Georgia Southern University
Digital Commons@Georgia Southern

Electronic Theses and Dissertations | Graduate Studies, Jack N. Averitt College of

Fall 2017

Academic Engagement, Motivation, Self-Regulation, and Achievement of Georgia Southern University Sophomore Students

John O. LeMay IV

Follow this and additional works at: https://digitalcommons.georgiasouthern.edu/etd

Part of the Educational Assessment, Evaluation, and Research Commons, Educational Leadership Commons, Educational Psychology Commons, Higher Education Commons, and the Higher Education Administration Commons

Recommended Citation
LeMay, John O. IV, "Academic Engagement, Motivation, Self-Regulation, and Achievement of Georgia Southern University Sophomore Students" (2017). *Electronic Theses and Dissertations*. 1666.
https://digitalcommons.georgiasouthern.edu/etd/1666

This dissertation (open access) is brought to you for free and open access by the Graduate Studies, Jack N. Averitt College of at Digital Commons@Georgia Southern. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of Digital Commons@Georgia Southern. For more information, please contact digitalcommons@georgiasouthern.edu.

ACADEMIC ENGAGEMENT, MOTIVATION, SELF-REGULATION, AND ACHIEVEMENT OF GEORGIA SOUTHERN UNIVERSITY SOPHOMORE STUDENTS

by

JOHN O. LEMAY IV

(Under the Direction of Daniel Calhoun)

ABSTRACT

Research has shown that engagement, motivation, self-regulation, and their individual effects on student achievement are established factors that influence college students' success. However, what is less clear are these variables' relationships and their collective influence on achievement. Since students face unique trials as they persist through college, consideration of these relationships and their effect on the achievement of all students is necessary. There is a widening achievement gap between sexes; females have now passed males in enrollment, persistence, and graduation rates. Previous research in this area has been largely centered on undergraduate female students in their freshman year, but the second year of college can be particularly challenging and is a critical year for student retention (Tobolowsky, 2008; Voyer & Voyer, 2014). Therefore, the current study focuses on engagement, motivation, self-regulation, and their capacity to predict female and male sophomores' achievement.

A self-report instrument was created using select items from the Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich, Smith, Garcia, & McKeachie, 1993) and the Student Course Engagement Questionnaire (SCEQ) (Handelsman, Briggs, Sullivan, & Towler, 2005). Responses from females and males were analyzed separately to determine the variables' relationships and the predictive capacity of the variables and their interactions on GPA. For males, findings reveal correlations between engagement and three of the four components of

motivation, between self-regulation and three of the four components of motivation, and among engagement and self-regulation. For females, analyses demonstrate correlations among engagement and all components of motivation, between self-regulation and three of the components of motivation, and among engagement and self-regulation. Regression analyses establish self-efficacy as predictive of GPA for both sexes and perceived autonomy support is predictive of females' GPA. Results also indicated that no interactions between these variables significantly predict GPA. Both the application of these findings for educational leaders and recommendations for future research are discussed.

INDEX WORDS: Engagement, Achievement, Motivation, Self-regulation, Sophomore students, Sophomore slump, Achievement gap

ACADEMIC ENGAGEMENT, MOTIVATION, SELF-REGULATION, AND ACHIEVEMENT OF GEORGIA SOUTHERN UNIVERSITY SOPHOMORE STUDENTS

by

JOHN O. LEMAY IV

B.S., University of North Alabama, 2010

M.S., Georgia Southern University, 2013

A Dissertation Submitted to the Graduate Faculty of Georgia Southern University in Partial Fulfillment for the Requirements for the Degree

DOCTOR OF EDUCATION

STATESBORO, GEORGIA

© 2017

JOHN O. LEMAY IV

All Rights Reserved

ACADEMIC ENGAGEMENT, MOTIVATION, SELF-REGULATION, AND ACHIEVEMENT OF GEORGIA SOUTHERN UNIVERSITY SOPHOMORE STUDENTS

by

JOHN O. LEMAY IV

Major Professor:	Daniel W. Calhoun
Committee:	Bryan W. Griffin
	Teri Denlea Melton

Electronic Version Approved:

December 2017

ACKNOWLEDGMENTS

This milestone would have not been possible without the help of several individuals. I have the utmost gratitude toward my committee members Dr. Daniel Calhoun, Dr. Teri Melton, and Dr. Bryan Griffin. They consistently provided me with instrumental feedback, constructive criticism, and the invaluable leadership necessary to successfully navigate this process.

TABLE OF CONTENTS

Page

ACKNOWLEDGMENTS ……...…… 2

CHAPTER 1: INTRODUCTION …….……..…… 5

Statement of the Problem …….…..……..…..… 10

Purpose Statement 11

Research Questions 12

Significance of the Study 12

Procedures 15

Definitions of Key Terms 16

Chapter Summary and Organization of the Paper 18

CHAPTER 2: REVIEW OF RELATED LITERATURE AND RESEARCH 20

Organization of the Literature 20

Theoretical Framework 21

Engagement 22

Motivation 27

Self-Regulation 38

Engagement, Motivation, Self-Regulation, and the Achievement Gap 50

Sophomore Slump 54

Chapter Summary 65

CHAPTER 3: METHODOLOGY 66

Research Questions 67

Research Design 67

Chapter Summary 77

CHAPTER 4: REPORT OF DATA 79

Respondents 80

Findings 81

Report of the Data Analyses 91

Chapter Summary 98

CHAPTER 5: SUMMARY, CONCLUSIONS, DISCUSSION, & RECOMMENDATIONS ... 100

Summary of the Study 100

Limitations, Delimitations, and Assumptions 103

Major Findings 104

Implications and Recommendations 108

Concluding Statement 123

REFERENCES 124

Appendix A 138

Appendix B 140

Appendix C 142

Appendix D 143

Appendix E 144

Appendix F 147

CHAPTER 1

INTRODUCTION

Academic success is the product of numerous variables that collectively aid university students in their experiences and increase their chances of attaining a postsecondary degree. To further clarify the nature of this success, there are areas in the literature dedicated to exploring student engagement, motivation, and self-regulation. In addition, focused on both theoretical and applied approaches, educational research has investigated the associations between achievement and these variables. Yet, no studies have considered these particular variables simultaneously or explored what the relationships could mean for the achievement of certain university students. That is, there are no findings that look at or compare precise populations of postsecondary students, namely by class year or student sex. The positive relationships between engagement, motivation, and self-regulation on various outcomes (e.g., GPA, course grades, retention, progression, and graduation) have been established by multiple, independent studies. As a result, these associations and what they mean for the future of institutions and their students, especially particular subsets of their student populations, deserves attention.

Student engagement has long been a focus for educational leaders. To this end, there has been a history of studies that link engagement and achievement. This growing emphasis could have been partly due to desire from students, parents, and employers for increased accountability from institutions regarding what they can provide. In turn, this pressure could be explained by the rising costs associated with obtaining a postsecondary degree. So, leaders in higher education are being progressively tasked with demonstrating the precise variables that influence their students' achievement, how their institutions are addressing these potential influences, and

the reality of these outcomes for their campuses. One of the more common research findings is that engagement reliably predicts retention and graduation rates (Price & Tovar, 2014).

The relationship between engagement and achievement could be mediated by motivation and self-regulation. For example, if students are more engaged in their college experience, both in and out of the classroom, it stands to reason that they will be more likely to achieve better learning outcomes. In turn, the students who are more engaged may be more motivated to work toward their degree. Finally, connecting engagement and motivation to self-regulation, higher engagement and motivation could stimulate behaviors that align with conduct that is more likely to contribute toward students meeting their academic goals. In other words, this improved engagement could have an influence that increases motivation, self-regulation, and achievement.

The challenge exists in determining why and how students are engaged in their campus experiences from the moment they arrive. One reason this initial engagement might occur could be the personal importance and value that students place on obtaining a postsecondary education. The meaning of a college degree will differ for each student and is the product of numerous contextual variables, from both psychological and sociological perspectives. As a result, engagement, motivation, self-regulation, and achievement are expectantly linked, albeit in ways that are not easily determined from a causal framework.

Academic engagement and motivation have been shown to be a characteristic part of one another such that one is not possible without the other (Berkley, 2009). It appears that each component, particularly as they relate to achievement, feed into one another to increase the likelihood of student success. The same circular relationship seems to hold true for self-regulation, achievement, and retention.

Higher self-regulation is correlated with higher Grade Point Average (GPA; Tangney, Baumeister, & Boone, 2004). Research has also demonstrated a significant positive relationship between academic achievement and retention (Conger & Long, 2010). In seminal research across two studies, Tangney et al. (2004) found that self-regulation and academic achievement were positively related in university students. As a result, it is important for additional research to focus on this positive relationship and what institutions of higher education can do with these findings to actively engage in the improvement of student learning.

A major gap in this research exists as few studies have considered this association at the postsecondary level. This gap involves not only on the limited number of studies; but, from the research that does exist, the findings are based on predominately female samples. In Tangney et al. (2004), 72% of the participants were female (81% in study two), leaving the overall analysis with an overly uniform representation of the undergraduate population. This homogeneity restricts the generalization of the findings to a male population and demonstrates another research limitation. In addition, the need to overcome this drawback is made salient by growing gender disparities in achievement at the postsecondary level (Organization for Economic Cooperation and Development [OECD], 2008; Jacob, 2002).

Next, research findings are not consistently defined concerning the exact details of the samples upon which results are based. For example, it is not known if students' current year (i.e., freshman, sophomore, junior, or senior) at the time of the study could influence the conclusions. This variable should be controlled and reported on in future studies.

Regarding a final gap, the connection between university students' self-regulation and achievement and specifics of how the two could be related do not exist and, therefore, merit consideration. A possible explanation is found in motivation. Schmeichel, Harmon-Jones, and

Harmon-Jones (2010) found that self-regulation was positively related to undergraduate students' motivation. They stated that these results suggest that self-regulation renders individuals more responsive to motivational incentives. For college students, these incentives could be framed as: deeper learning or greater understanding of course material, better grades, and, a potentially higher GPA.

These conclusions hold significant meaning for students and leaders in higher education. This is because motivation is decisive and academically motivated students are generally more likely to be optimistic and engaged in their educational expectancies and, ultimately, succeed in their scholastic goals (Nes, Evans, & Segerstrom, 2009). However, details concerning how motivation helps students realize their achievements and, by extension, their likelihood of graduating, require clarity. Campus leaders could implement this information in meaningful ways. Therefore, further research is needed.

More research may reveal relationships that are positively associated with achievement, retention and graduation, and what these interactions mean for higher education's stakeholders. A review of the literature reveals connections between engagement and motivation, motivation and self-regulation, self-regulation and academic achievement, and academic achievement and retention. So, the primary research question of this study seeks to determine if these relationships could clarify what supports the achievement of sophomore students attending Georgia Southern University.

The relationships between engagement, motivation, and self-regulation may help to further describe influences on achievement. This is an especially important topic to investigate since males are declining in their initial enrollment, academic performance, and graduation rates. Some higher education scholars assert that the growing gender achievement gap is due not to any

significant differences in intellectual ability. Instead, variances in factors other than intellect may influence achievement (e.g., academic engagement, motivation, and self-regulation) could be one factor driving this growing trend (Dweck, Walton, & Cohen, 2014; Jacob, 2002). These abilities include such things as an inability to pay attention in class, a disorganization of class materials, and disciplinary problems (Jacob, 2002). These aspects are related to students' willingness or proclivity (i.e., motivation) to participate in academically supportive behaviors (i.e., engagement and self-regulation) necessary to attain their educational goals.

Looking closer at how these factors are related to one another and to achievement will bridge a gap in the literature. Acquiring this knowledge could further clarify the nature of the relationship between self-regulation and achievement. This investigation will also examine engagement and motivation to see if these three variables are significantly related to one another and to sophomore student achievement, while at the same time controlling for student sex. The results could provide more information to institutional leaders trying to make a positive change for their students.

In conclusion, independent studies have established relationships between college students' engagement and motivation, motivation and self-regulation, self-regulation and academic achievement, and even academic achievement and retention and graduation. Researchers have also found a growing disconnect in achievement between male and female college students. Finally, the needs and requirements of students' change as they progress through their college experience. Nevertheless, research pertaining to influences on achievement have either mainly focused on first-year students or an indistinguishable combination of students from various years. For these reasons, it is important to control for students' class year and sex to focus on sophomore students, a population of students with unique challenges that can impede

their achievement. This study will attempt to investigate these variables while still focusing on the population parameters not addressed in the present literature. This will allow for a unique study that contributes to what is known about the factors that influence student success.

Statement of the Problem

For several decades, scholars have recognized that student engagement is correlated with achievement, that engagement is related to motivation, and that motivation is related to self-regulation. Research has also shown that self-regulation is correlated with student performance at all levels of education. Additionally, a positive relationship exists between achievement and retention. Nevertheless, there is much less research that focuses on these relationships simultaneously while examining college students. The studies that do exist are fairly homogeneous, with an over-representation of first-year, female students. This is concerning since males have been enrolling, persisting, and completing at lower rates than females.

