

THE EFFECTS OF MOTIVATION AND ENGAGEMENT ON ACADEMIC  
ACHIEVEMENT AMONG COLLEGE STUDENTS

by

Jennie G. McFerren

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Thesis Committee:

Dr. Aimee Holt, Chair

Dr. Seth Marshall

Dr. James O. Rust

I would like to dedicate my research to my mother, Elaine R. McFerren. For I know without you and the Lord by my side none of this would be possible.

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## **ABSTRACT**

A hierarchical multiple regression was used to explore the relation between student engagement and overall college GPA. Specifically, the following three forms of student engagement were examined: (a) academic behavioral; (b) cognitive; and (c) emotional. Partial support was found for the current study's hypotheses. Composite ACT scores were found to be a significant predictor of overall college GPA at each step in the model. None of the academic behavioral engagement variables were found to be significant predictors of college GPA. Regarding cognitive engagement predictor variables, task value was a significant predictor of college GPA and extrinsic motivation had a significant, negative relation with college GPA. Regarding emotional engagement predictor variable, family support was found to have a significant negative relation with college GPA. The full model that contained previous achievement (ACT composite scores) and all of the student engagement predictor variables (academic behavioral, cognitive, and emotional) explained 81% of the variance in self-reported college GPA.

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## CHAPTER I

### INTRODUCTION

#### **Overview**

Academic success, and success in general, can mean many different things to different people. People from different backgrounds, socioeconomic statuses, and ethnicities grow from adolescents to young adults, making conscientious decisions to further their education by attending college contingent upon various reasons (Phinney, Dennis, & Osorio, 2006). A college degree can be very beneficial to those who wish to further their education and start careers that will lead to high achievement. Success is not a ready-made notion that can be achieved quickly. According to Stockard and Engelmann (2010) the road to success begins in early childhood. Research supports that reading is fundamental to early success and success throughout life (Stockard & Engelmann, 2010). Specifically, these authors noted that individuals who are successful readers in first grade go on to be more successful than fellow peers who struggle within that area. Although early reading is a predecessor to long-term success, it is not the only variable that predicts this outcome. Success, within the academic arena, is best described as the constant development of an individual (personal growth), while simultaneously striving to reach educational goals (Cuseo, 2007).

Defining student success can be subjective undertaking. Success among college students is perceived differently depending on individual differences, traits, gender, and other characteristics that make people unique (Ackerman, Kanfer, & Beier, 2013). Cuseo (2007), defines student success as being able to harness intellectual abilities, while also

maintaining emotional and spiritual control with the purpose and intent of reaching a desired goal. Accomplishing anticipated outcomes, within an academic setting, constitutes being successful (e.g., Cuseo, 2007). Within primary and secondary education, grade point average (GPA) status among students has been found to predict graduation rates, employment rates, and overall success within life (Downey, Lomas, Billings, Hansen, & Stough, 2014). According to Downey and colleagues (2014) students with higher college GPA's tended to live more lucrative lives, whereas those with lower GPA's were more at risk for substance abuse, suicide, unemployment, and were even more susceptible to developing psychological disorders. Students who felt that they had more control over their lives tend to do better in school, leading them to be more successful (Perry, Hladkyj, Pelletier, & Pekrun, 2001).

As society moves forward in using more technology in varying fields, higher levels of education are being required of high school graduates (Leef, 2006). The ability to learn and display specific computer skills and different technological capabilities are becoming necessary traits for being hired in today's workforce. Research supports the notion that more students in this upcoming generation are going back to school to obtain higher educational statuses; 0 of 10 high school graduates, 7 will go on to pursue a college degree (Leef, 2006). High school students are now deciding to go to college in order to be able to compete in today's market. A survey from UCLA Higher Education Research Institute found that among 192,912 first year students, 88% of them stated that obtaining a better job was part of their reason for going back to school; 75% stated that they chose to go back to make more money upon graduating.

## Cognitive Factors Affecting Academic Success

Intelligence has been reported to account for  $\frac{1}{4}$  of what it means to be academically successful among students (Downey et al., 2014). According to past research, intelligence is the most widely supported aspect of predicting success and achievement among students (Di Domenico & Fournier, 2015; Duckworth, Matthews, Kelly, & Peterson, 2007; Gottfredson, 1997). College success is based on information obtained as well as how well a student is able to connect current information with information that has previously been learned. Foundational skills serve as building blocks to further expand cognitive abilities students possess (Hannon & Daneman, 2014). In order to be able to build and expand one's knowledge base, prior knowledge has to be present (Garcia-Almeida, Hernández-López, Ballesteros, & De Saá-Pérez, 2012). Research practitioners often classify prior knowledge as *crystallized intelligence* (Beier & Ackerman, 2005). Crystallized intelligence can be further defined as knowledge that has been attained through educational and life experiences. Not only should students have access to prior knowledge and be able to expound upon it, but they should be able to integrate it with new information while also building new connections in order to problem solve and think critically. The process of being able to reason and work through tasks is known as *fluid intelligence* (Blanch, 2015; Husin, Santos, Ramos, & Nordin, 2013).

Colleges often look at a variety of criteria, some of which include high school measures that are put in place to gauge how likely a student will be able to succeed in completing educational requirements in order to obtain a degree (e.g., Harackiewicz,

Durik, Barron, Linnenbrink-Garcia, & Tauer, 2008). Keels (2013) found that academic success is strongly related to outcomes from tests such as the ACT, SAT, as well as high school grades. Typically, academic success in college has been measured by graduation rates (on schedule) as well as the ability of an individual to cope and deal with distressing events (e.g., Upadyaya & Salmela-Aro 2013). A meta-analysis conducted by Trapmann Hell, Hirn, and Schuler (2007) found there was a strong relationship between school grades and measures of academic success in college. In another meta-analysis, researchers found that when comparing first year GPAs of college students and the retention rate among their second year of attendance, GPA ( $p = .58, r = .47$ ) and ACT ( $p = .51, r = .38$ ) scores were moderately correlated with academic performance (Westrick, Le, Robbins, Radunzel, & Schmidt, 2015).

### **Other Factors Affecting Academic Success**

Success is a broad concept that is often affected by several variables (e.g., Harackiewicz et al., 2008). There are factors that contribute to levels of success among college students that do not coincide with the traditional factors that have been previously used to measure success (Keels, 2013). While intellectual ability and achievement are focal points of academic success, success is not restricted to only possessing cognitive or academic abilities (e.g., Cuseo, 2007; Trapman et al., 2007). It is important to note that internal as well as external influences can and often do account for student achievement (Keels, 2013; Trapma et al., 2007; Van Etten, Pressley, McInerney, & Liem, 2008).

Van Etten and colleagues (2008) defined internal factors to be those that are attributable to the student's characteristics. This includes expectations, beliefs about

learning, and feelings. There are many facets of internal characteristics and several ways they can affect the growth and development of students (Yoshitake, Matsumoto, Murohashi, Furusho, & Sugawara, 2012). For example, personal interests play crucial roles in determining success rates within people (e.g., Harackiewicz et al., 2008). Students tend to focus and become more involved in subjects that are enticing to them. College students who become bored within classes, while also experiencing apathy, tend to have higher dropout rates than those who are genuinely interested in the subject matter they are being exposed to (e.g., Acee, et al., 2015).

Optimism and pessimism also are internal factors that could affect the rate of success among college students (e.g., Fernández-González, González-Hernández, & Trianes-Torres, 2015; Ruthig, Haynes, Stupnisky, & Perry, 2009). According to Ruthig and colleagues (2009) optimism can be described as the ability to cope effectively, while simultaneously maintaining the belief that one can be successful in the midst of an aversive situation. High levels of optimism have been shown to serve as a line of defense from depression, stress, and underachievement in college students (e.g., O'Conner & Cassidy, 2007; Ruthig, et al., 2009). Pessimism refers to the notion of being excessively negative, including engaging in self-handicapping behavior as well as setting unrealistically low expectations (Martin, Marsh, Williamson, & Debus, 2003).

External factors can be defined as those that affect one's academic abilities through various situations (e.g., Van Etten, et al., 2008). External factors include social issues, college environment, as well as extracurricular activities. From an ecological standpoint external influences, such as economic factors and cultural factors, as well as

other macro-level elements can hinder or facilitate success (Goldrick-Rab, 2010). Research supports the notion that first-generation college students often face more difficulties than their non-first-generation counterparts (Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012). They tend to struggle within the classroom, causing them to underperform.

Adjusting to the classroom is not the only barrier that first-generation students face. They also have to learn how to adapt to the culture of attending a university. For example, most students whose parents attained a 4-year college degree come from families who are often classified as middle- and upper-class and have the means to help financially. Those students who are enrolling into a university and do not have parents who have received a 4-year college degree, often come from working-class families (e.g., Stephens et al., 2012). Students who come from families who struggle financially have a harder time completing school and earning their degree (Letkiewicz, et al., 2014). These students are often forced to get outside jobs in order to pay for school and living expenses. This can create an extra source of stress and cause them to miss out on academic related opportunities. A meta-analysis looking at the effects of SES on academic performance found that economic factors accounted for 35% of the variance when looking at how traditional predictors (i.e., SES, high school GPA, and ACT/SAT) predict academic success, specifically GPA (e.g., Robbins, Lauver, Le, Davis, & Langley, 2004).

