theory of career maturity. If someone lacks confidence in any of the five domains, it can

cause difficulty executing career related decisions. As it pertains to FGCS, literature has suggested that they are more prone to experiencing lower levels of career decision making self-efficacy; an essential component in executing career choice decisions (Thayer, 2000: Quinn et al., 2019).

Demonstrating to FGCS that when they adopt a growth mindset, CDMSE is also likely to improve, can instill confidence when making future career decisions. The same situation may apply where students who have high CDMSE or high career adaptability, could be informed that they are also more likely to endorse a growth mindset. In a study that was intended to investigate whether GM influenced the level of entrepreneurial self-efficacy business students had, researchers assigned students to a GM intervention and a control intervention (Burnette, 2019). Researchers found that students who were placed in the GM intervention had increased levels of entrepreneurial self-efficacy, suggesting that GM may also share a relationship with other nuanced aspects of self-efficacy (Burnette, 2019). This finding conveys that there are more similarities than differences when certain career variables such as CDMSE are compared with GM.

The proposed project intends on investigating whether GM is correlated with career adaptability, career optimism, and CDMSE. While there is a lack of literature on the topic of mindset and career related variables, the literature that does exist, indicates that GM shares relationships with career variables such as CDMSE (Burnette, 2019). Although there appears to be some overlap between these variables and GM, there lacks an understanding of just how much of an overlap exists as it relates to predicting academic outcomes. Taking a closer look at career variables and growth mindset has several advantages and implications.

Exploring whether GM shares a relationship with career adaptability, career optimism, and CDMSE can give FGCS and those that serve them more insight into understanding a GM may also map onto other behaviors influencing career development. Particularly as it relates to this project, if having a growth mindset is associated with better academic outcomes, it may also be hypothesized that GM may be associated with higher CDMSE, career optimism, and career adaptability, due to the overlapping similarities between constructs. Connecting these constructs would help FGCS enter the workforce more prepared and capable of succeeding during challenging workplace events or failures (Burnette, 2019).

The Current Study

An overall synthesis and summarization of the literature has strongly suggested that when GM is implemented in academic settings, positive outcomes in areas related to academic achievement and persistence are observed (Claro et al., 2016; Yeager et al., 2019). These findings have been replicated by different researchers that demonstrates that outcomes can be reproduced. While much of the literature has explored the impact of growth mindset on adolescent achievement, GM has yet to be connected to career and academic variables specific to FGCS. This project will fill this research gap by including FGCS as the target population and integrating career related variables. Regarding GM and its association with career variables, much of the literature has been qualitative, the proposed project intends on implementing quantitative methods to explore the relationship. The project aims to extend prior findings found in the mindset literature to FGCS, as an initial step to identifying cost-effective interventions that promote academic

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and professional achievement for FGCS. Based on the review of the existing literature, the following hypotheses are offered.

Hypothesis 1. FGCS who possess a growth mindset will have an overall higher GPA than FGCS who do not have a growth mindset.

Hypothesis 2a. FGCS who have a growth mindset will have higher levels of career adaptability compared to those who do not have a growth mindset.

2b. FGCS who endorse a growth mindset will have higher overall career optimism when compared to FGCS who do not have a growth mindset.

2c. FGCS who have a growth mindset will also possess higher levels of career decision making self-efficacy than those who do not have a growth mindset.

Hypothesis 3. As shown in Figure 1, growth mindset will collectively explain higher levels of career adaptability, career optimism, and career decision making self-efficacy, which will explain higher GPA.

CHAPTER II - METHODS

Participants

A total of 191 study surveys were analyzed. All participants identified as a first-generation college student who were attending the University of Southern Mississippi (USM). There were 80.1% of participants who identified as female and 19.9% who identified as male. The majority of participants were White/Caucasian (55.0%) and Black or African American (30.9%), with the remaining participants identifying as Hispanic/Latino (7.3%), Pacific Islander (.5%), and Asian American (2.6%). Participants were categorized has having or not having a GM as described below. The mean age of participants in the GM group was 22.57 years old (SD = 4.60) while the mean age of participants in the Non-GM group was 22.99 years old (SD = 7.52; Table 1). Additionally, a large proportion of the participants were transfer students (41.0%). Participants for this study were recruited through the University of Southern Mississippi's (USM) SONA research participation system (n =110) and USM's Center for Student Success (n =81). FGCS participants were eligible to complete the study if they were 18 years of age or older. The survey was presented in English. The estimated sample size of 185, determined using G*Power (GPower 3.1, 1992) assuming a medium effect size of 0.30 and power of 0.80 was exceeded to account for missing or unusable data.