It is critical for additional research to focus on the precise complexities of the relationships between engagement, motivation, self-regulation, and achievement, and what these mean for sophomore students, administrators, and institutions in general. Engagement and motivation could also help promote a broader understanding of the link between self-regulation and achievement. Further, motivation might be an influence on the achievement gap between sexes and the distinctive increase in disengagement during students' second year. As such, it is important to gather data from a sample of sophomore students with equal representation of females and males. By doing this, the internal and external validity of present knowledge regarding these variables could be reinforced. The findings could also help explain why males, when compared to females, are enrolling, persisting, and graduating at declining rates. Finally, examining sophomore students could potentially help clarify the unique challenges students face

in their second year. For example, one obstacle faced by sophomores is the shift from an exploratory mindset held in their first year to a more tentative, committal, and decision-making focus. This change could challenge students' beliefs about their identity and purpose as a college student.

When these challenges are combined, which include the pressures involved in committing to a specific major, engaging in career-planning, and further developing a cohesive identify and purpose, might be associated with a change in sophomore students' engagement, motivation, self-regulation, and achievement. Results from a sophomore-specific study could help explain and clarify these influences by providing information on how to successfully navigate the major challenges of the second year of college. To further clarify the relationships between these variables explicitly for second-year students, the current study was designed to focus on a sex-balanced sample of sophomore students.

Purpose Statement

The purpose of this study was to examine the relationship between engagement, motivation, self-regulation, and achievement in a sample of first-time, full-time, Georgia Southern University sophomore students. To attain this, the study sought to both verify seminal research and expand on the findings. First, the researcher explored the associations among engagement, motivation, self-regulation, and achievement of sophomore students. This could afford a more meaningful discussion focused on students who are presently underrepresented in research. This emphasis allowed the researcher to hold class year constant, a feature not covered by previous work. This also allowed for the study to possible reveal challenges that are unique to students in their second year of college. Secondly, in light of increasing sex differences in

college achievement, this study included a more balanced sample. This could potentially help formulate an explanation regarding the increasing achievement gap.

Research Questions

The primary research question for this study was, how are academic engagement, motivation, and self-regulation related to achievement in sophomore students? The following supporting questions directed this research:

1) What is the nature of the relationships among engagement, motivation, self-regulation?
2) To what extent do engagement, motivation, and self-regulation predict achievement?
3) To what extent do engagement, motivation, and self-regulation interact when predicting achievement?
4) To what extent does the predictive nature of engagement, motivation, and self-regulation differ between females and males?

Significance of the Study

Past findings allowed the current study to combine and extend the relationships that have been verified independently between engagement and motivation, motivation and self-regulation, self-regulation and academic achievement, and the bearing of achievement on retention and graduation. These conclusions allowed this study to explore factors and processes that may potentially drive the relationships between these variables and retention, progression, and graduation. These variables are an important aspect to this area of research because, despite the breadth and depth of research on student retention, there is a gap in this area regarding how leadership can take the theory and findings and translate them into meaningful practice. The

results of both past research and the present study are important for both students and leaders in higher education for a number of reasons.

First, it is important for college personnel to be able to identify students who are more at-risk for academic difficulties and, as a result, are more likely to drop out. This information could help with the creation of proactive programs aimed at minimizing barriers to achievement. By extension, this could improve student learning and, in turn, institutional retention, progression, and graduation rates. These outcomes could improve the experience of both the student and the institution. Growth in student retention and persistence have been associated with institutions' counseling services because students who use these amenities identify increased satisfaction with their quality of life—a more predictive measure of student retention than GPA alone. If an institution is able to offer not only specific counseling services or programs (e.g., academic, mental, behavioral), but also successfully engage students in their use, this will likely be a positive cycle. That is, it could promote engagement, motivation, and self-regulation among the student population, the campus culture, and the learning environments.

Secondly, campus leaders could potentially use the information provided by this study and other research to design and implement behavioral modification programs that seek to increase academically-related behaviors in those with lower self-regulation, whether through practice, or by finding ways to increase their academic motivation. As shown by the program implemented at the University of Richmond, offering students not only increased opportunities for engagement, but explicit clarification and support (through engagement with faculty outside of class) would be one way to placate the mounting stress with which second-year students quickly become familiar. This stress could be partly due to important, life-long educational and career choices that they find themselves rapidly facing as they begin and complete their second

year. Discovering the precise nature of these stressors can help institutional decision makers apply the most appropriate intervention. This information is best uncovered through the implementation of carefully designed and executed action-based research such as the current study.

Next, if engagement, motivation, self-regulation, or their interactions were related to achievement more strongly in one sex than another, it could assist institutional administrators who are seeking a better balance of female and male students. For example, research has demonstrated that students with higher self-regulation report higher achievement. So, if the current study found similar results between the sexes or if females have stronger relationships between some of these variables than the male students, this could encourage further discussion and research. It is both anecdotally and empirically evident that successfully completing college provides individuals with lifelong benefits. Applied research on this topic is significant not only for educational leaders, but for other stakeholders as well.

Further justifying the need and importance of this research, the University System of Georgia has shifted its focus to base state funding and appropriations on graduation rates rather than enrollment rates. So, evidence that engagement, motivation, and self-regulation are associated with achievement (and, by extension, retention and graduation) should be taken into account during admissions decisions. It is equally important to consider how these relationships might vary between different students and evolve within the same students as they progress. This is vital because these findings could influence funding from an external perspective at the state level. In addition, the relationships between these variables and their influence on achievement should also inform how institutions manage their funds, engage in short and long-term planning, and address and develop their institutional measures of performance.

Finally, the potential results from this research are also important for informing college and university best practices as they relate to the second-year experience, which is a growing concern for institutions across the globe. This increased attention toward sophomores is only made stronger by the change to the state funding models. With funding in Georgia now relying on graduating students, institutional efforts to increase retention and progression, a problem that is particularly salient from the second to the third year, are receiving more consideration. This emphasis on the improvement of graduation rates, be it due to changes in state-wide funding or simply an institutional failure to meet benchmarked goals based on data from previous academic years, only strengthens the significance of this study.

In summary, this research sought to fulfill several goals that were aimed at addressing both gaps in the literature and practical issues being faced by educational leaders. First, this study was planned to demonstrate that engagement, motivation, and self-regulation are positively correlated to each other and are able to predict achievement, both separately and as a part of any interactions between these variables. Secondly, the study attempted to determine not only if these relationships existed and if any predicted achievement, but if there were any differences between female and male students. Finally, based on recognized needs in the literature and in practice, the study endeavored to answer these questions specifically for sophomore students. If these variables predicted achievement, and did so differently for each sex, this could have contributed to an overall explanation regarding the increasing achievement gap between sexes.

Procedures

Georgia Southern University faculty members teaching sophomore-level courses during the spring, summer, and fall 2017 semesters were contacted and asked if a brief survey could be distributed and completed by their students during class. As such, participants were recruited

from sophomore classes across the University. To accomplish this, a short instrument was created specifically for this study by adapting items gathered from various surveys with established reliability and validity. This required an analysis of measures to determine the strongest items as they related to engagement, motivation, and self-regulation. After this, the instrument was used to collect information from first-time, full-time, sophomore undergraduate students. The questionnaire also contained questions pertaining to demographic information so participants could provide their current undergraduate year, sex, and overall GPA.

During the scheduled class period, the researcher distributed a packet to students that included the informed consent cover page and the questionnaire. The informed consent provided information about the study, outlined its voluntary and anonymous nature, and confirmed that minimal harm would result from participation. See Appendices A and B. Students were then given approximately 10 minutes to complete the questionnaire. More information regarding the procedures used in this study are provided in Chapter 3.

Definitions of Key Terms

For the purposes of this study, the following key terms were defined:

Student Engagement

Student engagement is the amount of physical and psychological energy that the student devotes to their academic experience (Astin, 1984).

Self-Control

Self-control is the ability to regulate one's self to achieve one's goals (via cognition, behavior, or affect) (Baumeister et al., 2007).

Self-Regulated Learning

An active, constructive process, self-regulated learning occurs when learners set goals for their actions related to their learning plan and monitor, regulate, and control their cognition, motivation and behavior to achieve these goals (Pintrich, 1999).

Self-Regulation

Self-regulation is defined as the way individuals internalize social values and extrinsic contingencies and progressively transform them into personal values and self-motivations (Ryan & Deci, 2000).

Motivation

Defined as a sustained and vested interest to appetitive stimuli, motivation increases the chances of engaging in a subsequent behavior (Schmeichel et al., 2010).

Intrinsic Goal Orientation (IGO)

Intrinsic goal orientation explains the student's perception of the reasons why he or she is engaging in a learning task, with the focus placed on the degree to which the student perceives his or herself to be participating in a task as a challenge, out of curiosity, and to work toward mastery (Pintrich et al., 1991).

Task Value (TV)

Task value involves student's perceptions and evaluation of the how interesting, important, and useful the task is to him or her (Pintrich et al., 1991).

Self-Efficacy (SE)

Self-efficacy is the self-appraisal of one's ability to accomplish and/or master a task, and the confidence one has in his or her skills to do so (Pintrich et al., 1991).

Perceived Autonomy Support (PAS)

The extent to which students believe they have input and feel a sense of sharing in the decision-making process for their course(s) (Garcia & Pintrich, 1996).

Academic Achievement

For studies at the postsecondary level, academic achievement is typically defined as college students' current grade point average (Tangney et al., 2004).

Retention

Retention is an institution's ability to retain students from admission until graduation (Berger & Lyon, 2004).

Sophomore

Sophomore students are defined as first-time, full-time undergraduates who are currently enrolled in their second year of college (Heier, 2012).

Sophomore Slump

The sophomore slump is defined as a loss of students' engagement as they return and begin their second year (McBurnie, Campbell, & West, 2012).

Vitality

Vitality is energy available to the self (Ryan & Deci, 2008).

Chapter Summary and Organization of the Paper

Despite all that is known about engagement, motivation, self-regulation, and academic achievement as separate variables, there are boundaries to the current information available. There is a lack of data in these areas and most of the standing knowledge is based upon female students, which disregards the sex component. With largely homogenous samples it is challenging to know if these relationships generalize across female and male student populations. It was equally important to control for class year for the same reason. This evidence is important

for the planning and success of individuals, institutions, and higher education in general.

The relationships between engagement, motivation, self-regulation, and achievement have been independently documented. An association between self-regulation and academic achievement, stronger than what intelligence can account for, has also been shown. Research has even demonstrated this relationship at all levels of education. Leaders cannot only reflect on research findings and the specific variables that influence student success; they have a responsibility to turn this knowledge into action to improve students' experience through the betterment of enrollment, retention, and graduation rates, as well as student success in all areas of their university life and beyond.

The purpose of this study was to explore the influence between female and male sophomore students' engagement, motivation, self-regulation, and achievement. Specifically, this research centered on the potential links between these variables. This allowed for a consideration of how these results can help sophomore students and educational leaders achieve their goals. Chapter two includes a literature review that presents research on engagement, motivation, self-regulation, and how these factors are connected. Chapter two also clarifies why self-regulation, rather than self-control, was used in this study. Finally, chapter two contains a description of the appropriate literature on sophomore disengagement and how the variables in this study might be associated with this phenomenon. Chapter three describes the methodology selected and begins with the questions and design before describing the sample. The chapter concludes with information on the instrument, the data collection methods, and the analyses. Next, chapter four provides details regarding the data, data analyses, and the results. Chapter five discusses the findings, what the conclusions mean for higher education leaders in decision-making roles, and provides recommendations for future research.

CHAPTER TWO

REVIEW OF RELATED LITERATURE AND RESEARCH

Past research has demonstrated relationships between student engagement, motivation, self-regulation, academic achievement, and retention and graduation. Studies have also revealed a growing achievement gap between male and female college students. In addition to this challenge, leaders in higher education must remain aware of the needs and requirements of their students' as they develop in response to varying responsibilities throughout their postsecondary education. However, student achievement research has primarily focused on first-year students, and most of these samples have included female students.

Organization of the Literature

To address these issues in higher education, and attempt to fill the present research gaps, the current study will consider engagement, motivation, self-regulation, and achievement together to further investigate the nature of their relationships. Additionally, this study will focus specifically on a gender-balanced sample of sophomore students. This emphasis will allow the research to control for students' year of study and determine if there are differences in these relationships between student sexes. This strategy will provide an opportunity for discussion regarding these student success factors in relation to a specific subset of students, something that is not currently offered in the literature. This information could potentially help guide leaders as they make decisions specifically pertaining to students who are traditionally underrepresented in research. As a result, this goal is essential because the underrepresentation of both sophomore and male students in the literature has translated into less evidence being available regarding how specific factors may influence their unique experiences and subsequent success.

Chapter two will include a thorough literature review and this analysis will begin with a broad overview of the research on student engagement and motivation. The chapter will then present the current findings on self-regulation and achievement before considering how all of these variables have been shown to be inter-related. Finally, the chapter will conclude with an overview of present information regarding the distinctive experiences that make up college students' sophomore year.

Theoretical Framework

This study will complement existing research by simultaneously examining the individual relationships between engagement, motivation, self-regulation, sex, and achievement. The potential interactions of these variables, and their relationship(s) to student achievement, will also be considered. The following figure demonstrates the theoretical foundation for the present study and how the existing literature provides the background from which to extend.