Success cannot be limited to one specific construct. Possessing leadership abilities, having the desire to better oneself, as well as being able to determine a life

purpose (career) all contribute positively to succeeding in college and life after college (e.g., Petty, 2014; Smothers, Bing, White, Trocchia, & Absher, 2011). Developing and enhancing core values and attitudes often fosters growth within college students and sparks the process of transitioning into adulthood (Zarrett & Eccles, 2006). Effectively meeting needs and fostering independence within oneself often meets today's loose definition of what success means (Yazedjian, Toews, Sevin, & Purswell, 2008). Despite loose ideas of what success is, there are two concrete, researched elements that have been found to influence academia performance: (a) motivation; and (b) student engagement (e.g., Dompnier, Darnon, & Butera, 2013; Keels, 2013; Wang & Castañeda-Sound, 2008; Zhang, Zhao, & Yu, 2009).

**Motivation.** Motivation has been studied for many years, in the attempts to identify and further explain external and internal forces that ignite individuals into action in order to successfully fulfill different objectives (Hernandez, Woodcock, Schultz, Estrada, & Chance, 2013). Motivation has been found to be a key ingredient that helps to determine if and when a college student will be successful in the future (Mega, Ronconi, & De Beni, 2014). Not only have levels of motivation been found to affect potential income, but they also have been found to affect life satisfaction as well (Vasquez & Beuhler, 2007). Motivation helps to inspire and direct students' abilities so they are able to learn and absorb knowledge that will be beneficial for future use (Giampetro-Meyer, 2012). From a cognitive psychological standpoint, researchers have defined motivation as "the process whereby goal-directed activity is instigated and maintained" (Pintrich & Schunk, 2002, p. 4). The theory of multifinality suggests that depending on what is

motivational to an individual, those who start out in similar conditions go on to achieve different outcomes (Kruglanski, et al., 2013). Consequently, different situations and environments influence people in an array of ways.

Motivation among students tends to decline around the time period when adolescents begin transitioning to secondary education (Stroet, Opdenakker, & Minnaert, 2015). While academics play a crucial role in adolescents who are still developing and maturing, other factors often affect rates of graduation, grades, and overall student involvement within classes (Pekrun, Goetz, Hall, & Perry, 2014). Cuseo (2007) reported that 75% to 80% of students who do not graduate from college withdraw due to reasons that were not primarily associated with academics.

***Types of motivation.*** There are several different forms of motivation; researchers most often characterize motivation into two distinctive types: (a) intrinsic; and (b) extrinsic (e.g., Di Domenico & Fournier, 2015; Richardson, Abraham, Bond, 2012; Tabachnick, Relyea, & Miller, 2008). According to Tabachnick and colleagues (2008), intrinsic motivation yields personal growth and internal satisfaction. This type of motivation occurs without the expectation of compensatory rewards and provides valued experience that is attained as a result of it (Salinas-Jiménez, Artés, & Salinas-Jiménez, 2010). Individuals who value accomplishments from an intrinsic standpoint often feel emotionally satisfied regardless of external resources that are obtained (e.g., Salinas-Jiménez et al., 2010). These individuals value a sense of doing rather than earning and are able to pull sentimental value from experiences gained. Research supports that being intrinsically motivated is correlated with higher academic success and performance



among college students and these students tend to experience a richer educational experience than those who attend, solely, for external purposes (Clark, Middleton, Nguyen, & Zwick, 2014).

Extrinsic motivation pertains to individuals who are motivated by external stimuli in order to obtain a reward or avoid adverse effects (Plotnik & Kouyoumjian, 2011). Students who are extrinsically motivated have been found to be less psychologically satisfied with outcomes than if those who were intrinsically motivated (Vansteenkiste, Simons, Lens, Deci, & Sheldon, 2004). Vansteenkiste and colleagues (2004) also found that extrinsic motivation often had negative effects on one's ability to relate socially to others and affiliate with different types of people. A meta-analysis found that college students are becoming more externally motivated (Twenge, Zhang, & Im, 2004). According to Twenge and colleagues (2004) the average college students of today report higher rates of external locus of control than 80% of college students did in the early 1960s.

***Relation to academic success.*** Motivation is crucial to the success of a college student in terms of academic achievement and future accomplishments (Salinas-Jiménez et al., 2010). In their meta-analysis, Robbins and colleague (2004) found that academic motivation was positively correlated with college GPA ( $M r = 0.30$ ). They found that achievement motivation accounted for 27% of the variance in predicting college GPA and meaningfully contributed to the prediction of college GPA after controlling for high school GPA and ACT/SAT scores ( $\Delta R^2 = 0.02$ ). Richardson and colleagues (2012) found that intrinsic motivation was more closely correlated ( $r^+ = 0.17$ ) with GPA, than extrinsic

motivation was ( $r^+ = 0.01$ ). Students who are more intrinsically motivated have been found to exhibit better outcomes in academic performance, showing lower levels in procrastination as well as lower rates of failing to complete school and earn their degree (Di Domenico & Fournier, 2015).

**Student engagement.** Student engagement is a fairly new idea that educators have begun to study (Reschly, Appleton, & Phole, 2014). Student engagement is a multidimensional paradigm. Actively being engaged increases school awareness while also encouraging students to put forth energy and effort into learning. Reschly and colleagues (2014) note that being engaged allow students to invest in their future and different learning processes. Research supports that student engagement not only leads to positive outcomes, but can also foster resilience in students (Finn & Zimmer, 2012). Student engagement has been found to mediate the effects of socioeconomic status, ethnicity, and other factors that may affect the levels of academic achievement in students. Students tend to academically underperform when personal expectation and priorities do not coincide with the students' engagement level (Hu & Kuh, 2002). According to Reschly and colleagues (2014), there are multiple aspects of engagement: (a) academic/behavioral; (b) cognitive; and (c) emotional.

***Academic behavioral engagement.*** While some authors (e.g., Reschly et al., 2014) separated these two constructs, for the purpose of this literature review, academic/behavioral engagement consists of a wide variety of skills that allows a student to fulfill task requirements and complete academic work. Academic behavioral engagement also can be defined as the effort a student puts forward to using good study

skills including metacognitive strategies and time/environment management (e.g., Fredricks, Blumenfeld, & Paris, 2004; Greene, 2015; Greene, Miller, Crowson, Duke, & Akey, 2004). Behavioral engagement has been found to be a key predictor of academic achievement (Fredricks et al., 2004; Lee & Shute, 2010; Saklofske, Austin, Mastoras, Beaton, & Osborne, 2012; Salanova, Schaufeli, Martíneza, & Bresó, 2010; Schlenker, Schlenker, & Schlenker, 2013).

*Study skills.* Numerous studies have documented the importance of using study skills among college student (e.g., Credé & Kuncel, 2008). Study skills are abilities that aid college students in completing academic tasks. In a meta-analysis, Credé and Kuncel (2008) examined the relationships between several constructs of study habits, skills, attitudes and GPA. They found that study skills were correlated with college GPA ( $r_{op} = .28$ ).

Study skills include a variety of techniques including (a) elaboration, (b) organization, and (c) critical thinking. Elaboration/deep processing involves using skills that enable learning to occur on a deeper level, incorporating existing knowledge with new information, which allows global concepts to be formed (e.g., Credé & Kuncel, 2008). In recent meta-analyses, elaboration has been found to be correlated with GPA ( $M r = 0.68$ , Credé & Kuncel, 2008;  $r^+ = 0.18$ ; Richardson et al., 2012). Elaboration/deep processing also has been found to be significantly correlated with persistence ( $r = 0.61$ ,  $p \leq 0.5$ ) and effort ( $r = 0.77$ ,  $p \leq 0.01$ ; Sultan & Hussain, 2012). In educational terms, organization refers to a student's ability to turn in assignments in a timely fashion, while maintaining order with current assignments (Richardson et al., 2012). In their meta-

analysis, Richardson and colleagues (2012) found that organization was correlated GPA ( $r^+ = 0.04$ ). Critical thinking refers to using appropriate tools to achieve a desired goal by adjusting thinking processes to fit a particular situation (Ku & Ho, 2010). In their meta-analysis, Richardson and colleagues (2012) also found that critical thinking was correlated GPA ( $r^+ = 0.15$ ).

*Time and study environment management.* Managing one's time and study environment effectively and efficiently is another attribute of being academically/behaviorally engaged (Credé & Kuncel, 2008). Time management refers to a student's ability to adjust and set allotted times to study (e.g., Richardson et al., 2012). In their meta-analysis, Richardson and colleagues (2012) found that time management was correlated with GPA ( $r^+ = .22$ ). Positive study environments also are necessary in order to be successful when completing work. They facilitate positive atmospheres in which students are more prone to be successful and achieve academic learning. Researchers found that when predicting student academic performance using a hierarchical multiple regression, time and study environment were one of the strongest predictors of college GPA ( $p < .001$ ) (Kitsantas, Winsler, & Huie, 2008).