Theories of Intelligence Scale – Self Form For Adults

The Theories of Intelligence Scale -Self Form For Adults (TIS-SFA) was created by Dr. Carol Dweck (2000) with the intent to measure the implicit view an individual has regarding their intelligence. The measure includes eight items such as, "Your intelligence is something about you that you can't change very much" (Dweck, 2000). For each item, the respondent answered on a Likert scale (1= *strongly agree* to 6 = *strongly disagree,* Dweck, 2000). The scoring for items 3, 5, 7, and 8 of the TIS-SFA are reverse-coded, and total scores are calculated by taking an average score across items. Those who had an average score of four or above were categorized as having a GM while those who had a score of below four were categorized as not having a GM based on standard scoring instructions (Dweck, 2000). In a rigorous evaluation that included six validation studies, preliminary measures that were used to construct the TIS-SFA demonstrated strong reliability and validity (Dweck et al., 1995). An earlier version of the measure using some of the same items to measure GM had internal validity that ranged from .94 - .98 and had strong test re-test reliability over a two-week period which was .80 (Dweck et al., 1995). For the current study, Cronbach's alpha was .90. The means and reliability information can be located in Table 3.

Career Exploration and Decisional Self-Efficacy – Brief Decisional Scale

Career decision making self-efficacy was measured using the Career Exploration and Decisional Self-Efficacy – Brief Decisional Scale (CEDSE-BD; Lent et al., 2016). This instrument assesses an individual's beliefs and attitudes towards understanding and selecting an occupational choice using eight items that are activities related to career

development. An example item is, "Learn more about careers you might enjoy" (Lent et al., 2016). Users respond based on their confidence to complete each task using a scale of 0 to 4 with 0 indicating *no confidence* at all and 4 indicating *complete confidence* (Lent et al., 2016) According to Wang et al.(2018), the CEDSE-BD had an alpha coefficient of .88 indicating strong reliability. For the current study, the alpha coefficient was .92 indicating strong reliability. The means and reliability information can located in Table 3.

Career Futures Inventory

The Career Futures Inventory (CFI; Rottinghaus et al., 2005) is a brief 25-item measure of career planning attitudes that target career optimism and career adaptability (Rottinghaus et al., 2005). Through the use of rigorous statistical analysis and confirmatory factor analysis, the CFI has demonstrated adequate validity and reliability (Rottinghaus et al., 2005). A sample item is worded in the following manner, "I can adapt to change in the world of work" (Rottinghaus et al., 2005). Participants respond to the measure using a 5-point scale for each of the 25 items with 1 (*strongly disagree)* to 5 (*strongly agree*) (Rottinghaus et al., 2005). While the entire measure was administered, only the optimism subscale of the CFI was used to assess career optimism in participants. The optimism scale received an alpha of .88 indicating excellent reliability. However, an item was accidentally neglected and not put into the survey due to an error ("It is difficult to relate my abilities to a specific career plan"). Although the item was mistakenly not included, the CFI still demonstrated excellent reliability. The means and reliability information can be located in Table 3.

Career Adaptability

The Career Adapt-Abilities Scale (CAAS; Savickas & Porfeli, 2012) is a measure that contains 24 items that includes four scales used to assess career adaptability to operationalize Savickas' Career Construction theory. Overall, the measure's primary objective is to assess an individual's adaptability by evaluating their concern, control, curiosity, and confidence as it relates to occupational transitions, tasks, and work traumas (Savickas & Porfeli, 2012). One example item is worded in the following way, "Looking for opportunities to grow as a person." (Savickas & Porfeli 2012). Item responses utilizes a likert scale ranging from 5 = *Strongest* to 1 = *Not Strong* (Savickas & Porfeli, 2012). This measure has been subject to rigorous confirmatory factor analysis evaluation and has indicated strong reliability ($\alpha = 0.87$) (Savickas & Porfeli, 2012). For the current study, the CAAS had excellent reliability for the total score ($\alpha = 0.90$). The mean and reliability information can located in Table 3.

Coronavirus Impact Scale

The Coronavirus Impact Scale (CIS; Stoddard & Kauffman, 2019) is a measure that contains 12 items that assess the impact the worldwide COVID-19 pandemic has had on individuals. The measure was integrated into the study to assess whether experiences related to COVID-19 might act as a covariate and influence variables associated with the study as data were collected during the pandemic.

Demographics

As shown in Appendix A, demographic items were used to gather data on participants' age, sex, race, employment status, years in school, parents' education level, first generation college students' status, family income, and self-reported GPA. The

participants' overall GPA was collected by asking the participants for their self-reported GPA as part of the demographic questionnaire (item 13, Appendix A).