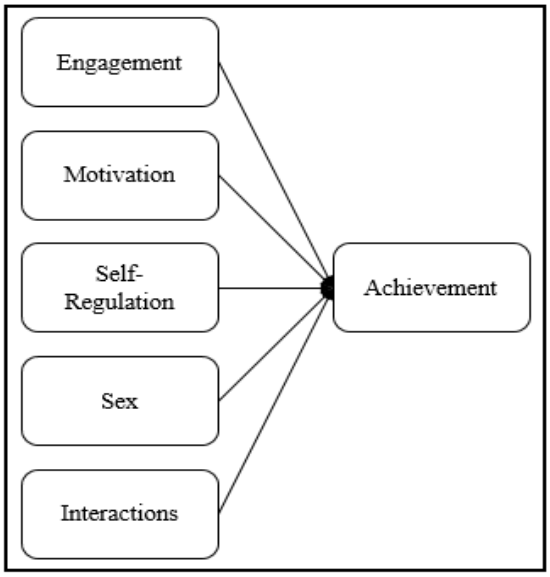


Figure 1. Theoretical Framework

The study will examine the specific associations that could clarify the relationships between students' academic engagement, motivation, and self-regulation, and their influences on

academic achievement (and eventual goal attainment defined as retention, persistence, and graduation for those students who set this as a goal). In a seminal study, Tinto (1993) explored student success to conceptualize a longitudinal structure for why students decide to not persist in their education. This model contains both psychological and sociological perspectives, which include students' attributes, goals and commitments, institutional experiences, personal and normative integration, and educational outcome. See Appendix C.

This inclusive longitudinal model sought to account for and explain every major step in students' decision making and what this means for their journey through higher education (Tinto, 1993). The current study concentrated specifically on one piece of this model, goals and commitments. This narrowed focus provided an opportunity to combine and synthesize the framework in Tinto (1993) with more recent research on students' engagement, motivation, self-regulation, and achievement.

Engagement

Student engagement is defined, at least implicitly, by how it is measured. Currently, one of the most popular measures is the National Survey of Student Engagement (NSSE). The Center for Postsecondary Research, where NSSE was established and is distributed, defines engagement as consisting of two primary concepts. The first relates to the time and effort that students invest in educational activities, both inside and outside the classroom (Center for Postsecondary Research, 2016). The second, according to the Center for Postsecondary Research (2016), concentrates on the perspective of the university. This standpoint includes the institutional responsibility of fostering an environment in which students can most readily engage their time and efforts.

It is important to explore all perspectives and avenues relating to how engagement can influence the college experience. It is because of this need and researchers' specific agendas and contexts that this variable is defined and measured in numerous ways. Despite the various ways engagement is defined and measured, it is essential to establish and communicate a shared perspective of this variable. Researchers and practitioners can then take this common definition and translate it into effective practice and student success for their specific institution. One of the first attempts at creating a more cohesive meaning of this concept began roughly three decades ago. Astin (1984) based his foundational theory of student development on involvement and defined it as the amount of physical and psychological energy spent by a student while pursuing their academic experiences.

Student engagement has also been defined through the use of a classroom-based viewpoint. In this model, college and university teachers view engagement as a function of student motivation and active learning (Barkley, 2009). These characteristics are cyclical; that is, one is required for the other to exist. A classroom of students who are motivated to learn is encouraging for teachers, but the enthusiasm is worthless if it is not translated into learning. On the contrary, if students are actively learning, but are unenthusiastic or resentful, there is a loss of engagement (Barkley, 2009). So, engagement is formed from the interaction between motivation and active learning. As indicated in Figure 2 below, both parts must be present for students to be fully engaged in their learning experiences.

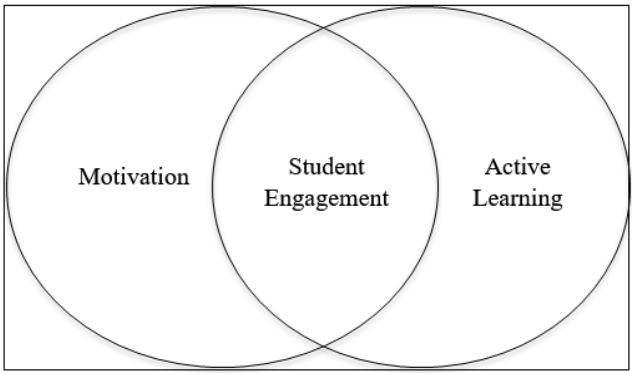


Figure 2. Barkley's (2009) Venn Diagram Model of Student Engagement

Since both must be present for classroom engagement to occur, each one is strengthened by the other. As a result, engagement could possibly be explained or predicted by the level of student motivation as it relates to academic plans and goals. Further demonstrating the relationship between engagement and motivation, there is research that holds that engagement is a component of motivation; specifically, this research posits that engagement is the external manifestation of motivation or the action and energy component of motivation (Wang & Degol, 2014). Additionally, Reeve and Lee (2014) support the position of Barkley (2009) regarding the mutual relationship between engagement and motivation. Specifically, Reeve and Lee (2014) report that not only does motivation predict engagement, but changes in student engagement contribute to changes in motivation, so the relationship between engagement and motivation is reciprocal. In summary, the literature on engagement and motivation show that these two variables are closely related.

Engagement is a multifaceted concept and the diversity in the ways it is measured is a reflection of the various components of this variable. Historically, models of student engagement have included three dimensions, behavioral (i.e., time on task), cognitive (i.e., self-regulation and learning strategies), and emotional (i.e., interest and value) (Fredricks & McColskey, 2012). Moreover, engagement is not a static concept. Academic engagement is not

necessarily a constructive or beneficial experience for student achievement. There are both positive and negative characteristics for each of these three dimensions of engagement. See Table 1 below.

Table 1. Trowler's (2010) Examples of Positive and Negative Engagement

	Positive Engagement	**Non-engagement**	**Negative Engagement**
Behavioral	Attends lectures, participates with enthusiasm	Skips lectures without excuse	Boycotts, pickets, or disrupts lectures
Cognitive	Meets or exceeds assignment requirements	Assignments late, rushed, or absent	Redefines parameters for assignments
Emotional	Interest	Boredom	Rejection

At the same time, Wang and Degol (2014) reported that a continuum of positive engagement to negative engagement, in which non-engagement (disengagement) is centered in the middle, might be oversimplifying this construct. That is, some research argues that disengagement should be thought of as a separate variable that is more complex than a simple lack of engagement.

While these aspects are central features of engagement, they add to the already diverse ways in which this variable can be observed and measured. It is important to investigate all the avenues that may influence the student experience. However, the broad approaches to this construct can make it challenging to reconcile the findings of studies and, as a result, translate this information into meaningful change for students, instructors, and other institutional leaders. Authors must take this into account when planning and conducting research.

Behavioral engagement is one influence on academic achievement and partially consists of students' involvement in academic, social, and extracurricular activities. Student conduct is also a part of engagement. For example, following rules and obeying established classroom

norms and the absence of disruptive behaviors (e.g., skipping class) are forms of positive conduct that promote academic achievement (Fredricks & McColskey, 2012). This is supported by research at multiple levels of education, further demonstrating the ability of self-regulation to predict course grades and GPA.

Cognitive engagement is the level of students' involvement or investment in the process of learning. This includes learning strategies, thoughtfulness, and willingness to apply effort to develop and obtain necessary skills (Fredricks & McColskey, 2012). Examples of learning strategies include rehearsal, elaboration, organization, and critical thinking. These tactics are assisted by students' metacognitive self-regulation, a skill that affords an awareness and control of cognition (Pintrich, Smith, Garcia, & McKeachie, 1991).

Finally, emotional engagement refers to the reactions to specific features of an academic environment (Fredricks & McColskey, 2012). Value is a leading concept of this facet that describes how much a student appreciates an education and its specific environment. From an institutional perspective, emotional engagement can also explain how individuals feel value as students and belong at their college or university (Fredricks & McColskey, 2012). This is important for institutions and possible intervention programs for particular student populations. For instance, this aspect of engagement could inform interventions seeking to improve student engagement by drawing attention to the importance of engagement and motivation.

Measures of Engagement

Student engagement has been examined and measured in various contexts throughout educational research. These studies have collectively employed a wide assortment of surveys. One of these measures, the Motivated Strategies for Learning Questionnaire (MSLQ), has been used extensively and adapted for the specific needs of researchers and their contexts (Pintrich,

Smith, Garcia, & McKeachie, 1993). The Student Course Engagement Questionnaire (SCEQ) has also successfully been used to measure engagement and its relationship to various definitions of student achievement (Handelsman, Briggs, Sullivan, & Towler, 2005). As a result, items from both of these instruments will be adapted for inclusion in the present study. More information on the particular questions and their psychometric properties is provided in chapter 3.

In conclusion, engagement and motivation are closely related, but divergent, concepts that are multifaceted. Motivation is a cause that can drive student behavior, while engagement is typically explained through students' actions or the specific manifestations (i.e., behavioral, emotional, or cognitive) of their motivation (Fredricks & McColskey, 2012). Engagement is also indicative of a student's interaction with his or her environment. These variables are noteworthy because educational leaders can potentially influence and improve these aspects of students' postsecondary experience. Based on the exact needs of the institution and its student populations, intervention strategies that target specific behaviors and contexts could be employed (Fredricks & McColskey, 2012).

Motivation

Research investigating motivation can be grouped into two theoretical domains. The approaches are typically assembled under either the dualism approach or the multifaceted theory (Reiss, 2012). The two dualism approaches focus on one of two subtypes: intrinsic or extrinsic and approach or avoidance. It is worth noting that the dualism approach places emphasis on and accounts for the social and environmental elements of motivation and these broader factors were included in the Tinto (1993) model of student success. The application of multifaceted theories, however, focuses on the recognition of many more potential types of motives for behavior (called universal reinforcements), all of which are genetically driven (Reiss, 2012).

Dualism Approach

Ryan and Deci (2008) conducted research in the area of motivation and investigated how this variable related to both self-regulation and vitality. Ryan and Deci (2000) stated that motivation means to be moved to do something. Motivation has also been described as a sustained, vested interest to appetitive stimuli that increases the likelihood of engaging in subsequent behavior (Schmeichel, Harmon-Jones, & Harmon-Jones, 2010). Additionally, vitality is the energy that is available to one's self and is a significant indicator of motivation (Ryan & Deci, 2008). Most models of self-regulation in recent research have focused on the expenditure and lack of available energy, or vitality, necessary for engaging in self-regulation. However, focusing on a different perspective, Ryan and Deci (2008) have concentrated more on how this psychological energy can be maintained or even enhanced.

This attention led to the creation of Self-Determination Theory (SDT), which states that, while the effort to control oneself does consume psychological energy or vitality, autonomous self-regulation (i.e., the self-endorsement of one's actions) does not. What this means for students is that independent or truly volitional forms of agency (i.e., self-regulation) will not result in ego depletion because the individual is working toward fulfilling basic psychological needs of the self (i.e., relatedness, competence, and autonomy) or personal goals established free from external pressures (Ryan & Deci, 2000). Therefore, the key difference between self-regulation and self-control is that self-regulation does not deplete one's energy or vitality because the regulation is autonomous. Whereas with self-control, the action(s) of changing or maintaining one's behavior is much more taxing because the action(s) are perceived as external to the self and not autonomous (Ryan & Deci, 2008). Personal causation or intentional behavior can be broken down into two separate pieces, internal perceived locus of causality (IPLOC;

where the actor is the origin of their own behavior) or external perceived locus of causality (EPLOC; where the actor is a pawn to heteronomous forces outside of their control; DeCharms, 1968, 1976, 1981; Ryan & Connell, 1989).

Applying this theory to both the current study and higher education practice, if graduating with a postsecondary degree is a personal goal for a student (presumably it is for those enrolled at a college or university), they should be motivated to invest in activities that allow them to work toward this goal. What is more, these students should not, at least theoretically, be depleted by acts of self-regulation if these acts help them to achieve their personal academic goals. However, the important distinction with this theory is that a student's goal to achieve a postsecondary education must be self-directed or autonomous, and not solely because of any external pressure or requirement.

Intrinsic-extrinsic motivation. Related to the differences it describes between self-control and self-regulation, SDT also distinguishes between two types of motivation. These two approaches are based on the reasons or goals that give rise to the initial behavior or action (Ryan & Deci, 2000). Ryan and Deci (2000) described the first type, intrinsic, as engaging in an activity for the inherent satisfaction(s) that it brings, as opposed to a separate consequence, and as existing in the connection between the individual and the task itself. Ryan and Deci (2000) structured SDT to explain intrinsic motivation in terms of the social and environmental factors that provide the conditions, rather than directly cause this type of motivation to be expressed by individuals. These social factors and their specific contexts are explained by a subtheory of SDT, Cognitive Evaluation Theory (CET). Deci and Ryan (1985) used this SDT subset to discuss how certain contexts, events, or structures (e.g., rewards, communications, feedback, etc.) that foster feelings of competence can heighten intrinsic motivation for the action(s) or

behavior(s) that lead to desired results. So, the authors created CET to focus on fulfilling this need for competence and, as discussed in terms of self-regulation earlier, autonomy, which is achieved through an IPLOC.