*Metacognitive self-regulation.* Self-regulated learning strategies such as planning, and monitoring help students be independent, self-initiated learners (Kitsantas, et al., 2008; Richardson et al., 2012). In two recent meta-analyses, metacognitive self-regulation has been found to be correlated with college GPA ( $M r = 0.79$ , Credé & Kuncel, 2008;  $r^+ = 0.32$ , Richardson et al., 2012). While Richardson and colleagues (2012) found that self-regulation ( $\beta = 0.31$ ,  $p \leq .001$ ) was a significant predictors of

college GPA after controlling for previous achievement (ACT/SAT and high school GPA), Kitsantas and colleagues (2008) found that self-reported metacognitive self-regulation strategies were not a significant predictor of college GPA. Ruban and Reis (2006) found that when comparing low-achieving college students, high achieving students reported greater use of self-regulated learning (SRL) strategies.

***Cognitive engagement.*** Cognitive engagement requires effort, specifically channeled toward setting goals as well as investment in learning such as perceptions of task value and perceived control (Appleton, Christenson, Kim, & Reschley, 2006). Cognitive engagement is related to an individual's desire to commit and succeed in relation to personal obligations and setting goals; cognitive engagement is positively associated with completing school, mastering the work, coping with difficulties that may arise, and producing passing grades (Fredricks et al., 2004). Motivation is a construct related to cognitive engagement. Students who are motivated by an external locus of control (i.e., feel that external factors such as other people or luck control outcomes) have been found to report feeling more helpless, depressed, and exhibited poor school achievement than those who report to be motivated by an internal locus of control (e.g., Twenge et al., 2004). Gifford, Briceno-Periott and Mianozo, (2006), found that both motivation (i.e., locus of control) and ACT predicted GPA among college students; students who reported internal locus of control had higher GPA's than those who reported an external locus of control. Academic locus of control also has been found to be a significant predictor of academic self-efficacy ( $r = 0.59$ ; Hannon, 2014).

*Goal orientation.* Goal orientation refers to a student's ability to perform and persist in completing academic related tasks, while maintaining a consistent level of motivation (Ames, 1992; Dweck, 1986; El-Alayli & Baumgardner, 2003; Hsieh, Sullivan & Guerra, 2007; Robbins et al., 2004). According to Robbins and colleagues (2004) academic goals consist of the ability to set goals to take steps toward achieving them. One's determination to meet and exceed the goals that are set is commonly referred to as perseverance (Duckworth, et al., 2007). Students who are able to and make school meaningful to their own individual, personal aspirations and goals tend to be better off than those who are not able to make those connections (Eidelman & Biernat, 2007; Greene et al., 2004). In a meta-analysis, Richardson and colleagues (2012) found goal orientation to be the second largest observed correlation ( $r^+ = .35$ ) in relation to GPA, suggesting that students who assign themselves goal standards are more likely be academically successful. Additionally, in their meta-analysis, academic goals ( $\beta = 0.22, p \leq .001$ ) significantly attributed to the model predicting GPA after controlling for previous achievement (ACT/SAT, high school GAP), conscientiousness, effort regulation and academic self-efficacy.

*Control, relevancy, and value.* Cognitive engagement also is related to perceptions of control, relevancy and task value. Reschly and colleagues (2014) found that students who felt in control of getting school work done achieved better outcomes than students who did not feel in control. College students who put forth effort and perceive school work as being relevant to their personal aspirations tend to do better in school (Reschly et al., 2014). Task value can be defined as how interesting, important,

and useful a student deems a class/subject to be (Malka & Covington, 2005). Greene and colleagues (2004) found that task value (perceived instrumentality) was positively correlated with mastery goals ( $r = 0.66$ ) and performance approach goals ( $r = 0.21$ ).

***Emotional engagement.*** Emotional engagement, also known as affective engagement, can be defined as a student's ability to maintain awareness about one's ability in regards to academics as well as being able to evaluate beliefs about being able to succeed in an academic environment (Reschly et al., 2014; Robbins et al., 2004). Student's abilities to be emotionally engaged with academics, peers, and teachers are key indicators that increase the likelihood of the student performing well in the classroom and in the future (Handelsman, Briggs, Sullivan, & Towler, 2005). Self-efficacy and perceived social support have been found to affect how much a college student emotionally engages in academic work (Garriott, Hudyma, Keene, & Santiago, 2015).

***Self-efficacy.*** Academic self-efficacy refers to students' perceptions about their ability to perform; it can be thought of as general academic self-confidence, with positive notions regarding one's academic capabilities (e.g., Richardson et al., 2012; Robbins et al., 2004). In their meta-analysis, Robbins and colleague (2004) found that academic self-efficacy was positively correlated with college GPA ( $M r = 0.50$ ) and meaningfully contributed to the prediction of college GPA after controlling for high school GPA and ACT/SAT scores ( $\Delta R^2 = 0.03$ ). Interestingly, they found that while academic self-efficacy accounted for 95% of the variance in retention among college students, it accounted for 8% of the variance GPA, signifying that how a student perceives their academic skills and abilities are crucial to their success. Richardson and colleagues

(2012) also found self-efficacy to be a significant moderator ( $p < .001$ ) of academic achievement (GPA). Additionally, it ( $\beta = 0.19, p \leq .001$ ) was found to be a significant predictor of GPA after controlling for previous achievement (SAT/ACT and high school GPA), conscientiousness, and effort regulation..

*Social support.* According to researchers, social support can be defined as helpful encouragement from peers, family members, or significant others (e.g., Richardson et al., 2012). In two meta-analyses, found that social support was positively correlated with college GPA ( $r^+ = 0.08$ , Richardson et al., 2012;  $M r = 0.11$ , Robbins et al., 2004). Robbins and colleagues also found that while social support accounted for 7% of the variance when looking at the effects on retention of college students, it accounted for 27% of the variance in GPA, supporting the notion that having social support is an important aspect of college success among college students. In another study, it was found that social support was positively correlated with academic persistence ( $r = 0.35, p < .001$ , Nicpon, Huser, Blanks, Befort, & Kurpius, 2006). Other researchers have found a significant negative correlation when looking at family resources needed ( $r = -.37, p < .01$ , Dennis, Phinney, & Chuateco, 2005). This means that when family resources were needed, but not available, students did not do as well academically. Regarding peer support, Dennis and colleagues (2005), also found a significant positive correlation ( $r = .23, p < .05$ ), whereas a significant negative correction was found when peer resources were needed, but not accessible ( $r = -.40, p < .01$ ).



## Summary

Domina, Conley, and Farkas, (2011) reported that most high school students within the United States plan to go on to college, irrespective of their socioeconomic status and race; however, only about ½ of the students who choose to enroll in a four-year college earn their degrees within a 6 year time frame (Symonds, Schwartz, & Ferguson, 2011). One of the traditional indicators of academic success in college has been GPA (e.g., Kitsantas et al., 2008; Richardson et al., 2012; Robbins et al., 2004). Increasingly other variables such as student engagement have begun to be explored (e.g., Credé & Kuncel, 2008; Kitsantas et al., 2008; Richardson et al., 2012; Robbins et al., 2004 ) Student engagement can be conceptualized as consisting of three broad constructs (a) academic/behavioral, (b) cognitive, and (c) emotional (e.g., Grier-Reed, Appleton, Rodriguez, Ganuza, & Reschly, 2012; Reschly et al., 2014).

Academic/behavioral engagement has been found to be important to college students' success including GPA (e.g., Fredricks et al., 2004; Lee & Shute, 2010; Saklofske, et al., 2012; Salanova et al., 2010; Schlenker, et al., 2013). Academic behavior engagement include the study skills and metacognitive strategies students use as well as their ability to manage their time and study environments (e.g., Credé & Kuncel, 2008; Fredricks et al., 2004; Greene, 2015; Greene et al., 2004; Ku & Ho, 2010; Richardson et al., 2012; Sultan & Hussain, 2012). Several meta-analyses examining behaviors associated with academic engagement have shown a predictive relation to GPA among college students (e.g., Credé & Kuncel, 2008; Kitsantas et al., 2008; Richardson et al., 2012).

Cognitive engagement is another fundamental component of academic achievement for college students (e.g., Hannon & Daneman, 2014). Some of the constructs related to cognitive engagement include (a) motivation, (b) goal orientation, (c) perceived control, (d) relevancy and (e) task value. Motivation can be beneficial (e.x., internal locus of control) or detrimental (e.x., external locus of control) to a student's educational outcome (e.g., Gifford et al., 2006; Zumbunn, McKim, Buhs, & Hawley, 2014). For example, Gifford and colleagues (2006) found that motivation (i.e., locus of control) predicted GPA among college students. Additionally researchers have found that goal orientation plays a key role in students being able to succeed and persist in college (e.g., Duckworth et al., 2007; Eidelman & Biernat, 2007; Richardson, et al., 2012). Perceiving a sense of control and relevancy also has been associated with academic success (Reschly et al., 2014). Additionally, studies have supported task value as being important for academic achievement (Greene et al., 2004; Reschly et al., 2014; Twenge et al., 2004).