Procedure

The study was approved by the institutional review board (Appendix B). For individuals recruited through SONA, and online recruitment program used by university psychology courses, after seeing the study recruitment message in SONA, interested individuals enrolled in the study and were given a link to the survey hosted on the Qualtrics website. After consenting to participate in the research project (Appendix C), the survey was displayed, which began with asking about demographic information. Once demographic information was complete, participants completed the study measures which consisted of the TIS-SFA, CAAS, CFI, COVID Impact Scale, and the CEDSE-BD. These measures were administered in random order to avoid any potential bias due to order effects. Following the survey for SONA, participants were awarded .5 credits in their SONA account. Additional methods for recruitment came from the USM Center for Student Success (CSS). All undergraduate FGCS who were recruited through the CSS received a recruitment email that directed them to the survey on Qualtrics where there were presented with the consent form (Appendix D). If consenting, measures were presented in the same manner as was for those recruited through SONA. CSS participants were incentivized for participating in the survey by offering to be placed in a raffle to win 1 of 24 t-shirts, or a grand prize of a Fitbit. All prizes were donated by CSS. After completing the survey, participants were redirected to a new form to enter their name and email address if they wanted to enter into the prize raffle. This data for the raffle was not connected to their survey responses. Student ID numbers of participants were collected

and compared between recruitment strategies to ensured that participants from CSS and SONA did not complete the survey twice.

<p style="text-align:center">Data Cleaning</p>

Data was collected from January 2020 until October of 2021. A total of 274 participants attempted the survey. Measures were scored according to the developers' instructions. For GM, those who had a score of 4 or above on the TIS-SFA were classified as those who did endorse a GM while those who scored below a 4 were placed in the group who do not endorse a GM given the published scoring guidelines (Dweck, 2000). To identify outliers, the data for each dependent variable was sorted in ascending and descending order in SPSS. No outliers or duplicate survey responses were detected. To address missing data, cases were deleted if one or more whole measures were incomplete. There were a total of 20 participants who were removed due to missing whole measures. For cases with fewer missing data points, linear-trend-at-point was implemented to fill in missing data on items associated with the TIS-SFA and the CAAS. The survey implemented the use of two directed response items to check for attention (e.g., "Please select agree for this item", Meade & Craig, 2012). Anyone who failed at least one validity item was excluded from the analysis, resulting in 63 participants who were removed from the data set. Table 3 provides the means and standard deviations for the scores of all measures used in the analyses. After cases were removed, the final participant count equaled 191 valid surveys.

CHAPTER III - RESULTS

All analyses were conducted using IBM SPSS Statistics (Version 25).

Correlations between the COVID impact scale and all remaining variables were

calculated to determine whether the COVID impact scale should be included as a

covariate in the analyses. No correlations were statistically significant ($p > .05$), therefore

the COVID impact scale was not included in the analyses. Additionally, females were

overrepresented in the sample. In SPSS, t-tests were run between gender and all

remaining variables to determine if gender should be included as a covariate. All t-tests

were non-significant ($p > .05$) therefore, gender was not included as a covariate. Lastly,

to determine if measures and demographics differed between the CSS and SONA sample,

a t-test and analysis of variance were completed. Significant differences in demographics

for gender, race, and age ($p < .05$) across groups were found. However, no significant

differences were found between participant samples for any of the study measures ($p >$

.05). Thus, data were from SONA and CSS participants were combined for analyses.

The first hypothesis was that FGCS who possess a growth mindset will have an

overall higher GPA than FGCS who do not have a growth mindset. An independent

samples t-test was used to investigate the first hypothesis. Contrary to prior findings in

the literature, results did not detect any statistically significant effects between groups

[GM versus No GM, $t(1, 168) = -.312$). These results indicate that for this sample, there

was no significant difference in self-reported GPA between those with and without a

growth mindset. Those who had a GM ($M = 3.27$, SD = .683) had similar GPAs

compared to those who did not have a GM ($M = 3.31$, SD = .566, Table 4).

The second hypothesis suggested that FGCS who endorse a GM will likely have higher scores on measures that assess for career adaptability, career optimism, and career decision making self-efficacy when compared to FGCS who do not endorse a GM. Using an ANOVA, the results from the analysis detected significant mean differences for career decision making self-efficacy [$F(1, 189) = 4.974$, $p = .027$] and career optimism [($F(1, 189) = 8.368$, $p = .004$], but not for career adaptability [$F(1, 189) = 3.707$, $p = .056$] across group (Table 5). It should be noted that while career adaptability was not significant, it was approaching significance. The results from this analysis indicate that FGCS who endorse a GM had higher scores on career optimism and career decision making self-efficacy compared to FGCS who do not endorse a GM.