In their theoretical model of motivation, Ryan and Deci (2000) framed the second type, extrinsic, as occurring when one engages in a behavior to obtain a separable outcome. While this motivation is not driven by any direct personal enjoyment or inherent satisfaction achieved through its engagement, SDT holds that it can still be an autonomous activity. As such, the focus here is on the instrumental value that the activity has for the individuals, instrumental value that may be autonomously sought (similar to intrinsic motivation) or not (due to external forces that may result in an action or behavior that works toward a reward or avoiding a punishment). If intrinsic motivation exists in the connection between the individual and the task, extrinsic motivation is one step removed in that it may allow the individual to work toward a task (or goal) they find satisfying or interesting. See Appendix D.

In summary, SDT views motivation from a dualistic approach that focuses primarily on motivational differences that arise from individuals perceiving their behavior as autonomous or externally mandated. Personal freedom or autonomy of behavior is not restricted to intrinsic motivation. Individuals may be extrinsically motivated *and* autonomously engaged in acts that help them achieve certain personal goals.

Approach-avoidance motivation. Related to the need for competence, achievement motivation, whether it is approach or avoidance-oriented is a routine fixture in an individual's everyday life. This framework views motivation as a universal link across all contexts (e.g., classroom, workplace, etc.) that is driven by an individual's need to find themselves competent wherever they spend their time and energy (Elliot & Church, 1997). So, similar to the SDT,

CET, and intrinsic/extrinsic dichotomous view of motivation, the need for competence is a salient theme.

In this view of human motivation, achievement goals are described as an individual's purpose for engaging in a certain task (Elliot & Church, 1997). These goals can be either performance-oriented (focused solely on the demonstration of competence relative to others) or mastery-oriented (focused toward both the demonstration of competence relative to others and mastery of the task itself; Elliot & Church, 1997). Further, in line with classic research on achievement motivation, the actions or behaviors of individuals in achievement settings have traditionally been viewed as either oriented toward success attainment (approach) or avoiding failure (avoidance); McClelland, Atkinson, Clark, & Lowell, 1953).

One of the main tenants of Reinforcement Sensitivity Theory is that individuals pursue stimuli deemed appetitive (leading them closer to their goal) or circumvent stimuli considered aversive (hindering their goal attainment) (Reuter et al., 2015). In this theory, individuals' behavior is conceptualized as delimited by the Behavioral Activation and Behavioral Inhibition Systems (BAS and BIS); structures which regulate individuals' approach toward appetitive stimuli (BAS) and avoidance or withdrawal of aversive stimuli (BIS; Reuter et al., 2015).

Schmeichel, Harmon-Jones, and Harmon-Jones (2010) have explored the connection between self-regulation and motivation. The authors revealed, across four studies, that acts of self-regulation caused an increase in participants' approach motivation. In this research, participants who suppressed the expression of their emotions during a slideshow that included aversive photographs (a standard manipulation of self-regulation; see Muraven et al. 1998; Vohs & Heatherton, 2000; Vohs & Schmeichel, 2003) reported higher BAS scores (M = 42.93, SD = 4.24) relative to the participants who were not instructed to suppress their emotional expressions

(M = 40.00, SD = 4.67; Schmeichel et al., 2010). Furthermore, Schmeichel et al. (2010) demonstrated that exercising self-regulation facilitated the perception of a dollar sign ($), a symbol synonymous with the largely universal motivator, money, but previously engaging in self-regulation failed to facilitate sensitivity to a motivation-neutral symbol, a percent sign (%). These findings support the view that motivation assists individuals in attending to and processing stimuli that are perceived as being able to help one achieve their goal(s). In fact, Carver and White (1994), in a formative study that established the BIS/BAS scales, stated that motivation increases individuals' sensitivity, or awareness to incentives.

Multifaceted Theory of Motivation

Reiss (2004, 2012) stated that dividing motivation into only one of two types wholly oversimplifies the reality of human motivation and lacks in construct validity, measurement reliability, and experimental control. Reiss (2012) reported that, according to Deci and Ryan's (1985) Self-Determination Theory, a large piece of the dualism perspective of motivation, extrinsic motivation undermines intrinsic motivation, such that if one becomes extrinsically motivated to pursue an action, the activity or goal will lose its intrinsic value or worth to the individual (a finding that is not reliably replicated, or even measured, in the literature). The author argued, instead, that motivation is much more diverse and, at the same time, universal to all humans in certain regards.

This focus on the general, shared motives of human nature is what sets the Multifaceted Theory of Motivation apart from the dualism approaches, which focus on intrinsic and extrinsic or approach and avoidance aspects of motivation. According to Reiss (2012),

> But both philosophical and psychological dualism are invalid because human motives are genetically multifaceted and do not divide into just two kinds. Rather, all human

> motivation arises from an intrinsic source. Moreover, extrinsic motivation (a means to an end) arises from the pursuit of the intrinsically valued goal it produces; thus, it is not a separate and distinct category of motivation. When people do X to get Y, Y motivates both itself and X, so that all motivation is derived from Y and not from two sources, X and Y (p. 153).

As a result of this perspective, an extrinsic domain of motivation would not lessen the value of an intrinsic domain or, as a result, an individuals' desire to engage in working toward a goal (e.g., obtaining a degree from a college or university). Rather, all individuals share similar needs, or what Reiss (2004, 2012) described as universal reinforcements.

These universal human reinforcements (or needs) make up the Reiss Motivation Profile (RMP) and include 16 scales that cover the desire for: acceptance, understanding, food, family, upright character, social justice, self-reliance, organization and cleanliness, muscle exercise, influence or leadership, beauty and sex, saving, peer companionship, respect based on social standing, freedom from anxiety or pain, and vengeance (Reiss, 2012). These reinforcements universally motivate all humans; however, the diversity occurs in how they specifically stimulate people. That is, they are not expressed or prioritized by individuals in the same ways (Reiss, 2012). The notion that all human motivation results from intrinsic sources is fundamental to the universal human reinforcement principle of the Multifaceted Theory of Motivation. It would be fairly safe to assume that many individuals wish to learn and receive further education, in some form; however, the reasons behind this desire that motivates individuals to achieve said education is very diverse by nature.

So, when applying this approach to the setting of higher education, Reiss (2012) argued that this methodology could better explain the importance of motivation as it applies to the

academic setting. For example, Reiss (2012) stated that the dualistic approach of intrinsic and extrinsic motivation has nurtured learned helplessness in the classroom because teachers assume they cannot help struggling students to be motivated to learn since the "intrinsic motivation of learning has been beat out of them" by external motivations (p. 154). Also, the only real advice that the intrinsic-extrinsic motivation conception provides academia and its faculty is to avoid the use of extrinsic incentives and this approach offers little advice to help struggling students (Reiss, 2012). Both theoretical views of motivation, dualism and multifaceted theory, have been applied to education in efforts to determine how they might help describe student motivation. So, it is important to consider how past research has explained student motivation as this will influence the way in which this construct is conceptualized and, by extension, measured.

Motivation and the Motivated Strategies for Learning Questionnaire

The Motivated Strategies for Learning Questionnaire (MSLQ) is used throughout the literature on achievement and has well-established validity and reliability. The instrument is designed to quantify college students' motivation and learning strategies (Pintrich et al., 1993). The survey consists of 81 items and 15 subscales and takes roughly 20-30 minutes to complete (Crede & Phillips, 2011). Fortunately, given the design of the present study, MSLQ subscales can be used independently.

Pintrich et al. (1991) first described the utility of the MSLQ as a part of their original manual. Among other statistics at the scale and item level, this guide presents a range of psychometric evidence. The original authors, Pintrich et al. (1993) inspected the reliability of the MSLQ through confirmatory factor analyses and tests for goodness-of-fit. This allowed the researchers to identify the latent variables on which each of the items consistently loaded. Analyses were also conducted to determine the internal-consistency between the motivation and

learning strategies sections. Pintrich et al. (1993) also inspected the predictive validity of the MSLQ against students' final course grades.

Many years later, Crede and Phillips (2011) conducted a meta-analytic review that included 2,158 correlations from 67 independent samples, encompassing a total of 19,900 students from seven different countries. The authors included studies that used both semester grades and overall college GPA as measures of achievement. This allowed the researchers to examine the reliability and validity of the MSLQ and its capacity to predict the outcomes of specific courses and semesters, thus supporting Pintrich et al. (1991, 1993). However, including both measures of achievement allowed the authors to also test the ability of the MSLQ to predict broader measures of achievement.

This provides information on an outcome (i.e., GPA) that is more inclusive of a student's college experience and meaningful for not only students and their instructors, but also leaders at the institutional level. This measure could draw students' attention to the important role of motivation and self-regulated learning strategies and provide information on how they can take clear steps to be more successful. It could also encourage instructors' consideration of the relationship between motivation and learning strategies and their courses and conversations between instructors and their departments regarding how they can better design assignments and their whole curriculum. Next, it can help institutional leaders make more informed decisions regarding specific programs or interventions, should data reveal that certain actions are needed. In summary, the MSLQ was designed for students with specific courses in mind, but it has since been employed to observe broader measures of achievement. Crede and Phillips (2011) report that, while the relationship with GPA is slightly weaker, the MSLQ is significantly correlated with both course grades and overall GPA.

Motivation, Engagement, and Self-Regulation

The current study will include motivation and how it could, in combination with engagement and self-regulation, predict sophomore students' achievement. Since Reiss' (2012) view of motivation is universal, inclusive, and genetically derived, it could help explain one variable that may contribute to the growing gender differences in postsecondary academic achievement. It is, at least theoretically, viable that the motivation to attain a postsecondary education is dissimilar between genders.

In addition to the relationship between engagement and motivation, student motivation and self-regulation have also been established. Research has revealed that these two variables are not only positively correlated, but that a causal link between self-regulation and motivation exists. Schmeichel, Harmon-Jones, and Harmon-Jones (2010) found that a sample of undergraduate students who engaged in self-regulation subsequently self-reported higher levels of approach motivation. Likewise, in additional studies, the researchers revealed that a prior exercise of self-regulation resulted in a significant increase in two, separate behaviors related to approach motivation. These findings warrant further investigation.

Research that includes these two factors could allow for more clarity regarding the details of this relationship. While research has established the ability of self-regulation to increase motivation, future work should inspect a potential cyclical, two-way, causal relationship between these variables. Since research has shown that self-regulation can increase motivation, it is vital for further studies to determine if motivation can increase self-regulation. This work should explore if a higher level of motivation causes, or for the current study, is at least correlated with, greater student self-regulation as it relates to facilitating academic goals. At least two areas of research have confirmed motivation's association with self-regulation. These studies

demonstrated that motivation had the capacity to moderate the occurrence of ego depletion, defined as a period of weakened self-regulation caused by the prior exertion of energy to regulate one's self (Muraven & Slessareva, 2003; Vohs, Baumeister, & Schmeichel, 2012). Motivation appeared to strengthen the participants' likelihood of engaging in self-regulation. It would appear that motivation and self-regulation are at least correlated and predictive of one another.

A review of the literature on each of these concepts reveals that, at least independently in pairs, engagement, motivation, and self-regulation are all associated. The specific nature of these relationships is somewhat less clear. Again, one explanation could be that self-regulation (i.e., in this case, students' ability to or proclivity for regulating thoughts and behaviors as these relate to their learning and academic goals) is the catalyst for which motivation is channeled into engagement. This engagement may help result in greater learning, achievement, and an increased likelihood of students' successful retention, progression, and graduation.

It is essential for future research to use established findings to guide and add to the existing literature. For the present study, this will be accomplished by applying these variables to specific subsets of the college student population. It is also important to pay particular attention to subpopulations, which in the case of the current study is sex and class year, if the attention is justified by prior findings and current issues facing higher education practice. To this end, the current study will replicate and extend past results by applying the findings of these variables and their interrelationships to a specific context. This exact setting will be sophomore students' engagement, motivation, and self-regulation as they relate to their experiences in higher education.

Self-Regulation

Research on self-regulation has much of its roots in Social Cognitive Theory, foundational work completed by Bandura (1986, 2001). Within this theory, human agency is comprised of self-organizing, self-reflective, and self-regulatory mechanisms, among other factors (Bandura, 1999). Stated differently, Social Cognitive Theory maintains that human behavior is both motivated and controlled via one's capacity for self-regulation (Delen & Liew, 2016). Since its foundation, this theory has been explored through the lens of student achievement.

In addition to the work on self-regulation and Social Cognitive Theory by Bandura (1986), Zimmerman (1989) presented a model of self-regulated learning from which many recent studies have built. The main tenant of this model is that mutual causation occurs among the three processes that influence the function of one's self-regulation. According to Social Cognitive Theory, this triadic analysis is made up of personal, environmental, and behavioral determinants of self-regulated learning (Zimmerman, 1989). This model is presented in Figure 3 below.

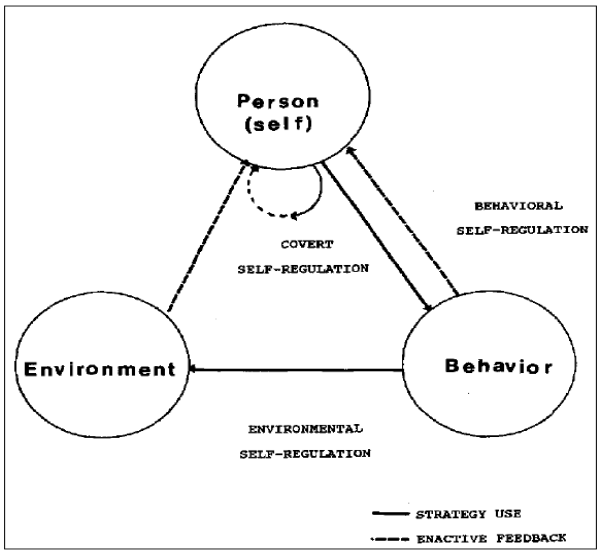


Figure 3. Zimmerman's (1989) Triadic Analysis of Self-Regulated Functioning.