Emotional engagement refers to a student's ability to hone in on feelings towards learning and how they feel about themselves as they engage in learning (Handelsman, et al., 2005; Reschly et al., 2014; Robbins et al., 2004). Self-efficacy and social support fall under the umbrella of emotional (affective) engagement (e.g., Garriott et al., 2015). Self-efficacy also has been found to be significant contributors to college students' success (e.g., Richardson et al., 2012; Robbins, et al., 2004). Persistence in college students was found to be significant when looking at the role of social support within their lives (Nicpon et al., 2006). Researchers have found that social support, specifically peer

support, is critical to student success, when looking at GPA among college students (e.g., Dennis et al., 2005).

**Purpose.** The intended purpose of this study was to explore the relation between overall GPA and three forms of engagement, (a) academic behavioral, (b) cognitive, and (c) emotional, within a population of college students. A hierarchical multiple regression was used to analyze the following hypotheses.

**Hypothesis.**

***Hypothesis 1:*** It was hypothesized that self-reported composite ACT scores would be a significant predictor of overall GPA (step 1 in the model).

***Hypothesis 2:*** After controlling for previous achievement (ACT score), it was hypothesized that variables related to academic behavioral engagement would be a significant predictor of overall GPA (step 2 in the model). Specifically, it was predicated that meta-cognitive self-regulation activities would have the largest contribution at this step in the model (i.e., largest  $\beta$ ).

***Hypothesis 3:*** After controlling for all previous variables (ACT and academic/behavioral engagement measures), it was hypothesized that variables related to cognitive engagement would be a significant predictors of overall GPA (step 3 in the model). Specifically, it was predicated that intrinsic motivation would have the largest contribution at this step in the model (i.e., largest  $\beta$ ).

***Hypothesis 4:*** After controlling for ACT, academic/behavioral engagement, and cognitive engagement, it was hypothesized that variables associated with emotional engagement would be significant predictors of overall GPA (step 4 in the model)

Specifically, it was predicated that self-efficacy would have the largest contribution at this step in the model (i.e., largest  $\beta$ ).

## CHAPTER II

### METHODS

#### Participants

Participants were 28 students recruited from college courses at a midsized university. The majority were women (89%). Half were between 21-24 years old (50%); 34% indicated they were 25 years old or older and 11% reported that they were between 18-20 years old. Half of the participants were graduate students (50%); 43% reported being juniors and seniors, while 7% reported being underclassmen (freshmen or sophomores). The majority of the participants were Caucasian (68%); 20% indicated that they were African American and 7% reported being of other races/ethnicities. Self-reported composite ACT scores ranged from 17 to 32 with the mean for the current sample being 23 ( $SD = 4.08$ ). Self-reported college overall GPAs ranged from 1.33 to 4.0 with the mean for the sample being a B- ( $M = 3.29$ ;  $SD = 0.66$ ).

#### Measures

In order to explore what predicts academic achievement (course grade and GPA), a survey will be utilized to assess the following areas of student engagement: (a) academic/ behavioral; (b) cognitive; and (c) emotional.

**Demographic questionnaire.** The survey contained six demographic items. These items included information regarding gender, age, year in school, ethnicity, self-reported overall GPA and self-reported ACT composite scores.

**Motivated Strategies for Learning Questionnaire.** All participants completed the *Motivated Strategies for Learning Questionnaire* (MSLQ; Pintrich, Smith, Garcia, & McKeachie, 1991). According to the manual, the MSLQ is a questionnaire that designed to assess students' motivational orientation and their use of different learning strategies within college courses.

**Student Engagement Instrument.** Additionally all participants completed the *Student Engagement Instrument* which is an instrument that measures different levels of engagement taking into account how different contexts (e.g., families, schools, peers) may influence students (SEI; Appleton et al., 2006). Grier-Reed et al., (2012) adapted the SEI, which was originally a 33 item survey designed for middle and high school students for college students. In order to modify the survey to accommodate college students, they adjusted the language. For example, the words *school* or *high school* was replaced with *college/university* and *adults* and *teachers* were replaced by *faculty and staff*. The reliability and validity were found to be comparable from the original SEI scale that was used to assess high schoolers (e.g., Grier-Reed, et al., 2012).

**Academic/behavioral engagement.** In order to assess behavioral/academic engagement among participants, five subscales from the MSLQ were used: (a) Metacognitive Self-Regulation; (b) Elaboration; (c) Organization; (d) Critical Thinking; and (e) Time/Study Environment Management. Metacognitive Self-Regulation subscale from the MSLQ contained 12 items. Metacognition refers to one's ability to think and focus on activities. For example, one's ability to plan, regulate, and monitor activities allows a learner to gain more knowledge from subject matter than someone who does not

use these skills and strategies. These processes include tracking one's attention as they read to make sure they are comprehending and conducting follow up quizzes to insure the understanding of academic work (i.e., I ask myself questions to make sure I understand the material I have been studying in this class). According to the authors, this subscale's internal consistency was found to be in the moderate range ( $\alpha = 0.79$ ). Internal consistency for the current study also was found to be in the moderate range ( $\alpha = 0.74$ )

The Elaboration, Organization, and Critical Thinking subscales were combined, producing a total of 15 items, from the MSLQ; and were used to assess study skills habits. Elaboration strategies help new information become meaningful and long-lasting. According to the manual, making use of paraphrasing, taking notes, and summarizing work can help students integrate knowledge with previous knowledge (i.e., I write brief summaries of the main ideas from the readings and the concepts from the lectures). The internal consistency from this subscale was reported to be in the moderate range by the authors ( $\alpha = 0.76$ ) but higher in the current study ( $\alpha = 0.83$ ). Organization involves sectioning notes in a selected fashion so the proper connections can be easily obtained (i.e., When I study for this course, I go over my class notes and make an outline of important concepts). Using organization skills such as outlining and clustering often results in better performance. The internal consistency for this subscale was reported by the authors to be  $\alpha = 0.64$  but was lower in the current study,  $\alpha = 0.46$ . Critical thinking involves using prior knowledge to evaluate new situations and come up with novel ideas in order to solve problems (i.e., I try to play around with ideas of my own related to what I am learning). The internal consistency for this subscale was reported by the authors to

be  $\alpha = 0.80$  and was found to be  $\alpha = 0.74$  in the current study. The internal consistency for the combined 15 items that represented study skills was found to be in the high range ( $\alpha = 0.83$ )

The Time and Study Management subscale consisted of 8 items from the MSLQ. Time management, according to the authors, refers to setting aside time to be productive in studying and getting work done (i.e., I make good use of my study time for this course). Study environment management refers to where the studying is done (i.e., quiet, free from distractions). High scores indicate that students can manage their time and study environment in order to help succeed in work completion. This subscale contained 3 items that will be reversed scored. This subscale's internal consistency was reported by the test authors to be  $\alpha = 0.76$  and was found to be the same in the current study ( $\alpha = .76$ ).

***Cognitive engagement.*** In order to assess cognitive engagement among participants, five subscales will be used. Two subtests from the MSLQ will be used to assess motivation: (a) Intrinsic Goal Orientation; and (b) Extrinsic Orientation subscale. The next two subscales were taken from the SEI including (a) Control and Relevance of School Work, and (b) Future Aspirations and Goals Subscale. The final subscale, Task Value, came from the MSLQ.

The Intrinsic Goal Orientation subscale contained four items that measured how intrinsically motivated a student is (i.e., I prefer course material that really challenges me so I can learn new things). According to the manual, high scores on this scale indicate that the reason in why students choose to complete a task is that they enjoy participating



in an academic endeavor (e.g., challenge, curiosity, mastery). The end result of the academic task is the reward. The test authors report that the internal consistency fell in a moderate range ( $\alpha = 0.74$ ), but was lower in the current study ( $\alpha = 0.74$ ).

The Extrinsic Goal Orientation subscale contained four items that, according to the manual, measures the motivation factors that occur externally, such as performance, being critiqued by others, and grades. High scores on this scale indicate that students are highly extrinsically motivated, their thinking is directed toward outward results, not the task at hand (i.e., Getting a good grade in this class is the most satisfying thing for me right now). According to the authors of the test, the internal consistency of this subscale was found to be low ( $\alpha = .62$ ) and was lower in the current study ( $\alpha = 0.51$ ).

The Control and Relevance of School Work Subscale from the SEI consisted of 9 items (i.e., The grades in my classes do a good job of measuring what I'm able to do). Using the version adapted for college students, Grier and colleagues (2012) reported the internal consistency yielded this subscale to be in the moderate range ( $\alpha = .78$ ), but was much lower in the current study ( $\alpha = 0.24$ ). The Future Aspirations and Goals subscale from the SEI consisted of 5 items. This subscale measures how a student perceives their future (i.e., College is important for achieving my future goals). The internal consistency on this subscale reported by Grier and colleagues (2012) was  $\alpha = .79$  and was still in the high range for the current study ( $\alpha = 0.85$ ).