The third hypothesis suggested that growth mindset would collectively explain higher levels of career adaptability, career optimism, and career decision making self-efficacy, which would explain higher GPA (Figure 1). A path analysis model constructed in SPSS AMOS tested this hypothesis. For this analysis, the mean TIS-SF total score was used. The analysis showed that TIS-SF scores predicted career optimism ($b = .16$, $p = .023$). TIS-SF scores did not predict career decision making self-efficacy ($b = .14$, $p = .056$). Furthermore, GM did not predict career adaptability ($b = .12$, $p = .086$). Additionally, the model did not indicate that career optimism, career adaptability, and career decision making self-efficacy predicted GPA ($b = -.03$, $b = .02$, $b = .01$; $p > .05$ for all, respectively).

CHAPTER IV – DISCUSSION

The literature documents that individuals who endorse a GM are more likely than their peers to achieve academic success (Yeager et al., 2012). Researchers have found that when students adopt a GM, they exhibit more resilience and success in the classroom (Yeager et al., 2012). Contrary to the existing body of literature, among the current results there was not a significant difference between the GPAs of FGCS who endorsed a GM compared to those who did not. One possibility that may have contributed to non-significant findings involves the use of self-reported GPA, as in other studies, researchers relied primarily on test scores and grades from individual classes opposed to overall GPA. Additionally, Caskie et al. (2014) found that participants tended to over-report and under-report their GPA when they were asked to self-report in surveys. Her results showed that it may be more reliable to seek out participants' official academic record (Caskie et al., 2014) as self-reported GPA may be more prone to error than retrieving the official academic record.

Results indicated that FGCS who endorsed a GM had significantly different scores on the measures that assessed career optimism and career decision making self-efficacy compared to FGCS who did not endorse a GM. Although there is a lack of literature investigating the association between GM, career decision making self-efficacy, and career optimism, these results suggest that there are more similarities than differences between these variables. Conceptually speaking, career optimism and career decision making self-efficacy share some semblance to GM in that are both characterized by a degree of being hopeful, optimistic, and determined. Moreover, the path analysis showed

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GM explained more variance in career optimism, when both career adaptability and career decision making self-efficacy were considered together. As such, it appears that career optimism and GM are more closely related, compared to career adaptability or career decision making self-efficacy.

Finally, findings from the study indicated that participants who endorsed a GM did not have significantly higher career adaptability compared to those who did not endorse a GM. This was an unexpected and surprising finding due to how conceptually similar both variables are to one another. Career adaptability is characterized by attitudes of concern, control, curiosity, and confidence while GM is characterized by an attitude of resilience and viewing failure as an opportunity for success (Dweck, 2000; Savickas & Porfeli, 2012). While these variables appear similar, a potential explanation for this finding may center on career adaptability requiring more specific skills and traits that have already been acquired whereas GM is characterized by a future oriented approach or outlook to viewing failure. An individual with higher career adaptability may presently possess the skills and confidence necessary to navigate workplace challenges while an individual with a growth mindset may not presently possess, but hope to gain, the confidence and outlook to overcome workplace challenges.

Another explanation may be linked to the COVID-19 pandemic. Zhuang and Chen (2020) found that the global pandemic significantly impacted university students' employment and was correlated with lower career adaptability among participants in their study. Could it be that the students in the GM group had unusually lower adaptability scores in response to the pandemic? Although a COVID-19 impact measure was in this study and found no significant associations with study variables, it may have not captured

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the specific effects of the pandemic on a student sample. Future researchers should consider examining the impact of the pandemic more closely when investigating career variables. One final thought to consider is that although career adaptability and GM were not non-significant, both variables were nearing significance of different mean career adaptability scores between groups ($p = .056$). Literature has consistently shown that smaller sample sizes decrease the statistical power necessary to detect significance (Faber & Fonseca, 2014; Olejnik, 1984). Thus, a larger sample size may have been more capable of detecting significance between career adaptability and GM. These points may offer some initial hypotheses into the current non-significant relationship between GM and career adaptability, and offer some ideas for further exploration of this relationship.

<center>Implications and Future Directions</center>

The GM theory asserts that mindset is a powerful predictor of academic success (Dweck, 2006). The results of this study demonstrated that over 70% of the current sample of FGCS endorsed a GM. It should be noted that due to how small the Non-GM group was, it may have made it difficult to detect differences. Despite no differences in GPA being found for those with and without GM, these findings are still highly advantageous to FGCS because prior literature has shown GM to be conducive to success in academics. The findings and outcome of this study does not necessarily negate the prior findings of others. An implication to consider is trying to understand apart from mindset, other factors that may affect the academic success of FGCS in particular.