Self-Regulated Learning

Mousoulides and Philippou (2005) define self-regulated learning as a process in which personal, contextual, and behavioral factors interact and provide students an opportunity to control their learning. Similarly, Pintrich (1999) states that self-regulated learning is an active, constructive process that involves learners setting specific goals for actions related to their learning plans. After this, the students then continually monitor their plans and regulate their cognition, motivation and behavior to achieve their set goals.

Models that have been used to clarify students' capacity for self-regulated learning are typically made up of three factors. Centered on either students' cognition or behavior, successful self-regulation of learning consists of metacognitive strategies, effort control, and cognitive strategies (Pintrich & De Groot, 1990). These traits seem to be related to three of the pieces that Bandura (1999) believes to encompass human agency. These are, organization (e.g., metacognitive strategies that involve planning and monitoring cognition), regulation (e.g., regulating effort to maintain cognitive engagement), and reflection (e.g., cognitive strategies used to learn, remember, and understand class material) (Pintrich & De Groot, 1990). These three traits can also be connected to the triadic model presented by Zimmerman (1989). That is, the covert, person/self-piece of the triadic model can be linked to one's cognitive and metacognitive strategies that can be employed to provide feedback on one's performance (and other aspects of the model). Secondly, the behavioral component relates to one's effort regulation and the metacognitive strategies related to planning and organization. Finally, the environmental factor of the triadic model is at least indirectly related to not only the other two components of the model posited by Zimmerman (1989), but also cognitive and metacognitive strategies and one's control of their effort.

Related to the goals of the current study, Pintrich and De Groot (1990) have demonstrated that students' self-regulation of learning is positively correlated to academic achievement in the classroom. Specifically, the researchers found a connection between students' scores on a self-report measure of self-regulated learning and students' work on certain classroom coursework. That is, students with higher self-regulated learning had obtained higher assignment grades. While this study was conducted at the secondary education level with seventh grade students, these findings remain significant and a formative base from which future work can extend.

To help build upon the foundational work that was provided by Social Cognitive Theory, researchers extended the model into a framework that also addressed students' motivation. Pintrich (1999), now including motivation, defines self-regulated learning as an active and constructive process that first involves making academic objectives. After these are established, there are certain cognitive and behavioral components that one must use to work toward achieving his or her academic goals. The framework originally presented by Pintrich (1999) states that these components, which make up the necessary efforts in the self-regulated learning process, consist of monitoring, regulating, and controlling one's cognition, motivation, and behavior (Mousoulides & Philippou, 2005).

In the classic study previously described, Pintrich and De Groot (1990) also included a measure of students' motivational orientation. This measure was adapted from the Motivated Strategies for Learning Questionnaire (MSLQ). After employing a factor analysis, the authors focused their specific measure of motivation to include items related to self-efficacy (i.e., perceived competence and confidence in performance of class work), intrinsic value (i.e., a

central interest in and perceived importance of course work), and test anxiety (i.e., worry about and cognitive interference on tests) (Pintrich & De Groot, 1990).

As expected, the researchers found that students' motivation was positively related to their cognitive engagement and academic performance in their class. More specifically, the self-efficacy factor was positively related to cognitive engagement and class performance. Of particular note, self-efficacy's relationship with performance was non-significant once the authors statistically controlled for cognitive engagement. The authors state this finding suggests that self-efficacy plays a less direct, more facilitative role and that cognitive engagement is more directly related to students' actual achievement. It would seem that students' self-regulated learning (through cognitive and metacognitive engagement of learning strategies and effort management) is a stronger predictor of academic performance. However, self-efficacy may help assist students' use of these self-regulated learning strategies (Pintrich & De Groot, 1990). Supporting this position, Komarraju and Nadler (2013) more recently reported that students with high self-efficacy tended to pursue mastery goals and performance goals, self-efficacy was predictive of students' GPA, and that self-efficacious students meet their achievement goals through self-regulation and persistence.

Pintrich and De Groot (1990) also reported that the second factor of their measure of motivation, intrinsic value, was closely related to students' self-regulated learning. Students who were more motivated to learn the material covered in class and believed the work was interesting and important were more cognitively engaged and self-regulating when it came to their schoolwork. Again, self-regulation was a better predictor of performance. Yet, motivation, in the form of placing an intrinsic value on the material being learned, seems to be vital when

determining whether or not students will choose to be engaged in their academic tasks (Pintrich & De Groot, 1990).

Finally, text anxiety was not related to cognitive engagement or self-regulation. However, this facet of motivation was negatively related to both the self-efficacy factor of overall motivation and exam performance (Pintrich & De Groot, 1990). Although not significant, more test anxious students reported less self-regulation. Pintrich and De Groot (1990) stated that these results, in line with past research, reveal that text anxiety may be related more to retrieval problems during testing rather than any insufficient cognitive or metacognitive strategies that are a part of students' self-regulated learning process. This particular finding is particularly meaningful for the current study because it helps demonstrate the significance of employing the most appropriate operational definitions of the variables under investigation. The exact factors of each variable should be guided by past research and the specific questions being currently examined. For example, in the current study, a broader measure of academic achievement is being investigated (i.e., overall GPA) due to a justifiable focus on a particular class of college students (e.g., sophomores). As such, certain aspects of motivation, while relevant for studies examining classroom outcomes, may not be quite as applicable to those at a college or university level of investigation.

Self-Regulation and Achievement

Graduating with a college degree is arguably an autonomous decision, for the most part. However, during one's progression toward a degree, and notably so during the sophomore year, many decisions and actions must be made that may not easily or readily connect with one's academic goals. For sophomores, the college experience could then begin to feel more externally mandated; less independence could lead to feelings of lowered autonomy and

satisfaction. This speaks to the importance of engagement with one's studies. For example, a student who is more involved in their classes is more likely to be engaged in communication and contact with their professors. Then, student may more readily connect the required tasks and work they are assigned with their academic goals. Due to the link between self-regulation and achievement, it is important to examine how this variable has been measured in prior research.

Self-Regulation and the Motivated Strategies for Learning Questionnaire

The second part of the MSLQ is related to student learning strategies. The questionnaire separates student-learning strategies into two groups, cognition and meta-cognition and the management of resources. Together, these two sections include students' use of various tactics that involve cognitive, behavioral, and affective components. The subsections are students' use of rehearsal, elaboration, organization, critical thinking, meta-cognitive self-regulation, time and study environment, effort regulation, peer learning, and help seeking (Pintrich et al., 1993).

Overall, independent reviews of the MSLQ reveal that the instrument is internally consistent, reliable, and has factorial and predictive validity for two different measures of student achievement, course grades and overall GPA. It is worth noting that the five items described previously will need to be slightly reworded so participants understand that they are responding to questions focused on their overall academic experience and not one specific course. However, these minor adjustments will only change this focus and should not impact the psychometric value. In conclusion, this study will construct an instrument that contains suitable items related to motivation and self-regulation for the context in which it will be situated. This is possible by using the literature on the MSLQ as a guide and will allow the present research to accurately examine engagement, motivation, self-regulation, and achievement.

Self-Regulation, Motivation, and Achievement

More recent studies have added to this seminal framework for investigating self-regulated learning provided by Social Cognitive Theory from Bandura (1986, 1999, 2001) and the inclusion of student motivation in this model by Pintrich and De Groot (1990). One example is a study conducted at the college level that examined students in a chemistry class over the course of an entire semester. In this research, Zusho and Pintrich (2003) examined students' motivation, cognitive strategies, and metacognitive, self-regulatory learning strategies to determine if they changed throughout the semester and to see how they predicted students' performance in the course. Provided in Figure 4 below, the authors created a model of student outcomes that includes students' personal characteristics, classroom context, motivational processes, and cognitive processes to guide their research questions.

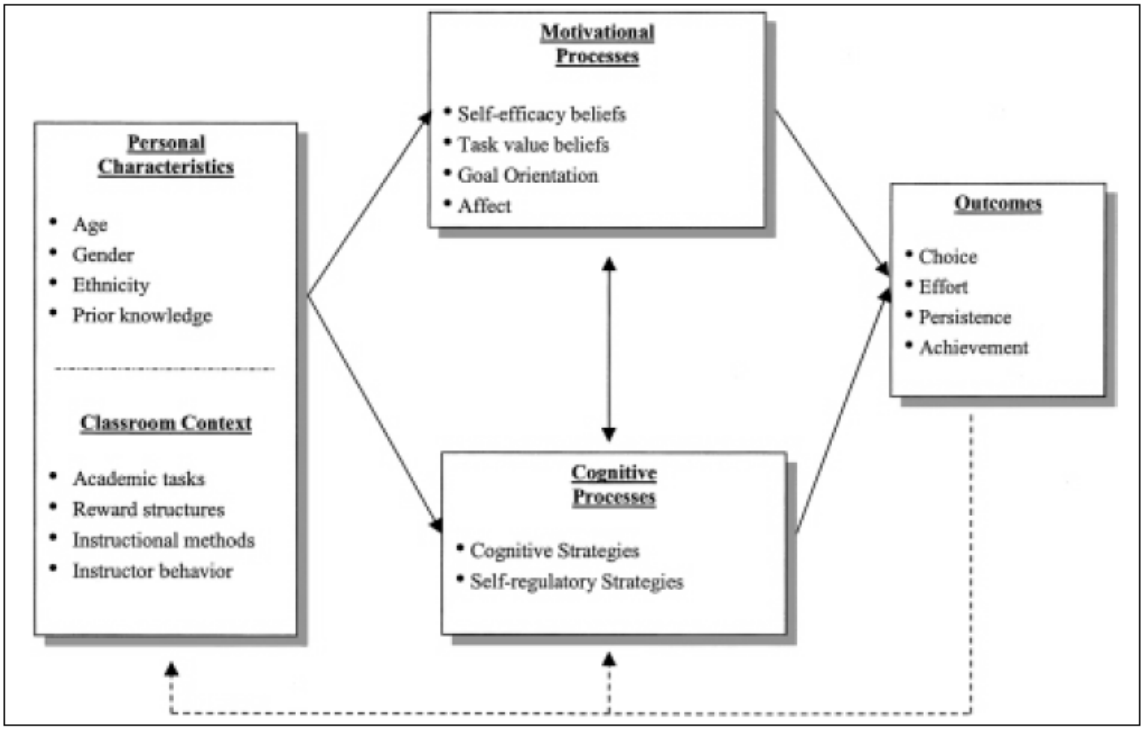


Figure 4. Zusho and Pintrich's (2003) General Model of Motivation and Self-Regulated Learning

Specifically, the researchers administered surveys to students in two separate sections of an introductory chemistry class at three different points throughout the semester. The first administration, in the fifth week of the semester, covered demographic questions and items related to self-efficacy and task value beliefs. Both the second and third survey administrations measured goal orientations, self-efficacy, task value beliefs, interest, anxiety, and students' use of cognitive and self-regulatory strategies (Zusho & Pintrich, 2003). Finally, students' grades were collected at the conclusion of the course and these served as the outcome variable of course performance.

Students' motivation significantly changed during the chemistry course. Zusho and Pintrich (2003) report that students' level of self-efficacy, value of tasks, and their endorsement of performance goals all declined. Self-efficacy has been demonstrated by previous research to be a factor related to student motivation (Pintrich et al., 1991). That is, students who believe themselves to be more capable of completing a task and have more confidence in their abilities (e.g., their academic capacities) also tend to have higher levels of academic achievement compared to students with lower self-efficacy (Zusho & Pintrich, 2003). Task value, another factor of motivation, is also related to achievement. Students who hold place more importance on their studies and believe their courses hold utility are also more likely to achieve better course outcomes (Pintrich, 1999). Specifically, according to Pintrich et al. (1991), task value provides details about how interesting, important, and useful a student perceives certain course materials or tasks to be. So, if the value a student places on certain course materials or aspects of their education is high, he or she is more likely to have a higher level of engagement in their learning process for that particular material or task (Pintrich et al., 1991).

Goal orientation is a third component related to motivation. Defined as students' purposes for engaging in a learning task or situation, goal orientation is represented in the MSLQ and the model presented by Zusho and Pintrich (2003). According to this model, goal orientation is made up of two types of goals, mastery and performance. Mastery goals are students' goals to develop competence in a specific area of study and performance goals are related to individuals validating their skill as compared to other students in a course, year, etc. (Zusho & Pintrich, 2003). In contrast to the other factors in this specific model of motivation, students' performance goals are typically negatively related to achievement. On the other hand, mastery goals are positively related to academic outcomes (Zusho & Pintrich, 2003).

For the MSLQ, goal orientation refers to a student's general goals or orientation to the course as a whole and is characterized as being oriented intrinsically or extrinsically (Pintrich et al., 1991). When intrinsically focused on a learning goal, students are engaged in their learning process to fulfill their own innate curiosity, to fulfill a personal challenge, or because they wish to master a particular task for their own, personal fulfillment (Pintrich et al., 1991). For the counterpart, external goal orientation, students are engaged in learning for the sake of obtaining some separate goal. Here the goal of a learning task might be a high grade, reward, or evaluation by the teacher or one's peers (Pintrich et al., 1991).