The Task Value subscale from the MSLQ consisted of 6 items. Task value measures a students' perception about a course and course material (e.g., importance, utility, interest) (i.e., It is important for me to learn the course material in this class).

According to the authors of the MSLQ, the internal consistency of this subscale was high ( $\alpha = .90$ ), but was in the moderate range for the current study ( $\alpha = 0.79$ ).

***Emotional engagement.*** Four subscales were used to assess students' emotional engagement: (a) The Teacher-Student Relationships subscale; (b) Peer Support at School; (c) The Family Support for Learning; (d) Self-Efficacy for Learning and Performance. The Teacher-Student Relationships subscale, from the SEI, consisted of 9 items. This subscale sought to measure positive or negative relationships with students and professors (i.e., Overall, professors at my university treat students fairly). The internal consistency reported by Grier and colleagues (2012) was  $\alpha = 0.85$  but was found to be much lower in the current study ( $\alpha = 0.21$ ). Peer Support at School is a subscale that was utilized from the SEI. This subscale contained 6 items. This subscale looks at how students feel in regards to receiving help from others (i.e., Students at my university are there for me when I need them). The internal consistency of this subscale was reported by Grier and colleagues (2012) to be  $\alpha = 0.82$ , but was much higher for the current study ( $\alpha = 0.94$ ). The Family Support for Learning subscale, from the SEI, consisted of 4 items. These items measure students' thoughts and feeling in regards to support being offered from family members (i.e., My family/guardian(s) are willing to help me). The internal consistency of this subscale was reported by Grier and colleagues (2012) to be  $\alpha = 0.79$ , but was much higher for the current study ( $\alpha = 0.93$ ). The Self-Efficacy for Learning and Performance subscale from the MSLQ contained 8 items. According to the authors, these items sought to measure a student's level of expectancy for success as well as one's self-efficacy about achieving it. Judgements about one's ability or lack thereof to accomplish

a task, is considered to be a skill of being self-efficacious (i.e., I'm confident I can do an excellent job on the assignments and tests in this course). The internal consistency on this subscale was reported by the scale authors to be in the high range ( $\alpha = .93$ ) and was similar in the current study ( $\alpha = .91$ ).

### **Procedure**

Prior to data collection, approval was obtained from the Institutional Review Board (IRB) (See Appendix A). Psychology students were then recruited to complete questionnaires. Prior to completion, each participant completed an informed consent form.

## CHAPTER III

### RESULTS

A hierarchical multiple regression was used to explore the relation between student engagement and overall college GPA. As can be seen in Table 1, numerous predictor variables associated with each of the three student engagement constructs were examined. Support was found for hypothesis 1, self-reported composite ACT scores were found to be a significant predictor of overall college GPA, ( $F = 16.26, p \leq .000$ ). This remained true in all 4 steps in the model. ACT score explained 39% of the variance in self-reported composite GPAs.

Partial support was found for hypothesis 2. While this step in the model was significant ( $F = 3.96, p = .02$ ), as can be seen in Table 1, the addition of the academic behavioral engagement predictor variables only explained 2% more of the variance in GPA than was explained by self-reported ACT composite scores. Unlike what had been predicted, Time/Study Environment ( $\beta = 0.14$ ) contributed more at this step in the model than did Metacognitive Self-Regulation ( $\beta = 0.02$ ) or Study Skills ( $\beta = 0.05$ ).

Partial support was found for hypothesis 3. As can be seen in Table 1, the cognitive engagement variables were significant predictors of college GPA after controlling for previous achievement (ACT composite scores) and academic behavioral engagement variables ( $\Delta F = 2.80, p \leq .05$ ). The addition of these variables explained an additional 26% of variance in college overall GPA. Extrinsic motivation ( $\beta = -0.53$ ) had a significant, negative relation to college GPA, while Task Value ( $\beta = -0.55$ ) had a significant, positive relation to college GPA.

Table 1.

*Hierarchical multiple regression predicting self-reported college GPA*

Predictor Variables	$\beta$	$F$	$R^2$	$\Delta R^2$	$\Delta F$
Step 1		16.26***	.39		
Overall ACT	.62***				
Step 2		3.96*	.41	.02	0.30
Overall ACT	.56**				
<i>Academic Behavioral Engagement</i>					
Metacognitive Self-Regulation	.02				
Study Skills	.05				
Time/Study Environment	.14				
Step 3		4.00**	.67	.26	2.80*
Overall ACT	.46*				
<i>Academic Behavioral Engagement</i>					
Metacognitive Self-Regulation	-.39				
Study Skills	.15				
Time/Study Environment	.27				
<i>Cognitive Engagement</i>					
Intrinsic Motivation	.14				
Extrinsic Motivation	-.53**				
Aspirations and Goals	-.02				
Control and Relevancy	-.04				
Task Value	.55*				

Table 1 continued.

Predictor Variables	$\beta$	$F$	$R^2$	$\Delta R^2$	$\Delta F$
Step 4		4.70**	.81	.15	2.77
Overall ACT	.35*				
<i>Academic Behavioral Engagement</i>					
Metacognitive Self-Regulation	-.18				
Study Skills	.04				
Time/Study Environment	.33				
<i>Cognitive Engagement</i>					
Intrinsic Motivation	.07				
Extrinsic Motivation	-.47*				
Aspirations and Goals	.17				
Control and Relevancy	-.01				
Task Value	.50*				
<i>Emotional Engagement</i>					
Teacher Support	-.08				
Peer Support	-.29				
Family Support	-.37*				
Self-efficacy	.02				

\*  $p \leq .05$ ; \*\*  $p \leq .01$ ;  $p \leq .001$ \*\*\*

Additionally, partial support for hypothesis 4. While this step in the model was significant ( $F = 4.70, p = .003$ ), as can be seen in Table 1, the addition of the emotional engagement predictor variables only explained an additional 15% of the variance in GPA than was explained by the combination of self-reported ACT composite scores, academic behavioral engagement and cognitive engagement predictor variables. This full model explained 81% of the variance in college GPA. Unlike what had been predicted, perceived Family Support had a significant negative relation to college GPA ( $\beta = - 0.37$ ).

## CHAPTER IV

### DISCUSSION

Similar to previous research (e.g., Kitsantas et al., 2008; Richardson et al., 2012; Robbins et al., 2004), previous achievement as assessed by ACT scores were found to be a significant predictor of college GPA. Unlike what was predicted in this study, none of the academic behavioral predictor variables were significant predictors of college GPA. Although metacognitive self-regulation strategies were not found to be a significant predictor of GPA, the previous research on this variable has been mixed with some finding meta-cognitive strategies to be a significant predictor of college GPA (e.g. Richardson et al., 2012) and others have not (Kitsantas et al., 2008). While not statistically significant, the largest beta coefficient among the academic behavioral engagement variables was time/study environment management. Interestingly, Kitsantas and colleagues (2008) noted that in their longitudinal study, students who remained in college reported greater use of time management strategies than those who withdrew.

In the current study two cognitive engagement variables were found to be significant predictors of college GPA. Task value had a significant positive relation to college GPA. Although Kitsantas and colleagues (2008) did not find task value to be a significant predictor of college GPA in their study, Greene and colleagues (2004) found that task value was positively correlated with mastery goals ( $r = 0.66$ ). In the current study, extrinsic motivation was found to have a significant negative relation to college GPA. Gifford and colleagues (2006) also found a negative relation between extrinsic motivation (locus of control) and GPA.



Only one of the predictor variables related to emotional engagement in the current study was found to predict GPA. Family support was found to have a significant negative relation to college GPA. Dennis and colleagues (2005) found that when family resources were needed, but not available, students did not do as well academically. Unlike what had been predicted and what has been found in the previous literature (e.g. Richardson et al., 2012; Robbins et al., 2004), in the current study, self-efficacy was not a significant predictor of college GPA. The findings in the current study may be similar to those by Kitsantas and colleagues (2008) who found that self-efficacy was only a significant predictor of GAP at the end of the second semester (end of the freshman year) in college, but not by the end of the fifth semester (end of junior year). The majority of the participants in the current study reported being in their junior year or higher.

### **Limitations**

One limitation of this study is that there are many variables that were not investigated that related to student engagement among college students that could impact GPA (e.g., Fredricks et al., 2004; Harackiewicz et al., 2008; Mega et al., 2014). In the current study, only a few of these variables were investigated. Attempting to define student engagement variables can prove to be challenging. It is difficult to determine what factors truly predict GPA in college students, because college students tend to be extremely diverse (Jones, 2016). Another limitation is related to the fact that some research has shown that high emotional engagement in academics is likely to increase cognitive and behavioral engagement (e.g., Fredricks et al., 2004; Handelsman et al., 2005; Richardson et al., 2012). For the purpose of this study, behavioral and academic

engagement were combined, but other researchers have examined academic engagement apart from behavioral. As a result, studies who separated these variables may have arrived at different findings than those who did not separate the two (e.g., Lee, 2014; Querol, Rosales, & Soldner, 2015; Upadyaya & Salmela-Aro, 2013).