Could it be that FGCS that have better sources of social support experience greater academic success than those that do not as social support has been identified as a contributor of academic success (Yeager et al., 2012). Uniquely, FGCS have been shown

<center>27</center>

to have a lack of social support which could have also diluted the effect GM has on academic performance (Pratt et al., 2019). Mishra (2020) conducted a meta-analysis that included 270 articles that aimed to understand "social capital" or social support among university students. Overall, she found that among university students, a lack of social support hindered academic achievement. More specifically, her research found that a lack of social capital or support in familial, peer, romantic, and faculty relationships decreased academic success among university students (Mishra, 2020). Contrarily, when university students had these social support structures in place (i.e., familial, peer, romantic, and faculty) academic achievement improved (Mishra, 2020).Thus, existing literature suggests that although FGCS may endorse a GM, there may be other factors that influence academic achievement.

Moreover, further research into GM in FGCS is needed to determine if other variables, such as socioeconomic status, race, and age, may moderate the relationship between GM and academic success in FGCS. For example, King and Trinidad (2021) found that while having growth mindset increased motivation and academic engagement, it only predicted achievement for students who came from more financially advantaged families. Additionally, race may also moderate the relationship between GM and academic achievement. The data indicated that African Americans only made up 28.6% of the growth mindset group while 43.2% of the Non-growth mindset group was African American. These numbers show that a disproportionate number of African American studentsmake up the non-growth mindset group indicating that race may play a factor in the generalizability of GM theory across different racial groups.

Additionally, age may be a moderator of the relationship between GM and academic success. Samples most commonly used in the mindset literature consist of students who are in elementary or middle school. This study attempted to diversify the sample population by deviating from the norm and included emerging adults. By only using samples that consist of younger participants, it may overgeneralize results so as to suggest that adopting a GM has the same effect across age when in reality that may not be the case as observed in this study. The literature repeatedly documents that GM is associated with academic success, however, these results were not replicated in this study. There is literature to support the claim that age may diminish the effect of GM. A meta-analysis found that when analyzing academic performance between children, adolescents, and adults, GM had the smallest effect on academic performance for adults (Sisk et al., 2018). In other words, there were few notable differences in academic performance between adults who did and did not have a GM. These results lend support to the possibility of age diminishing the return a GM can have on academic performance. These findings suggest GM may not be the strongest predictor of academic success in adulthood as is seen in childhood (Reavis et al., 2018). In fact, there has been research that has supported the idea that praising failure and viewing it in alternative ways can be counter-productive to adults (Reavis et al., 2018). Overall, these findings from the current study and others shed light on the need to consider the overlapping relationship that GM shares with demographic factors in examining GM in adults. The existing findings suggest that GM and its theoretical implications on improving academic achievement may be predicated on the socioeconomic status, age, and race of the student. If additional research replicates these findings, this questions the generalizability of the GM theory to

financially disadvantaged students, older students, and students of color. Moreover, a large proportion of FGCS come from lower socioeconomic status, this may provide some explanation as to why FGCS who had a GM experienced no difference in academic achievement when compared to the non-GM group in the current study (Quinn et al., 2019).

As mentioned previously, GM has been most commonly associated with academics. This study attempted to explore whether GM predicted the presence of career development variables and whether there was an overall relationship between variables among first generation college students. Career development variables like career optimism, career adaptability, and career decision making self-efficacy all share similar traits associated with resilience, perseverance, and determination that also characterize GM. By including these variables in the current study, the aim was to increase understanding of the scope of GM by expanding its influence not only in the classroom, but also in workplaces.

An implication for researchers who investigate mindset and career development to consider is that GM may have the potential to have a powerful effect on characteristics that promote successful career development. In this study, participants who endorsed a GM were more likely to have higher career optimism and career decision making self-efficacy scores. Additionally, career optimism and career decision making self-efficacy share a strong correlation ($r = .68$). GM, career adaptability, and career optimism are all variables that are likely conducive to someone who is more likely to succeed in the workplace than someone who is lacking in these areas (Eva et al., 2020; Han et al., 2020; Safavi & Karatepe, 2018). Researchers have found that when employees endorse a GM

in the workplace, their behaviors and performance are positively influenced in team-level and individual level projects (Han, 2020). Human resource research has shown increased productivity and efficiency when GM interventions are used at work (Han, 2020).