Regarding students' use of cognitive strategies during the semester, Zusho and Pintrich (2003) report that rehearsal strategies and elaborative strategies both declined as the course progressed. On the other hand, for the last cognitive strategy, organization, students' scores increased. Both cognitive and metacognitive strategies are related to increased student achievement. Zusho and Pintrich (2003) pulled the items related to these cognitive and metacognitive strategies from the MSLQ. As such, rehearsal strategies involve a superficial

process students use to learn course material and enhancing short-term performance (e.g., for a test) is the focus (Pintrich et al., 1991). Progressing toward deeper learning, elaboration strategies (e.g., summarizing, paraphrasing, etc.) actually allow for long-term memory storage and, arguably, true learning of one's material (Pintrich et al., 1991). Finally, cognitive strategies related to organization require the most engagement on the part of the student and, subsequently, result in a deeper level of learning. Organizational strategies involve not just rote memorization (rehearsal) and connecting information (elaboration), but the extraction of meaning from the material or task at hand (Pintrich et al., 1991).

Metacognitive, self-regulatory strategies help students plan, monitor, and control their cognition. Self-testing, monitoring the comprehension of course content, or repairing comprehension by re-reading or completing more problems are a few examples of metacognitive strategies that promote learning through self-regulation (Zusho & Pintrich, 2003). Similar to cognitive strategies, metacognitive, self-regulation strategies also increased as the course proceeded (Zusho & Pintrich, 2003).

The final research question posed by the authors of this study related to the ability of motivation, cognitive strategies, and metacognitive, self-regulation strategies to predict achievement. Results revealed that motivation (i.e., self-efficacy, task value, and mastery goals) predicted final course grade and higher motivation was related to cognitive strategies employing deeper-processing (i.e., elaboration and metacognition strategies related to self-regulated learning) (Zusho & Pintrich, 2003). The authors also explored this last research question more fully by examining differences in students' motivation and cognition by performance. To do this, the authors used students' final course grade to cluster the participants into high, average, or low achieving groups. Similar to findings from past research, Figure 5 below shows that high-

achieving students' level of self-efficacy increased over time while low-achieving students' self-efficacy level decreased (Zusho & Pintrich, 2003). The same trend was revealed for students' task value and level of interest.

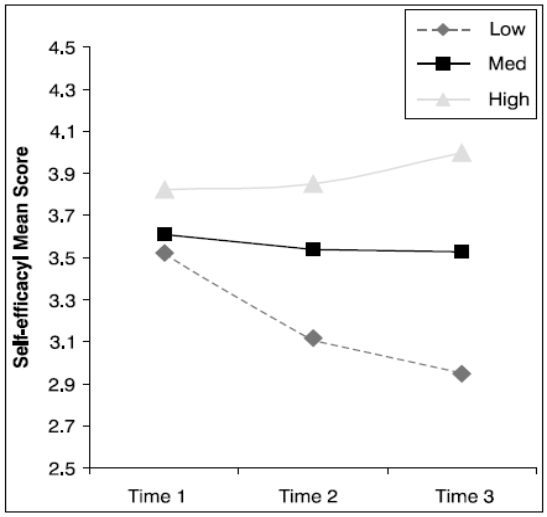


Figure 5. Zusho and Pintrich's (2003) Ratings of Self-Efficacy by Level of Performance

This finding supports the dependent, circular relationship between motivation and academic achievement. That is, as one increases, it works to further the trend in the same direction by positively influencing the other (i.e., motivated students perform better in class which, in turn, increases their motivation, and so on). However, this relationship also holds for the negative side of the achievement spectrum, as it appeared to do for the low-achieving students in this study (i.e., demotivated students perform worse in class, which, in turn, further decreases motivation, and so on).

Given the similarity of the research questions posed in this study and those of the proposed research, the current study will also use the model of motivation and self-regulated learning presented by Zusho and Pintrich (2003) as a guide. Using the wider, more macro-level model provided by Tinto (1993) and placing the more specific model from Zusho and Pintrich (2003) in specifically where Tinto (1993) refers to goal commitments will afford the present

research an appropriate framework from which to sufficiently address the existing study's research questions. In detail, this will allow the current research to adapt the model presented by Zusho and Pintrich (2003) for the exact questions presently being asked. Using the language of the previous model, these are personal characteristics (i.e., class year and sex), motivational processes (i.e., self-efficacy and task value), cognitive processes (i.e., cognitive and self-regulatory strategies), and outcomes (i.e., current GPA). See Figure 6 below for clarification.

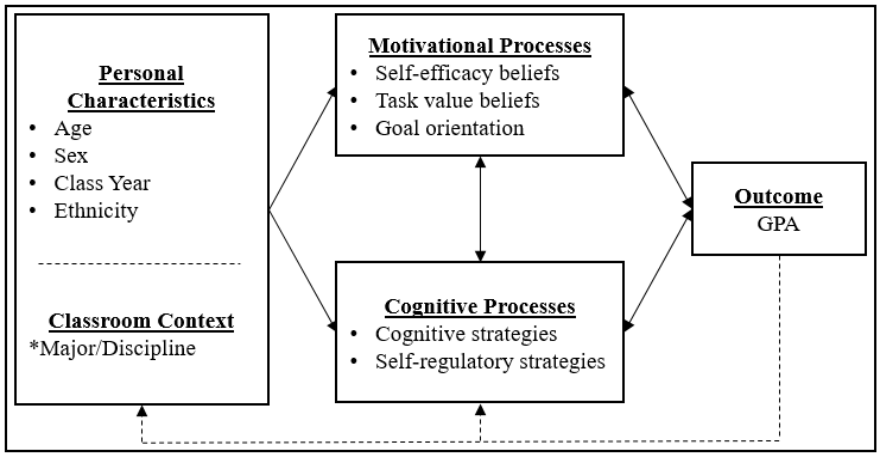


Figure 6. Zusho and Pintrich's (2003) Model of Motivation and Self-Regulated Learning for Sophomore Students

In addition to changes made regarding the specific factors of motivation and cognition to be included in the current study, the model for the current study has been updated to more accurately represent the cyclical nature of the relationships between motivation and outcomes and cognitive strategies and outcomes. Zusho and Pintrich (2003) reported a sample of 458 undergraduate students, but they did not specify, let alone control for, the students' class year, a prevailing trend in this line of research. The authors simply reported that students in the introductory chemistry classes were freshmen or sophomores. It is important to further the findings of this study by addressing this variable. In addition, the authors did not distinguish findings by student sex, as this was not pertinent to their research questions. However, Zusho

and Pintrich (2003) did report that their sample consisted of 243 females and 215 males, a sample that is much more heterogeneous than other studies. At the same time, it is important for prospective research to also examine how these variables vary by, not only performance, but student sex. Finally, Zusho and Pintrich (2003) collected data from students over time. This design choice strengthens the findings related to these variables as most studies have only measured students at a single point in the semester.

Engagement, Motivation, Self-Regulation, and the Achievement Gap

Non-cognitive traits are an area receiving much attention for the potential relationships with achievement. Specifically, Fortin, Oreopoulos, and Phipps (2013) reported that variables such as school misbehavior, smoking, and alcohol binging, features representative of lower self-regulation, are greater for high school males than females. Factors related to self-regulation, coupled with persistent economic inequalities related to sex such as job-attainment and wages (which may conceivably influence one's motivation related to his or her academic and job goals), might push the gender gap in higher education even farther.

Specifically, this gap could be further widened by an increasing motivation for females to attend college while males, relative to females, either lack the necessary engagement, motivation, and self-regulatory skills to enroll and, if they do enroll, to persist and graduate. Further, since females and males generally score similarly on established measures of intellectual ability, and supporting the work of Burkholder and Leitner (1999) and Bisese and Fabian (2006), Jacob (2002) argued that the long-increasing differences in achievement may be due to non-cognitive capacities. These might include an inability to regulate attention or organize and keep track of work and difficulties related to students' discipline (Jacob, 2002). In summary, these skills are seemingly related to self-regulation and, by extension, achievement and eventual graduation.

To explore the influence of self-regulation on academic achievement more fully, data were gathered from the National Educational Longitudinal Study and contained information such as cognitive ability and school achievement from eighth graders surveyed every two years until they reached college. The author reported that higher returns to college and greater non-cognitive skills among women account for nearly 90 percent of the academic achievement gap of the sample (Jacob, 2002). While this study consisted of a variety of students (n = 12,585), the internal validity could be strengthened by the use of a more concentrated and experimental measure of student behavior and achievement. However, this study provides important insight into how student success may be related to individual differences in variables that demonstrate a relationship with achievement.

Conger and Long (2010) reported that an explanation for the enrollment gap might be higher self-regulation in females, which may help increase their access to college, at least partially by providing them a way in which to attain better grades and test scores. Using existing data from high school and college records, the researchers collected information from systems of higher education in Florida and Texas. While each set includes only public institutions, they provide a wide range of information that helps to counter this limitation. Using regression estimation, the researchers reported that females are enrolling, performing, persisting, and graduating at higher rates than male students (Conger & Long, 2010).

It is, then, important for more educational research to explore not only the capability of students' self-regulation to predict their GPA, but also the predictive power of their academic engagement, motivation, and the potential interactions between these three variables. This research should not only investigate the existence of links between students' academic engagement, motivation, self-regulation, and achievement. Instead, research should also

effectively consider and address how and why these relationships might exist for sophomore students, what their exact qualities are, and if certain variables interact to predict academic achievement more robustly in a collective fashion are needed to adequately fill the research gap in this literature. As such, it is important to determine if these variables, namely engagement and motivation, significantly predict the academic achievement of university students on their own as well.

Related to this particular research need as it pertains to higher education, Muraven and Slessareva (2003) found that the occurrence of ego depletion, a reduced capacity to engage in self-regulation after having previously exerted regulation, was significantly moderated by motivation. In other words, when participants were properly motivated, the draining capacity of exercising self-regulation lost its negative impact. This finding was more recently replicated by Vohs, Baumeister, and Schmeichel (2012); however, these researchers argued that the capacity of motivation to moderate a loss of self-regulation is restricted to only mild cases of ego depletion. That is, when individuals find themselves severely cognitively drained from sustained effort, motivation may not be as effective at affording individuals the energy or determination to carry on with whatever task or behavior they are involved in. Similarly, Nes, Evens, and Segerstrom (2009), upon investigating the influence of student optimism on retention, reported that motivation, at least for optimistically-oriented students, influenced and inspired the investment of continued effort in order to achieve their goals (e.g., persist and graduate from college). In other words, in the face of struggles and the expenditure of prolonged effort to attain a college education, motivation could make a significant difference for the future of some students. According to past research linking these variables, this motivation should also increase students' engagement; this only further exhibits the cyclical relationships between these

variables and how they might help explain part of the processes involved in student achievement.

In light of these findings, females' potential non-cognitive advantages (i.e., engagement, motivation, and self-regulation) may not only help to put them ahead to begin with, but may increase as they persist through their undergraduate academic career. So, it is important for scholars to determine the nature of any differences in engagement, motivation, and self-regulation, and their influence on academic achievement, should they exist between sexes. It is also critical that leaders in higher education ensure students are afforded opportunities that are essential to fostering these influences on academic achievement. These opportunities could enable students to strengthen and maintain their academic and social engagement. In addition, being given the chance to explore their interests and foster a sense of self-awareness and personal goals is possibly even more important for sophomores, especially given their precise needs and challenges.

This awareness and exploration, fostered by faculty and administrators of specific programs or even efforts within the classroom, might help provide the students with a level of mindfulness and cognizance of their own interests and long-term goals necessary for them to alleviate the stress faced by sophomores that is related to life-altering decisions of this magnitude. In the end, particular efforts and interventions on the part of university leaders could help determine what it is that motivates students to succeed and, at least theoretically, persist in their ambition of graduating. These efforts, along with their potential findings, could help scholars, administrators, and other leaders within higher education to not only address certain research gaps, but also take these results and address present problems. Namely, these actions will consist of meeting the problems of students' evolving needs as they progress toward graduation and the achievement gap developing between female and male students.

Sophomore Slump

A sophomore slump is traditionally explained in terms of the second occurrence of some event, defined by the specific area under investigation, being unable to live up to or meet expectations that were set during the first, initial occurrence (College Parents of America, 2016). So, the sophomore slump occurs when, compared to their first year, the new challenges and responsibilities of the second year combine with a variety of academic and social stressors. This creates a negative perception and experience of one's college experience and involves academic amotivation and disengagement for the sophomore student. This slump, if not adequately addressed by interventions and actions on the part of the students and the institutions, can result in students dropping out and not returning for their junior year. Ultimately, this leads to fewer students obtaining a postsecondary degree and, even further, a better, more desired position in the workforce and their subsequent careers.

One current limitation in the literature on college achievement and retention is the lack of clarity concerning which students are specifically being studied. Researchers must be deliberate about which students are being examined if the academic success of particular college students is to demonstrate meaningful improvement. Of the research in this particular area, many scholars simply do not report the year of the students observed, or include and report on a mixture of students from various years. Future research needs to hold student class year constant to lessen the chance of any results being influenced by such a confounding variable. This is an important point of action for research because this type of oversight can render findings significantly less meaningful for guiding institutional policy change and, ultimately, improving student achievement. In addition to methodological issues, exploring specific student class years will allow the different needs of these students to be explained. Finally, this evidence will guide the

decisions of institutional leaders as they attempt to solve problems of practice related to their students' needs, and ultimately, success.