There are several other limitations in the current study. Inconsistent findings and lower statistical significance can result from having an inadequate sample size. The fewer the number of participants a study has, the less power the study will be able to produce (Cook & Hatala, 2015; McShane & Böckenholt, 2016). The sample size in this study was small ( $N = 28$ ) and this could have impacted the power. In addition, the small sample size may limit the generalizability of the result of this study. Another potential limitation in the current study was the low internal consistency reliability of several of the scales (i.e. Control and Relevancy, Teacher/Student Relationships Organization, External Goal Orientation/Motivation, and Internal Goal Orientation/Motivation). Additionally, the majority of the participants in the current study were junior, seniors or graduate students. This differs from some of the previous research that has focused on student engagement as a way of predicting retention (e.g., Robbins et al., 2004) or predicting freshman GPA (e.g., Credé & Kuncel, 2008).

### **Future Direction**

While this study contributes to the growing research regarding the importance of student engagement among college students, as noted in the limitations above, a larger sample size should be included in the future when examining the relation to academic success (GPA) as well as exploring possible reasons for low internal consistency for

several of the measures in the current study. In the future, researchers may consider teasing apart the behavioral and academic aspects of engagement in order to fully be able to examine these differently. Personal factors that were not discussed in the current study such as, hardships specific to the individual also could be examined. Finally, future research should examine more closely the differences among students who are considered to be first-generation students versus students who are not first-generation students.

**REFERENCES**

- Acee, T. W., Kim, H., Kim, H. J., Kim, J., Chu, H. R., Kim, M., & ... Wicker, F. W. (2010). Academic boredom in under- and over-challenging situations. *Contemporary Educational Psychology, 35*, 17 - 27. doi:10.1016/j.cedpsych.2009.08.002
- Ackerman, P. L., Kanfer, R., & Beier, M. E. (2013). Trait complex, cognitive ability, and domain knowledge predictors of baccalaureate success, STEM persistence and gender differences. *Journal of Educational Psychology, 105*, 911 - 927. doi: 10.1037/a00328
- Ames, C. (1992). Achievement goals and classroom motivational climate. In J. Meece & D. Schunk (Eds.), *Students' perceptions in the classroom* (pp. 327 - 348). Hillsdale, NJ: Erlbaum.
- Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: Validation of the Student Engagement Instrument. *Journal of School Psychology, 44*, 427 - 445. doi: doi:10.1016/j.jsp.2006.04.002
- Beier, M. E. & Ackerman, P. L. (2005). Age, ability, and the role of prior knowledge on the acquisition of new domain knowledge: Promising results in a real-world learning environment. *Psychology and Aging, 20*, 341 - 355. doi: 10.1037/0882-7974.20.2.341

- Blanch, A. (2015). Evaluating fluid and crystallized abilities in the performance of an educational process. *Instructional Science: An International Journal of the Learning Sciences*, 43, 427 - 442. doi: 10.1007/s11251-015-9345-x
- Clark, M. H., Middleton, S. C., Nguyen, D., & Zwick, L. K. (2014). Mediating relationships between academic motivation, academic integration and academic performance. *Learning and Individual Differences*, 33, 30 - 38. doi: dx.doi.org/10.1016/j.lindif.2014.04.007
- Cook, D. A., & Hatala, R. (2015). Got power? A systematic review of sample size adequacy in health professions education research. *Advances in Health Sciences Education*, 20, 73 - 83. doi: 10.1007/s10459-014-9509-5
- Credé, M. & Kuncel, N. R. (2008). Study habits, skills, and attitudes: The third pillar supporting collegiate academic performance. *Perspectives on Psychological Science*, 3, 425 - 453. doi: 10.1111/j.1745-6924.2008.00089.x
- Cuseo, J. (2007). *Student success: Definition, outcomes, principles, and practices*. Retrieved from <http://www.indstate.edu/studentsuccess/pdf/Defining%20Student%20Success.pdf>.
- Dennis, J., Phinney, J. S., & Chuateco, L. I. (2005). The role of motivation, parental support, and peer support in the academic success of ethnic minority first-generation college students. *Journal of College Student Development*, 46, 223 - 236. doi: 10.1353/csd.2005.0023

- Di Domenico, S. I., & Fournier, M. A. (2015). Able, ready, and willing: Examining the additive and interactive effects of intelligence, conscientiousness, and autonomy motivation on undergraduate academic performance. *Learning and Individual Differences, 40*, 156 - 162. doi: 10.1016/j.lindif.2015.03.016
- Domina, T., Conley, A. M., & Farkas, G. (2011). The link between educational expectations and effort in the college-for-all era. *Sociology of Education, 84*, 93 - 112. doi: 10.1177/1941406411401808
- Dompnier, B., Darnon, C., & Butera, F. (2013). When performance-approach goals predict academic achievement and when they do not: A social value approach. *British Journal of Social Psychology, 52*, 587 - 596. doi: 10.1111/bjso.12025
- Downey, L. A., Lomas, J., Billings, C., Hansen, K., & Stough, C. (2014). Scholastic success: Fluid intelligence, personality, and emotional intelligence. *Canadian Journal of School Psychology, 29*, 40 - 53. doi: 10.1177/0829573513505411
- Duckworth, A. L., Matthews, M. D., Kelly, D. R., & Peterson, C. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology, 92*, 1108 - 1101. doi: 10.1037/0022-3514.92.6.1087
- Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist, 41*, 1040 - 1048. doi: 10.1037/0003-066X.41.10.1040
- Eidelman, S., & Biernat, M. (2007). Getting more from success: Standard Raising as esteem maintenance. *Journal of Personality and Social Psychology, 92*, 759 - 774. doi: 10.1037/0022-3514.92.5.759

- El-Alayli, A., & Baumgarder, A. (2003). If at first you don't succeed, what makes you try, try again? Effects of implicit theories and ability feedback in a performance-oriented climate. *Self and Identity*, 2, 119 - 135. doi: 10.1080/1598860390129881
- Fernández-González, L., González-Hernández, A., & Trianes-Torres, M. V. (2015). Relationships between academic stress, social support, optimism-pessimism and self-esteem in college students. *Electronic Journal of Research In Educational Psychology*, 13, 111 - 130. doi:10.14204/ejrep.35.14053
- Finn, J. D., & Zimmer, K. (2012). Student engagement; What is it? Why does it matter? In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 97 - 131). New York, NY: Springer.
- Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*, 74, 59 - 109. doi: 10.3102/00346543074001059
- Garcia-Almeida, D., Hernández-López, L., Ballesteros, J. L., & De Saá-Pérez, P. (2012). Motivation and prior knowledge as determinants of knowledge assimilation: Explaining the academic results of tourism students. *Journal Of Hospitality Leisure Sport & Tourism Education*, 11, 151 - 160. doi: doi:10.1016/j.jhlste.2012.04.002
- Garriott, P. O., Hudyma, A., Keene, C., & Santiago, D. (2015). Social cognitive predictors of first- and non-first generation college students' academic and life satisfaction. *Journal of Counseling Psychology*, 62, 253 - 263. doi: 10.1037/cou0000066

- Giampetro-Meyer, A. (2012). What's "your" cheese? *Journal of Legal Studies Education*, 29, 145 - 153. Retrieved from <http://dx.doi.org/10.1111/j.1744-1722.2011.01102.x>
- Gifford, D. D., Briceno-Perriott, J., & Mianzo, F. (2006). Locus of control: Academic achievement and retention in a sample of university first-year students. *Journal of College Admissions*, 191, 18-25. Retrieved from <http://files.eric.ed.gov/fulltext/EJ741521.pdf>
- Goldrick-Rab, S. (2010). Challenges and opportunities for improving community college student success. *Review of Educational Research*, 80, 437 - 469.  
doi:10.3102/0034654310370163
- Gottfredson, L. S. (1997). Why g matters: The complexity of everyday life. *Intelligence*, 24, 79 - 132. Retrieved from <http://www.udel.edu/educ/gottfredson/reprints/1997whymatters.pdf>
- Greene, B. A. (2015). Measuring cognitive engagement with self-report scales: Reflections from over 20 years of research. *Educational Psychologist*, 50, 14 - 30.  
doi:10.1080/00461520.2014.989230
- Greene, B. A., Miller, R. B., Crowson, H. M., Duke, B. L., & Akey, K. L. (2004). Predicting high school student's cognitive engagement and achievement: Contributions of classroom perceptions and motivation. *Contemporary Educational Psychology*, 29, 464 - 482. doi: 10.1016/j.cedpsych.2004.01.006