Particularly as it relates to FGCS, university services that cater to this population may be more encouraged to engage in research and training that promote GM due to its potential to influence career development variables. More specifically, there may be greater implications for career development centers on university campuses given the current results. These centers aim to help students select a career and succeed in the workplace. When career development centers consider future programming or interventions for students, it may be worthwhile for instructors to consider that GM has additional applications outside of the classroom. This study has outlined and provided evidence to suggest that career optimism, career decision making self-efficacy, and GM share common characteristics. As career optimism and career decision making self-efficacy are associated with GM traits like resilience, optimism, and confidence, it should warrant further interest in considering how GM may also help with the selection and success of one's career.

Although the results of this study did not replicate prior findings, it should be noted that the results may help broaden the overall understanding of GM theory and may even provide insight into additional theoretical implications (Yeager & Dweck, 2020). This study may offer a better direction for investigating GM in adults and may help refine the theory as it relates to the impact GM may have in adult populations and across the lifespan. So much of the research has focused on younger samples, yet not much is known about what GM may look like in adult populations in academic contexts,

especially first-generation college students. The results of this study indicate that it may be plausible to consider that for emerging adults, GM may be more relevant when it comes to topics surrounding career development rather than academic variables. Proponents of GM should consider these implications so as to understand GM's role across developmental stages. Additionally, it may be beneficial and useful to add the career optimism variable to outcomes of GM interventions to understand the connections between GM and career optimism more thoroughly.

<div align="center">Limitations</div>

The study included limitations that should be addressed. The first and most prominent limitation is that participants were asked for their self-reported current cumulative GPA. Asking participants to self-report their GPA it leaves room for error and inaccurate data. There were a number of participants (n = 12) who were could not recall their GPA. Future researchers should consider implementing methods to obtain the official academic record of participants opposed to self-reported academic standing.

As 80% of the sample consisting entirely of females, this gender imbalance may be a limitation. Without an equal distribution of males and females, outcomes of the study may have been more skewed due to gender differences. Without an adequate amount of data from males, it creates barriers when attempting to generalize and apply results to a broader population. While no statistically significant differences were observed as it relates to gender, results should be interpreted with caution when attempting to generalize results to males. Additionally, dichotomizing GM may need to be reconsidered. Researchers should consider if GM exists on more on a continuum rather than labeling someone as either having or not having a GM. Lastly, as there

appeared to be an overrepresentation of African American students in the non-GM group, it may suggest that results could vary by race. However, further research is needed to investigate this effect.

Conclusion

As has been previously stated, the body of research on GM, while extensive, includes fewer investigations of college students and has neglected to investigate the close similarities GM shares with career development variables. The current study contributes to the literature by including FGCS and attempting to understand the relationship that career development variables share with GM. While the results of this study did not support prior findings as they relate to academics, there was evidence that showed that GM predicted and shared a significant relationship with career development variables. Further research should focus more attention on career development variables and their relationship with GM in emerging adults. Devoting more effort to understanding career development variables and GM could foster behaviors that may promote the success of employees in the workplace.

Table 1

Demographics of the growth mindset and non-growth mindset groups

Demographics	Group		
	Growth Mindset (n = 154)	Non-Growth Mindset (n = 37)	Total Sample (N = 191)
Race			
African American/Black	28.60	43.20%	30.90%
Hispanic/Latino(a)	8.30%	5.40%	7.30%
Asian American	2.30%	5.40%	2.60%
American/White	57.10%	40.50	55.0%
Multiracial/multiethnic	3.80%	5.40%	0.5%
Age	22.57 (4.60)	22.99 (7.52)	22.72 (7.04)
Sex			
Male	23.30%	13.50%	19.90%
Female	76.70%	86.50%	80.10%

Table 2

Correlations between variables in the growth mindset and non-growth mindset groups

	TIS	CFI	CAAS	CEDSE
TIS	.	-.057	.030	.074
CFI	.005	.	.463**	.631**
CAAS	.016	.528**	.	.526**
CEDSE	-.011	.677**	.599**	.

Note. ** Correlation is significant at the 0.01 level (2 – tailed) TIS = Theories of Intelligence Scale; CAAS = Career Adapt Abilities Scale; CFI = Career Futures Inventory; CEDSE = Career Exploration and Decision Self-Efficacy Data for the growth mindset group is on the lower diagonal (N = 154) and data for the non-growth mindset group is on the upper diagonal (N = 37).