Another challenge in this research area, which extends to how institutions view this variable and create policy based on their perspective, is the variance that exists in the definitions of what actually constitutes a sophomore-level student. Schreiner (2014) states that the sophomore year is more challenging to define than other points of student transition because of the added ambiguity around what specifically constitutes the beginning and ending of the sophomore year. For example, some institutions and researchers define the sophomore year solely by the number of courses or credits that a student may have accumulated. On the other hand, some define sophomores as any student in the second year of study, regardless of the number of credit hours or courses they may have already completed.

In summary, the task that lies before subsequent research in this field is providing a clear definition of all variables under investigation. Despite the inconsistency that can exist in how the sophomore year and other concepts are defined in the literature, researchers must continue to be steadfast in their efforts to make clear use of their definitions and how variables are linked to both past work and the measures included in their study. If this is achieved, leaders will be more accurately informed and empowered to make better decisions for the behalf of their students and their needs.

First Year Experience and the Sophomore Slump

During recent years most institutional attention involving student retention has been focused on students' first year and initiatives aimed at improving first-year retention rates are referred to as first year experience (FYE) programs. This is a practical place to initially focus interventions for at least two reasons. First, the students' initial year of exposure to college or

university is typically regarded as the time when they are at the highest risk of dropping out, with a reported 20 to 35% of students leaving during this time (Mallinckrodt & Sedlacek, 1987). Second, the earlier college students drop out, the more they and their institutions have to lose.

For students, these losses will first come in the form of absent abilities and understanding they would have otherwise gained during their studies. As a result of these missed educational opportunities, students will have fewer chances to gain requisite skills. This loss, at least theoretically, could transform into fewer prospects and lower pay in the workplace if the students do not learn the skills elsewhere. Similarly, for institutions, student dropout, despite when it occurs, means losses in a source of revenue that is becoming increasingly essential to institutions' bottom lines.

In a way, then, institutions are naturally incentivized to focus programmatic efforts on retaining first-year students, even if this attention is to the detriment of students in their second, third, or even fourth, year. Yet, increased consideration and focus has begun to be placed on students transitioning into their senior year. This attention is likely occurring because it is an institution's last chance to determine if their students are prepared for the workplace or graduate school (Tobolowsky, 2008).

Again, from an institutional standpoint, it has historically been important to focus on freshman and senior students. This is logical due to the desire to engage and integrate freshmen and retain them through their first year until graduation for revenue purposes. In addition, colleges and universities want to help students finish their senior year, so they will be able to demonstrate the learning outcomes of their graduating students and obtain a partial indicator of institutional performance. As a result of this sole focus on the first and last year experience, both of which have their own national and institution-specific instruments (e.g., the Cooperative

Institutional Research Program (CIRP) Freshman Survey, the National Survey of Student Engagement, and first-year and senior seminar program outcomes assessment), the needs of the sophomore and junior students have been underrepresented (Tobolowsky, 2008).

This long-running effort of focusing on first-year retention, while vital to students and institutions, has arguably led to a deficiency regarding how to best engage and retain the students beyond the first year. Supporting this research gap, Quinlivan (2010) stated that students in different years have different needs and that sophomores require specific interventions tailored to their particular requirements. FYE programs are aimed at helping freshman students adjust to their new roles as college students by facilitating their academic and social engagement on campus, among other practices. This programmatic support, while considered successful if the institutions' students reenroll for their sophomore year the following fall, appears to not transfer with students into this second year.

Occurrence, Impact, and Implications of the Sophomore Slump

In his formative work on engagement and student development theory, Astin (1977) stated that as much as 85% of overall student attrition could be accounted for during students' first two years of college. While this number has hopefully declined in the past forty years, whether through the recent popularity of First Year Experiences and other initiatives, student retention a challenge. Laurie Schreiner, a professor and chair of higher education at Azusa Pacific University, reported that as much as 25% of sophomore students experience this slump (Grasgreen, 2011). Similarly, administrators at Pace University reported that while freshman retention rates typically hold steady around 77%, only 65% of their sophomores return for their junior year (Grasgreen, 2011).

These findings are similar for Georgia Southern University. Since 2011, first-year retention rates have been higher than second-year rates by anywhere from 12 to, more recently, 18% (Georgia Southern University, 2016a). For this reason, the University's leadership has set an institutional goal of reaching and maintaining a second-year retention rate of 69%. The University's second-year retention rate goal is more modest than the goal set for first-year retention, 80%. In addition to the wide-spread trend of increased student dropout beyond the first year, this discrepancy is also likely due to the campus FYE initiative established in 2005. It is plausible that the lack of an initiative at a similar scale for sophomore students partially justifies the differences in these two retention goals.

And so, the sophomore slump is, based on these data, systematic enough to warrant attention from leaders in higher education. The reasons for this slump, similar to student disengagement and dropout in general, are diverse and must be identified and clarified by further study. One area of research argues that the decline of sophomore students is marked by a loss of engagement as they return and begin their second year (McBurnie, Campbell, & West, 2012). Unfortunately for researchers and institutional decision makers, the sources of this disengagement seem to be as diverse as the initial reasons behind sophomores' disengagement altogether. This diversity in the explanations for sophomore slump, and the multiplicity that exists in every potential explanation, only reinforces the need for research that fills the current gaps pertaining to these variables.

Another area in this research holds that first-year students must adjust to both the new role of university student and adequately meeting all of the new opportunities and challenges it brings. As a result, any programs that foster and promote engagement, both academically and socially, will likely facilitate this adjustment. This theory is the primary basis of the

sociologically based model presented by Tinto (1993). Sophomore students, while they still must retain their academic and social engagement throughout campus, have additional challenges that must be met as they begin their second year. That is, once a student returns to begin his or her second year, they have new, additional pressures and responsibilities that were not present during their first year.

One of these new duties is a significant increase in decision making, lasting choices that can carry a lot of weight for the student, potentially some of the most important and impacting choices they have made so far in their lives. A few examples of the new pressures required by the decision making that is required of second-year students is defining their sense of purpose, choosing their major topic of study, and narrowing their career options, all of which are significant choices with lifelong consequences (Tobolowsky, 2008). While studying precise factors that might be related to sophomores' achievement, Graunke and Woosley (2005) found that students' level of certainty in their choice of major was a significant predictor of higher academic achievement. The authors stated that one explanation for this finding could be that these students have higher motivation when compared to their fellow sophomores who are less sure of their future plans of study and this motivation, in turn, increases their focus and direction toward integration into their program of study (Graunke & Woosley, 2005). In addition, Graunke and Woosley (2005) reported that a higher level of satisfaction with faculty interaction increased sophomore students' academic success and that these positive collaborations could act to strengthen the students' motivation, promote better grades, and help to foster progression toward graduation.

Freedman (1956) was one of the first to use the term sophomore slump and stated that it was not only represented by a decrease in the students' engagement, but that this disengagement

was largely the product of sophomores' confusion and indecision. Consequently, it could be that an increase in positive faculty interaction and engagement (whereby students, at least theoretically, are informed and advised about what to do next in their second year of study) would not only clarify sophomore students' insecurities, but it could promote confidence in the increased amount of decisions students find themselves needing to make during their sophomore year. In turn, if the sophomore students are making more informed academic decisions, they are likely to be more academically motivated, which could make it less taxing for the students to set their academic goals and fruitfully engage in self-regulation that involves behaviors related to their academic career and, ultimately, an increase in achievement (and the likelihood of graduating).

In fact, 60 years later, data from the Sophomore Experience Survey conducted at more than 90 institutions with more than 25,000 sophomore students support what Freedman (1956) found during his research. Specifically, 33.2 percent of the sophomores surveyed during the 2014 academic year were dissatisfied with their academic advisement. Following this, 22.4 percent were dissatisfied with their interactions with faculty. These two dissatisfactions were followed closely by factors related to the academic and social experiences of sophomores (e.g., grades, peer relationships, living situation, and health) (Schreiner, 2014).

From this data alone it is clear that the sophomore experience is impacted by a number of various experiences. Fortunately, institutions can address many of these factors. It seems that creating and fostering an informed, resource-rich environment can go a long way toward motivating sophomores and providing them the energy to remain engaged and regulated in their learning and their ability to progress through their postsecondary education.

Another challenge before higher education leaders is successfully interpreting research findings and applying them to one's own institutional setting. If available, locally collected student data should be used with general research results in this area to clarify when this disengagement of sophomore students is most likely to occur. Every institutional environment is unique and academic disengagement and subsequent dropouts are the product of both more personal, psychologically oriented aspects as well as more environmental, sociologically oriented influences. As a result, pinpointing an exact time during the sophomore year that this slump will actually occur is problematic, and one that likely differs not only from institution to institution, but also from student to student.

Again, if campus leaders and decision makers know when the slump is generally most likely to occur based on current findings, they can, if possible, combine these more general research-based guidelines with specific data on these students from their own institution. For example, if data was collected from students in their first year regarding their level of engagement, this could provide at least a rough indication for planning during the academic year. As a result, in the most ideal situation at least, particular actions that make up the successful implementation of a program aimed at improving the second-year experience could be strategically planned and guided as accurately as possible. This would allow program administrators to have the detailed, scheduled activities of their interventions in place and tactically implemented to ensure both the greatest possible positive impact for their sophomores and the most efficient implementation of their plans and actions.

Fortunately, past inquiries on sophomore disengagement have explored these students' experiences to determine not only the specific developments and phases that lead up to this slump, but to also try and establish an estimated timeline for this process. This research can help

both the discussion and methodology of the current study. Transition Theory, presented by Bridges (2003) and originally applied to address issues workplace change, has also been to investigate second-year engagement issues. The idea behind this theory is that during a transition (e.g., from freshman to sophomore year) there is not only a beginning, but a process of leaving things behind and letting previous aspects go so one can successfully evaluate their new situation, role, and environment. Administrators and researchers may often think of students as being ready to begin their college tenure or move on to a specific year. However, this new beginning is also a time of ending, as students must let go of earlier responsibilities and to take on new roles (Heier, 2012).

The unique confrontations faced by sophomores could be that they have not quite completed this transition and are between the process of ending their first year (or even the life they had before starting college altogether) and beginning their second year. This could be amplified for sophomores due to newfound responsibilities and increasingly important decisions that must be made. Clarification of this process and what it specifically means for institutions and sophomore students is vital if leaders hope to help improve their students' engagement, motivation, and self-regulation. Successfully navigating through this neutral zone that exists between ending the previous year and beginning the second year is partially a function of sophomore students' ability to reevaluate their priorities and sense of purpose (Heier, 2012). This capacity related to reevaluating one's situation is directly related to students' subsequent engagement, motivation, and, ultimately, achievement (Duru, Duru, & Balkis, 2014). Heier (2012) states that these aspects justify a careful consideration of sophomore students and the ways they experience loss at both the end of their first year and the beginning of their second

year. Attention to this development is essential for institutional leaders that are concerned with successfully facilitating the transition process for these students.

Furthermore, research has long demonstrated that unless this skill is specifically nurtured, students at all levels of education often fail to transfer their educational experiences from one situation to the next (McKeough, Lupart, & Marini, 1995; Lightner, Benander, & Kramer, 2008). It is challenging to help students see the benefits of this experiential transferal from one situation to the next, and even more so between their current classes and co-curricular activities. As a result, it is likely even more difficult to successfully foster this ability in students from one academic year to the next. This is especially problematic for sophomore students because they often perceive less resources available to them as they begin their second year. For these reasons, it is critical that educational leaders spend time and resources to identify strategies to support their students' transitions from first year to second year.

Lastly, it is important for work in this area to realistically explore every discovered influence on academic achievement. This will require prospective studies to take sophomore students' sex into account. This variable, as it relates to sophomore students specifically, is important to research because of increasing sex disparities in various aspects of college achievement (e.g., enrollment, performance, retention, and graduation). Prospective differences in male and female sophomore students' engagement, motivation, and self-regulation as they relate to their academic behaviors and thought processes also justify a systematic examination of sophomore students' sex and its potential relationship with achievement.

Sophomore Slump and Male Students

Supporting the need for more results from heterogeneous samples, Bisese and Fabian (2006) reported a research-based approach to addressing retention issues for male sophomore

students. Replicating the findings of previous studies, researchers at the University of Richmond reported that the attrition trend seems to not be a product of academic ability (their SAT scores for males and females were statistically similar; Bisese & Fabian, 2006). Since it appeared that males' academic ability was not the factor leading to increased difficulty during their sophomore year, the institutional strategy focused on personal assistance by developing relationships with faculty and peers outside of the classroom (similar to first-year experience type intervention programs). More importantly, it is using this engagement piece built upon from the freshman programs and extended to the second year to help address the increasing pressure that sophomore students face as they are increasingly faced with decisions that have life-long implications related to the planning their future careers.