- Grier-Reed, T., Appleton, J., Rodriguez, M., Ganuza, Z., & Reschly, A. L. (2012). Exploring the student engagement instrument and career perceptions with college students. *Journal of Educational and Developmental Psychology, 2*, 85 - 96. doi: 10.539/jedp.v2n2p85
- Handelsman, M. M., Briggs, W. L., Sullivan, N., & Towler, A. (2005). A measure of college student course engagement. *The Journal of Educational Research, 98*, 184 - 191. doi:10.3200/JOER.98.3.184-19
- Hannon, B. (2014). Predicting college success: The relative contributions of five social/personality factors, five cognitive/learning factors, and SAT scores. *Journal of Education and Training Studies, 2*, 46 - 58. doi: 10.11114/jets.v2i4.451
- Hannon, B. & Daneman, M. (2014). Revisiting the construct of “relational integration” and its role in accounting for general intelligence: The importance of knowledge integration. *Intelligence, 47*, 175 - 187. doi: doi:10.1016/j.intell.2014.09.010
- Harackiewicz, J. M., Durik, A. M., Barron, K. E., Linnenbrink-Garcia, L., & Tauer, J. M. (2008). The role of achievement goals in the development of interest: Reciprocal relations between achievement goals, interest, and performance. *Journal of Educational Psychology, 100*, 105 - 122. doi: 10.1037/0022-063.100.1.105
- Hernandez, P. R., Woodcock, A., Schultz, P. W., Estrada, M., & Chance, R. C. (2013). Sustaining optimal motivation: A longitudinal analysis of interventions to broaden participation of underrepresented students in STEM. *Journal of Educational Psychology, 105*, 89 - 107. doi: 10.1037/a0029691

- Hsieh, P., Sullivan, J. R., & Guerra, N. S. (2007). A closer look at college students: self-efficacy and goal orientation. *Journal of Advanced Academics, 18*, 454 - 476.  
Retrieved from [http://www.prufrock.com/client/client\\_pages/prufrock\\_jm\\_jaa.cfm](http://www.prufrock.com/client/client_pages/prufrock_jm_jaa.cfm)
- Hu, S., & Kuh, G. D. (2002). Being (dis)engaged in educationally purposeful activities: The influences of student and institutional characteristics. *Research in Higher Education, 43*, 555 - 575. doi: 10.1023/A:1020114231387
- Husin, W. W., Santos, A., Ramos, H. M., & Nordin, M. S. (2013). The place of emotional intelligence in the 'intelligence' taxonomy: Crystallized intelligence or fluid intelligence factor? *Procedia - Social and Behavioral Sciences, 97*, 214 - 223. doi:10.1016/j.sbspro.2013.10.225
- Jones, W. A. (2016). Factors correlated with the interactional diversity of community college students. *Journal of Diversity in Higher Education, 9*, 81 - 94. doi: 10.1037/a0039153
- Keels, M. (2013). Getting them enrolled is only half the battle: College success as a function of race or ethnicity, gender, and class. *American Journal of Orthopsychiatry, 83*, 310 - 322. doi: 10.1111/ajop.12033
- Kitsantas, A., Winsler, A., & Huie, F. (2008). Self-regulation and ability predictors of academic success during college: A predictive validity study. *Journal of Advanced Academics, 20*, 42-68. doi: 10.4219/jaa-2008-867

- Kruglanski, A. W., Köpetz, C., Bélanger, J. J., Chun, W. Y., Orehek, E., & Fishbach, A. (2013). Features of multifinality. *Personality and Social Psychology Review, 17*, 22 - 39. doi: 10.1177/1088868312453087
- Ku, K. L. & Ho, I. T. (2010). Metacognitive strategies that enhance critical thinking. *Metacognition and Learning, 5*, 251-267. doi: 10.1007/s11409-010-9060-6
- Lee, J. (2014). The relationship between student engagement and academic performance: Is it a myth or reality?. *The Journal of Educational Research, 107*, 177 - 185. doi: 10.1080/00220671.2013.807491
- Lee, J., & Shute, V. J. (2010). Personal and social-contextual factors in K-12 academic performance: An integrative perspective on student learning. *Educational Psychologist, 45*, 185 - 202. doi: 10.1080/00461520.2010.493471
- Leef, G. C. (2006). The overselling of higher education. *Academic Questions, 19*, 17 - 34. Retrieved from [http://eds.b.ebscohost.com.ezproxy.mtsu.edu/eds/pdfviewer/pdfviewer?sid=462bf723-01f8-4e2f-8991\\_9e18f64c78cf%40sessionmgr113&vid=6&hid=127](http://eds.b.ebscohost.com.ezproxy.mtsu.edu/eds/pdfviewer/pdfviewer?sid=462bf723-01f8-4e2f-8991_9e18f64c78cf%40sessionmgr113&vid=6&hid=127)
- Letkiewicz, J., Lim, H., Heckman, S., Bartholomae, S., Fox, J. J., & Montalto, C. P. (2014). The path to graduation: Factors predicting on-time graduation rates. *Journal of College Student Retention: Research, Theory and Practice, 16*, 351 - 371. doi:10.2190/CS.16.3.c
- Malka, A. & Convington, M. V. (2005). Perceiving school performance as instrumental to future goal attainment: Effects on graded performance. *Contemporary Educational Psychology, 30*, 60 - 80. doi: 10.1016/j.cedpsych.2004.04.001

- Martin, A. J., Marsh, H. W., Williamson, A., & Debus, R. L. (2003). Self-handicapping, defensive pessimism, and goal orientation: A qualitative study of university students. *Journal of Educational Psychology, 95*, 617 - 628. doi:10.1037/0022-0663.95.3.617
- McShane, B. B., & Böckenholt, U. (2016). Planning sample sizes when effect sizes are uncertain: The power-calibrated effect size approach. *Psychological Methods, 21*, 47 - 60. doi: 10.1037/met0000036
- Mega, C., Ronconi, L., & De Beni, R. (2014). What makes a good student? How emotions, self-regulated learning, and motivation contribute to academic achievement. *Journal of Educational Psychology, 106*, 121 - 131. doi: 10.1037/a0033546
- Nicpon, M. F., Huser, L., Blanks, E. H., Befort, C., & Kurpius, S. E. (2006). The relationship of loneliness and social support with college freshmen's academic performance and persistence. *Journal of College of Student Retention, 8*, 345 - 358. doi: 10.2190/A465-356M-7652-783R
- O'Connor, R. C., & Cassidy, C. (2007). Predicting hopelessness: The interaction between optimism/pessimism and specific future expectancies. *Cognition and Emotion, 21*, 596 - 613. doi:10.1080/02699930600813422.
- Pekrun, R., Goetz, T., Hall, N. C., & Perry, R. P. (2014). Boredom and academic achievement: Testing a model of reciprocal causation. *Journal of Educational Psychology, 106*, 696 - 710. doi: 10.1037/a0036006

- Perry, R. P., Hladkyj, S., Pelletier, S. T., & Pekrun, R., H. (2001). Academic control and action control in the achievement of college students: a longitudinal field of study. *Journal of Educational Psychology, 93*, 776 - 789. doi: 10.1037//0022-0663.93.4.776
- Petty, T. (2014). Motivating first-generation students to academic success and college completion. *College Student Journal, 48*, 257 - 264. Retrieved from <http://web.b.ebscohost.com/ehost/detail/detail?vid=40&sid=c2a1fe5b-e4db-4a60-8938-124ade0135d2%40sessionmgr114&hid=124&bdata=JnNpdGU9ZWhvc3QtbGl2ZSZzY29wZT1zaXRl#db=psyh&AN=2014-32973-009>
- Phinney, J. S., Dennis, J., & Osorio, S. (2006). Reasons to attend college among ethnically diverse college students. *Cultural Diversity and Ethnic Minority Psychology, 12*, 347 - 366. doi:10.1037/1099-9809.12.2.347
- Pintrich, P. R., & Schunk, D. H. (2002). *Motivation in education: Theory, research, and applications*. Englewood Cliff, NJ: Prentice-Hall.
- Pintrich, P.R., Smith, D. A., Garcia, T., & McKeachie, W. J. (1991). *A manual for the use of the motivated strategies for learning questionnaire (MSLQ)*. Ann Arbor, Michigan
- Plotnik, R. & Kouyoumjian, H. (2011). *Introduction to psychology*. Belmont, CA: Wadsworth. Retrieved from <http://psychology.about.com/od/motivation/f/difference-between-extrinsic-and-intrinsic-motivation.htm>

- Querol, B. D., Rosales, R., & Soldner, J. L. (2015). A comprehensive review of interteaching and its impact on student learning and satisfaction. *Scholarship of Teaching and Learning in Psychology, 1*, 390 - 411. doi: 10.1037/stl0000048
- Reschly, A. L., Appleton, J. J., & Pohl, A. (2014). Best practices in fostering student engagement. In P. L. Harrison & A. Thomas (Eds.), *Best Practices in School Psychology (Student-Level Services)* (pp. 37 - 50). Bethesda, MD: National Association of School Psychologists.
- Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: A systematic review and meta-analysis. *Psychological Bulletin, 138*, 353 - 387. doi: 10.1037/a0026838
- Robbins, S. B., Lauver, K., Le, H., Davis, D., & Langley, R. (2004). Do psychosocial and study skill factors predict college outcomes? *Psychological Bulletin, 130*, 261 - 288. doi: 10.1037/0033-2909.130.2.261
- Ruban, L., & Reis, S. M. (2006). Patterns of self-regulation: Patterns of self-regulatory strategy use among low-achieving and high-achieving university students. *Roeper Review: A Journal on Gifted Education, 28*, 148 - 156.  
doi:10.1080/02783190609554354
- Ruthig, J. C., Haynes, T. L., Stupnisky, R. H., & Perry, R. P. (2009). Perceived academic control: Mediating the effects of optimism and social support on college students' psychological health. *Social Psychology of Education, 12*, 233 - 249.  
doi:10.1007/s11218-008-9079-6

Saklofske, D., Austin, E. J., Mastoras, S. M., Beaton, L., & Osborne, S. E. (2012).