Table 3

Means, standard deviations, correlations, and reliability for measures for the total

sample

	Mean (SD)	TIS	CAAS	CFI	CEDSE
TIS	4.62 (.956)	.902			
CAAS	3.74 (.656)	.124	.936		
CFI Optimism	36.90 (7.31)	.163*	.529***	.88	
CEDSE	2.92 (.796)	.137*	.612***	.680***	.927
GPA	3.28 (.658)	-.064	.080	.046	.080

Note: Reliabilities are on the diagonal (Cronbach's alpha)*, * = p < .05, ** = p < .01, ****
= p < .001, TIS = Theories of Intelligence Scale; CAAS = Career Adapt Abilities Scale;
CFI = Career Futures Inventory; CEDSE = Career Exploration and Decision Self-
Efficacy; GPA = Grade Point Average, N = 191

Table 4

T-test results for mean differences in GPA between students with and without a growth

mindset

GPA

Growth Mindset	Mean	SD	t	Sig.
Has GM (n = 133)	3.28	.683	-.312	.461
Does not have GM (n = 37)	3.32	.567		

ANOVA results for mean differences between groups for CFI Optimism, CAAS, and

CEDSE

ANOVA

		Mean	SD	df	F	*p*
CFI Optimism	Has GM	37.699	6.918	1, 189	8.368	.004
	Does not have GM	34.071	8.049			
CAAS	Has GM	3.793	0.651	1, 189	3.707	.056
	Does not have GM	3.574	0.653			
CEDSE	Has GM	2.995	0.787	1, 189	4.974	.027
	Does not have GM	2.688	0.791			

GPA

Figure 1. Path analysis model of relations between growth mindset, career variables, and GPA.
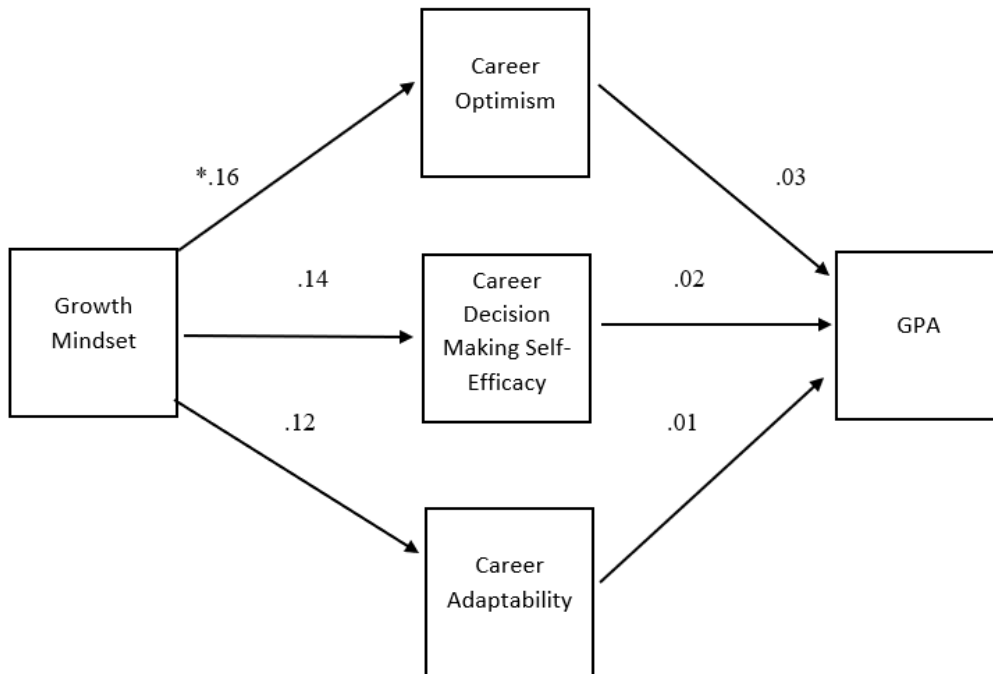
*Note. * = p < .05*