Relationships of personality, affect, emotional intelligence and coping with student stress and academic success: Different patterns of association for stress and success. *Learning and Individual Differences, 22*, 251 - 257. doi: 10.1016/j.lindif.2011.02.010.

Salanova, M., Schaufeli, W., Martíneza, I., & Bresó, E. (2010). How obstacles and facilitators predict academic performance: The mediating role of study burnout and engagement. *Anxiety, Stress & Coping, 23*, 53 - 70. doi:

10.1080/10615800802609965

Salinas-Jiménez, M., Artés, J., & Salinas-Jiménez, J. (2010). Income, motivation, and satisfaction with life: An empirical analysis. *Journal of Happiness Studies, 11*, 779 - 793. doi: 10.1007/s10902-010-9185-y

Schlenker, B. R., Schlenker, P. A., & Schlenker, K. A. (2013). Antecedents of academic engagement and the implications for college grades. *Learning and Individual Differences, 27*, 75 - 81. doi: 10.1016/j.lindif.2013.06.014

Smothers, J., Bing, M. N., White, D., Trocchia, P. J., & Absher, K. (2011). From the follower's viewpoint: A configurational approach to the ideal academic leader. *Journal of Leadership & Organizational Studies, 18*, 293 - 307. Retrieved from <http://web.b.ebscohost.com/ehost/detail/detail?vid=28&sid=c2a1fe5b-e4db-4a60-8938-124ade0135d2%40sessionmgr114&hid=124&bdata=JnNpdGU9ZWhvc3QtbGl2ZSZzY29wZT1zaXRl#AN=2011-15638-001&db=psyh>

- Stephens, N. M., Fryberg, S. A., Markus, H. R., Johnson, C. S., & Covarrubias, R. (2012). Unseen disadvantage: How American universities' focus on independence undermines the academic performance of first-generation college students. *Journal of Personality and Social Psychology, 102*, 1178-1197. doi:10.1037/a0027143
- Stockard, J., & Engelmann, K. (2010). The development of early academic success: The impact of direct instruction's reading mastery. *Journal of Behavior Assessment and Intervention in Children, 1*, 2 - 24. doi: 10.1037/h0100357
- Stroet, K., Opdenakker, M., & Minnaert, A. (2015). What motivates early adolescents for school? A longitudinal analysis of associations between observed teaching and motivation. *Contemporary Educational Psychology, 42*, 129 - 140. doi:10.1016/j.cedpsych.2015.06.002
- Sultan, S. & Hussain, I. (2012). A study on achievement goals determining learning strategies of undergraduate college students. *Journal of Educational Research, 15*, 39 - 46. Retrieved from: <http://web.b.ebscohost.com.ezproxy.mtsu.edu/ehost/pdfviewer/pdfviewer?sid=d0866c1b-bc98-4deb-9a83-1d53f76464a2%40sessionmgr120&vid=5&hid=107>
- Symonds, W. C., Schwartz, R. B., & Ferguson, R. (2011). *Pathways to prosperity: Meeting the challenge of preparing young Americans for the 21<sup>st</sup> century*. Cambridge, MA: Harvard Graduate School of Education.



- Tabachnick, S. E., Relyea, G. E., & Miller, R. B. (2008). The relationships among students' future-oriented goals and subgoals, perceived task instrumentality, and task-oriented self-regulation strategies in an academic environment. *Journal of Educational Psychology, 100*, 629 - 642. doi: 10.1037/0022-0663.100.3.629
- Trapmann, S., Hell, B., Hirn, J. W., & Schuler, H. (2007). Meta-analysis of the relationship between the big five and academic success at university. *Journal of Psychology, 215*, 132 - 151. doi: 10.1027/0044-3409.215.2.132
- Twenge, J. M., Zhang, L., & Im, C. (2004). It's beyond my control: A cross-temporal meta-analysis of increasing externality in locus of control, 1960-2002. *Personality and Social Psychology Review, 8*, 308 - 319. doi: 10.1207/s15327957pspr0803\_5
- Upadyaya, K. & Salmela-Aro, K. (2013). Development of school engagement in association with academic success and well-being in varying social contexts. *European Psychologist, 18*, 136 - 147. doi: 10.1027/1016-9040/a000143
- Van Etten, S., Pressley, M., McInerney, D. M., & Liem, A. D. (2008). College seniors' theory of their academic motivation. *Journal of Educational Psychology, 100*, 812 - 828. doi: 10.1037/0022-0663.100.4.812
- Vansteenkiste, M., Simons, J., Lens, W., Deci, E. L., & Sheldon, K. M. (2004). Motivating learning, performance, and persistence: the synergistic effects of intrinsic goal contents and autonomy-supportive contexts. *Journal of Personality and Social Psychology, 87*, 246 - 260. doi: 10.1037/0022-3514.87.2.246

- Vasquez, N. A. & Buehler, R. (2007). Seeing future success: Does imagery perspective influence achievement motivation. *Personality and Social Psychology Bulletin*, *33*, 1392 - 1402. doi: 10.1177/0146167207304541
- Wang, C. D., & Castañeda-Sound, C. (2008). The role of generational status, self-esteem, academic self-efficacy, and perceived social support in college students' psychological well-being. *Journal of College Counseling*, *11*, 101 - 108. doi: 10.1002/j.2161-1882.2008.tb00028.x
- Westrick, P. A., Le, Huy, Robbins, S. B., Radunzel, J. M., & Schmidt, F. L. (2015). College performance and retention: A meta-analysis of the predictive validities of ACT scores, high school grades, and SES. *Educational Assessment*, *20*, 23 - 45. doi: 10.1080/10627197.2015.997614
- Yazedjian, A., Toews, M. L., Sevin, T., & Purswell, K. E. (2008). 'It's a whole new world': A qualitative exploration of college students' definitions of and strategies for college success. *Journal of College Student Development*, *49*, 141 - 154. doi:10.1353/csd.2008.0009
- Yoshitake, N., Matsumoto, S., Murohashi, H., Furusho, J., & Sugawara, M. (2012). The effects of positive internal characteristics and social relations on life satisfaction in middle and high school students. *Japanese Journal of Developmental Psychology*, *23*, 180 - 190.
- Zarrett, N., & Eccles, J. (2006). The passage to adulthood: Challenges of late adolescence. *New Directions for Youth Development*, *111*, 13 - 28. doi: 10.1002/yd.179

- Zhang, B., Zhao, J., & Yu, G. (2009). The influence of concealing academic achievement on the self-esteem of adolescents with low achievement. *Social Behavior and Personality, 37*, 805 - 810. doi: 10.2224/sbp.2009.37.6.805
- Zumbrunn, S., McKim, C., Buhs, E., & Hawley, L. R. (2014). Support, belonging, motivation, and engagement in the college classroom: A mixed method study. *Instructional Science, 42*, 661 - 684. doi:10.1007/s11251-014-9310-0

**APPENDICES**

**APPENDIX A****IRB APPROVAL****INSTITUTIONAL REVIEW BOARD**

Office of Research Compliance,  
010A Sam Ingram Building,  
2269 Middle Tennessee Blvd  
Murfreesboro, TN 37129

IRBN001 Version 1.3 Revision Date 03.06.2016

**IRBN001 - EXPEDITED PROTOCOL APPROVAL NOTICE**

Friday, July 01, 2016

Investigator(s): Aimee R. Holt (PI) and Jennie McFarren

Investigator(s) Email(s): [aimee.holt@mtsu.edu](mailto:aimee.holt@mtsu.edu); [jgm3v@mtmail.mtsu.edu](mailto:jgm3v@mtmail.mtsu.edu)

Department: Psychology

Study Title: *Factors effecting academic achievement among college students*

Protocol ID: **15-2302**

Dear Investigator(s),

The above identified research proposal has been reviewed by the MTSU Institutional Review Board (IRB) through the **EXPEDITED** mechanism under 45 CFR 46.110 and 21 CFR 56.110 within the category (7) *Research on individual or group characteristics or behavior*. A summary of the IRB action and other particulars in regard to this protocol application is tabulated as shown below:

IRB Action APPROVED for one year from the date of this notification

Date of expiration **7/1/2016**

Sample Size 100 (ONE HUNDRED)

Participant Pool **Adult MTSU students**

Exceptions NONE

Restrictions **Signed informed consent**

This protocol can be continued for up to THREE years (**7/1/2019**) by obtaining a continuation approval prior to **7/1/2017**. Refer to the following schedule to plan your annual project reports and be aware that you may not receive a separate reminder to complete your continuing reviews. Failure in obtaining an approval for continuation will automatically result in cancellation of this protocol. Moreover, the completion of this study MUST be notified to the Office of Compliance by filing a final report in order to close-out the protocol.