APPENDIX-A DEMOGRAPHIC FORM

Demographics Form

6.   Please provide the following information about yourself and your household.

Please provide your age:_____years

What is your Date of Birth:_____

(Month, day, year)   Sex: O Female   O Male   O Other

7.   What is your Race/Ethnicity?

1.   Alaskan Native

2.   Black or African American

3.   Native Hawaiian

4.   American Indian

5.   Hispanic/Latino

6.   Pacific Islander

7.   Asian American

8.   White or Caucasian (non-Hispanic)

9.   Multicultural/Multiracial

10.   What is your yearly Estimated Family Income (before taxes)?

1.   ___ Less than $20,000

1.   ___ $21,000-$40,000

2.   ___ $41,000-$60,000

3. ___ $61,000-$80,000

4. ___ $81,000-$100,000

5. ___ $101,000-$150,000

1. ___ Over $150,000

2. ___ Unknown

3. ___ I choose to not disclose this information

4. What is the Highest Level of Education Completed by Your Mother:

1. ___ Less than high school

2. ___ High school degree or GED

3. ___ Vocational degree/certificate

4. ___ Attempted college but did not graduate

5. ___ Associate's degree

1. ___ Bachelor's degree

2. ___ Graduate degree/ professional degree

3. ___ Not applicable

4. What is the Highest Level of Education Completed by Your Father:

1. ___ Less than high school

2. ___ High school degree or GED

3. ___ Vocational degree/certificate

4. ___ Attempted college but did not graduate

5. ___ Associate's degree

6. ___ Bachelor's degree

7. ___ Graduate degree/ professional degree

8. ___ Not applicable

9.   Have you declared a major?

1.   O   Yes

2.   If yes, what is your declared major?

    3.___ Athletic Training/Kinesiology/ Coaching

    4.___ Business-Related (Accounting, Advertising, Business Administration, Finance, etc)

    5.___ Child & Family Studies

    1.___ Communication/Journalism

    2.___ Computer Science

    3.___ Criminal Justice

    4.___ Economics

    5.___ Education

    1.___ Engineering

    2.___ English

    3.___ Fine Arts (Art, Dance, Theatre, etc)

    4.___ Mathematics

    5.___ Nursing

    1.___ Physical Sciences (Biology, Chemistry, Physics, etc)

    2.___ Psychology

    3.___ Social Sciences (Anthropology, History, Political Science, Sociology, etc)

    4.___ Social Work

    5.___ Other (please specify)

1.   O   No

  If no, what majors are you considering? (Select all that apply)

    2.   ___ Athletic Training/Kinesiology

    3.   ___ Business-Related (Accounting, Advertising, Business Administration, Finance, etc)

4. ___ Child & Family Studies

1. ___ Communication/Journalism

2. ___ Computer Science

3. ___ Criminal Justice

4. ___ Economics

5. ___ Education

1. ___ Engineering

2. ___ English

3. ___ Fine Arts (Art, Dance, Theatre, etc)

4. ___ Mathematics

5. ___ Nursing

1. ___ Physical Sciences (Biology, Chemistry, Physics, etc)

2. ___ Psychology

3. ___ Social Sciences (Anthropology, History, Political Science, Sociology, etc)

4. ___ Social Work

5. ___ Other (please specify)

6.   Do you consider yourself a first-generation college student?

1. __ Yes

2. __ No

3. __ Unsure

4.   Are you employed?

1. __ Yes

2. __ No

3. If yes, Please provide the following information for the primary job you currently have (items 9 -12).

1.   How long have you been employed in this job? _____years, _____months

1. How many hours per week, on average, do you work at this job? _____hours

1. Are you considered part-time or full-time at this job?

1. Which of the following best describes your current (main) occupational category:

   1. agriculture, food and natural resources

   2. architecture and construction

   1. arts, audio/video technology and communications

   2. business, management and administration

   3. education and training

   4. finance

   5. government and public administration

   1. health science

   2. hospitality and tourism

   3. human services

   4. information technology

   5. law, public safety, corrections, security

   1. manufacturing

   2. marketing, sales and service

   3. science, technology, engineering, mathematics

   4. transportation, distribution and logistics

   5. none of the above: _____

1. What is your current GPA?

1. What is your student ID number?

Current Class Standing in School:

___ Freshman

___ Sophomore

___ Junior

___ Senior

___ Other

Are you a transfer student? (For example, did you attend another college prior to enrolling at USM? This does not include dual enrollment courses you may have taken in high school.)

_____yes

_____no

IF YES to transfer student:

When did you transfer to USM?

___Semester (Fall/Spring/Summer)

___ Year

IRB APPROVAL

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NOTICE OF INSTITUTIONAL REVIEW BOARD ACTION

The project below has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy to ensure:

- The risks to subjects are minimized and reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered involving risks to subjects must be reported immediately. Problems should be reported to ORI via the Incident template on Cayuse IRB.
- The period of approval is twelve months. An application for renewal must be submitted for projects exceeding twelve months.
- Face-to-Face data collection may not commence without prior approval from the Vice President for Research's Office.

PROTOCOL NUMBER: IRB-20-503
PROJECT TITLE: Mindset matters: The relations between growth mindset and academic and career variables among first-generation college students
SCHOOL/PROGRAM: Psychology
RESEARCHER(S): Dillon Harper,Melanie Leuty

IRB COMMITTEE ACTION: Approved
CATEGORY: Expedited
       7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

PERIOD OF APPROVAL: December 8, 2020

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