In conclusion, the University of Richmond created a sophomore intervention program that focused on both extending the academic and campus social engagement (including both faculty and peers) from the first year to include sophomores and helping to clarify major and career-specific questions that were a significant and growing source of stress for students in their second year, particularly for males. As a result, Bisese and Fabian (2006) stated that the program increased male sophomore students' participation at the campus Career Development Center by 15%. Institutional initiatives like the University of Richmond's are a significant step toward meeting the needs of sophomores and are encouraging for male students, who are at a greater risk of being placed on academic probation (Burkholder & Leitner, 1999). For example, Bisese and Fabian (2006) identified that, at the University of Richmond, four times more male students than female students were placed on academic probation. When this is compared to the fact that, on average, male and female students score similarly on measures of academic ability,

it raises questions regarding what other factor(s) may influence academic achievement and predict what supports students in persisting to graduation.

Chapter Summary

The current literature on student achievement reveals a research body with numerous findings and practical challenges to overcome. The success of college students, particularly sophomores, appears to be determined by a number of academically and socially related variables. Some of these include sophomores' engagement, motivation, and self-regulation. Much work has been done to operationally define, conceptualize, and measure these concepts. At the same time, it appears that sophomores require unique solutions to maximize their achievement, and precise interventions may be needed for each sex.

Chapter three will provide information on the overall methodological approach of the current study and how the research questions have guided these decisions. Stemming from these questions, the chapter will provide discussion and justification for the selected research design and details regarding the appropriate population and sample. To conclude, the instrumentation and plans for data collection and the subsequent analyses will be discussed.

CHAPTER THREE

METHODOLOGY

Scholars have reliably demonstrated that the engagement of students is related to their academic success. Further research has also been conducted to investigate the specific factors that may help explain this relationship. As a result of this work, associations have been established between engagement, motivation, self-regulation, and achievement. Furthermore, achievement has been shown to be associated with increased student retention and graduation.

At the same time, there are a limited number of studies that consider these relationships at the postsecondary level, and no research examines all of these variables concurrently. Of the studies that do exist, the samples are homogeneous, with an over-representation of first-year, female students. It is important for future research to add to the literature by concentrating on sophomores. This focus is essential because these students are underrepresented in this area of research. Also, research has revealed that sophomores experience unique challenges. So, it logically follows from a methodological standpoint that the second-year experience has the potential to be uniquely related to the variables under study (and, by extension, student success in general) in ways that may not hold for freshmen, junior, or senior college students. As a result, it is necessary to control for students' year of study.

To provide thorough information on the means with which the study might achieve these essential objectives, chapter three begins with the study's specific research questions. Based on these questions, the study's design is then presented and provides specific details regarding the choice of a correlational framework and analyses. Following this, the targeted population and sample are discussed to provide context. Finally, the choice and subsequent creation of the study's instrumentation is deliberated before the data collection and analyses.

Research Questions

Based off the findings from past research, and in an attempt to fill the gaps left by these studies, the research questions guiding this study were:

1) What is the nature of the relationships among academic engagement, motivation, and self-regulation?
2) To what extent do engagement, motivation, and self-regulation predict academic achievement?
3) To what extent do engagement, motivation, and self-regulation interact when predicting academic achievement?
4) To what extent does the predictive nature of engagement, motivation, and self-regulation differ between females and males?

Research Design

To best answer the research questions being posed, the current study was quantitative in design. A quantitative methodology was justified in part by past research. This study sought to strengthen and extend the existing knowledge of factors related to student success by simultaneously studying the relationships between variables that have traditionally been examined separately. In addition, this study could add to the existing research on sophomores by investigating the relationship between these variables for these particular students. Since these variables and their relationships have been examined by previous research, albeit separately, this allows for a priori predictions based on these past findings. This deductive approach is a cornerstone to quantitative research and guided this study's methodology.

Creswell (2014) reasoned that quantitative hypotheses allow for predictions based on expected relationships that have been demonstrated in previous work. Therefore, since the

current study was based on certain anticipated relationships between engagement, motivation, self-regulation, and achievement that have been indicated throughout the literature, a quantitative approach best addressed the questions of this research. Furthermore, from a philosophical standpoint, quantitative methods focus on a specific plan to address particular questions (Roberts, 2010). The current study also sought to explore the critical factors of the student experience from the perspective of sophomores. This relates to the philosophical orientation of qualitative research, phenomenology, which focuses on individuals' experiences (Roberts, 2010). However, the central focus of the current study was on explaining and confirming certain influences on student outcomes more so than simply exploring potential factors. These factors also justified a quantitative approach.

This methodology choice afforded the ability to better explore and confirm potential influences on sophomore students' academic success and what these findings mean for academic leaders and their institutions. The goal of this research was to both reproduce and extend the findings of the existing literature by further examining potential influences on sophomore students' academic achievement. Tangney et al. (2004) demonstrated that students' self-regulation and level of academic achievement, as measured by GPA, are correlated. However, this study did not control for participants' current academic year or sex. Given the importance of reducing student dropout on an individual and institutional level, a problem that is particularly salient in the sophomore year, it is important to control for these variables.

Based on the specific questions being posed, a correlational framework and analysis was best suited for analyzing the data. As a result of this theoretical background, the plan was to employ a survey for data collection. This survey included a brief number of items that concern each principle variable under investigation: sophomore students' academic engagement,

motivation, and self-regulation. This design allowed the study to draw the most meaningful conclusions. Specifically, this capacity was the result of both the context in which the research was conducted and the questions and hypotheses that were selected to guide the study.

Population and Sample

The population under investigation was undergraduate sophomore students. This study focused on these students in an attempt to discover variables related to the success of students in this particularly challenging year. The sample from which results were drawn was Georgia Southern University sophomore students who were enrolled in courses during the spring, summer, and fall semesters of 2017. In alignment with most scholarship on the second-year experience, the researcher defined sophomore students as those who are currently in their second year of study (Heier, 2012). This explanation centers less on the exact amount of credit hours or courses a student has completed and more on the broader, overall time spent in college. For 2016-2017, 4,113 Georgia Southern University students were designated as sophomores, which are defined as those who have earned between 30 and 59.99 credit hours (Georgia Southern University, 2016b). So, while credit hour attainment was not the definition adopted for the present study, this description provided a basis from which to recruit student participants who were presumably in their second year. To ensure that participants were in their second year, they self-identified as sophomores based on the number of semesters they had been enrolled. Given this size, the focus on potential variances in achievement by student sex, and to ensure that the results were founded on a sufficient sample, the researcher planned to gather data from at least 300 sophomore students (Cohen, 1992). Further, since there is a potential difference in achievement between sexes, data analyses were to be based on a comparable mix of female and male participants. To help achieve this equivalency and the recruitment of sophomore students,

the researcher focused on recruiting participants from core classes. Finally, based on focal research by Cohen (1992) on establishing proper statistical power, and a typical in-person survey response rate of approximately 65%, the researcher contacted and recruited over 460 sophomore students.

Instrumentation

The contextual constraints in which data was collected required that the fewest, most meaningful items be used for each variable. This choice was made to facilitate participation and data collection. This resulted in a survey that contained 20 items, with the first three items devoted to participant demographics. By using an instrument that was as brief as possible, the researcher required less class time. Hopefully, this effort maximized instructors' participation, as it should have helped the researcher gain access to more classes from across the University and strengthen the study's findings. At the same time, the researcher had to balance the brevity of the instrument with the need for the instrument to be robust enough to help ensure that each item representing its respective variable was reliable.

Cronbach's Alpha was conducted in SPSS to determine the exact reliability of the final instrument. The four items related to engagement were grouped and analyzed together for a composite variable of engagement and the three items related to self-regulation were grouped and analyzed together for a composite self-regulation variable. The components of motivation were grouped and analyzed separately according to their subcomponent and this resulted in four variables related to motivation: intrinsic goal orientation, task value, self-efficacy, and perceived autonomy support.

Engagement. Items related to student engagement were drawn and adapted from both the MSLQ and the SCEQ. This variable included four items, three from the MSLQ and one

from the SCEQ. These items contained factors related to seeking help, students' time and study environment, and skills. Finally, these engagement questions were reflected in survey items 17, 18, 19, and 20. The reliability analysis revealed a Cronbach's Alpha of .50 for females and .70 for males, so females fall below the established .7 target (De Vaus, 2014).

Motivation. The questions on the MSLQ pertaining to motivation were adapted for use. These items related to intrinsic goal orientation, task value, self-efficacy, and perceived autonomy support. These factors were based on three broader, theoretical components described by the social-cognitive model of motivation—value, expectancy, and affect (Crede & Phillips, 2011).

Next, concerning the validity of these motivational constructs and their past psychometric performance, the value component relates to why students spend their time and energy engaged in certain academic duties. This section is constructed of three scales with 14 items that relate to intrinsic goal orientation, extrinsic goal orientation, and task value (Pintrich et al., 1993). Pintrich et al. (1991) reported that the intrinsic goal orientation subscale was moderately correlated with students' final grade (r = .25). Crede and Phillips (2011) reported that intrinsic orientation was less strongly correlated with GPA (r = .15). From this scale, items 1 and 22 held moderate correlations to course grade (r = .22 and .17, respectively). Pintrich et al. (1993) also reported that these items were defined by intrinsic goal orientation with Lambda-Ksi values of .64 and .66, respectively. Similarly, Crede and Phillips (2011) found that the intrinsic goal orientation subscale loaded most closely with the motivation factor (r = .65).

In addition to goal orientation, the value component of the motivation scales on the MSLQ also includes items related to task value. Specifically, item 17 was moderately correlated with course grade (r = .21) (Pintrich et al., 1993). Given this correlation and the fact that Zusho

and Pintrich (2003) reported that student interest and perceived value is a vital part of motivation and achievement, this item was particularly relevant to this study.

The next MSLQ section pertaining to the motivation scales concerns components related to expectancy. This component of the motivation scales included in this overall measure contains specific items related to self-efficacy and autonomy (Pintrich et al., 1993). Items related to these factors of motivation were appropriate for inclusion in the current study because they are supported by Self-Determination Theory. Ryan and Deci (2006) argued that the level of autonomy versus heteronomy in a given situation significantly influences individual motivation and self-regulation. Items related to self-efficacy have demonstrated the highest reliability and validity for predicting GPA. Specifically, items 20, 21, and 31 had strong correlations with final course grade (r = .39, .46, and .44, respectively) (Pintrich et al., 1991).

Given the importance of students' perceived academic control, it was also important to measure autonomy support. This component of motivation and self-regulation describes the extent to which students feel they are able to influence their outcomes. This variable, closely related to self-efficacy, is also a large part of Self-Determination Theory (Ryan & Deci, 2006). As such, three items from Garcia and Pintrich (1996) were included and since it was feasible that these items could have more value for investigating a broader level of academic achievement compared to research in specific courses. Garcia and Pintrich (1996) stated that the influence of autonomy may not be readily apparent for a single course; however, autonomy promotes motivation through intrinsic goal orientation and task value, so it may encourage students' future academic engagement.

Pertaining to the items related to motivation that were included in the current study's instrument, for intrinsic goal orientation, reflected in survey items four and five, the Cronbach's

Alpha was .44 for females and .41 for males, both of which are below the target reliability coefficient. Next, task value was measured with items six and seven and the reliability analysis revealed the Cronbach's Alpha to be .53 for females and .72 for males, so females fell below the recommended level of reliability. The third motivation component, self-efficacy, reflected in survey items eight, nine, and ten, demonstrated a Cronbach's Alpha of .82 for females and .79 for males. As a result, these three items demonstrated a strong level of reliability for both sexes. Perceived autonomy support, the final component related to motivation, was measured with items 11, 12, and 13 and demonstrated a Cronbach's Alpha of .76 for females and .79 for males, meeting the target reliability level.

Self-Regulation. Based on past research, items from the MSLQ on self-regulation were adapted for use in this study's survey as well. The meta-cognitive self-regulation, time and study environment, and effort regulation subscales were of particular interest. These factors emphasize the regulation of students' thoughts, behaviors, and affect.

Related to these items' psychometric performance in past research, Crede and Phillips (2011) reported that these three subscales had the highest validity for predicting college GPA (meta-cognitive self-regulation, r = .22; time and study environment, r = .23; effort regulation, r = .23). Specifically, item 61 of the metacognitive self-regulation scale was particularly relevant for the current study because it was shown to be closely correlated with achievement (r = .21) and it loaded onto the metacognition facet strongly (Lambda-Ksi = .60) (Crede & Phillips, 2011; Pintrich et al., 1993). Item 41 was also related to course grade and was included (r = .23) (Lambda-Ksi = .47) (Pintrich et al., 1993). Two items related to students' effort regulation were also used. This subscale was correlated with course grade (r = .32) and GPA (r = .23) (Crede & Phillips, 2011; Pintrich et al., 1993). Item 74 was related to achievement (r = .23) and had a

Lambda-Ksi value of .74 (Pintrich et al., 1991). Item 60 was also correlated with course grade (*r* = .29) (Lambda-Ksi = .52) (Pintrich et al., 1993).

A Cronbach's Alpha was also computed for the self-regulation items that were included as a part of this study's final instrument. Self-regulation was measured with survey item numbers 14, 15, and 16. The Cronbach's Alpha was .59 for females and .55 for males, so both were lower than the target level for reliability. See Appendix E for each item related to engagement, motivation, and self-regulation.

Demographics. The instrument also included three items related to participant demographics. The first item pertained to students' current academic year. This helped control for this variable in case some of the students in the class were in a different year and it helped clarify the study's definition of what constituted a sophomore student. The remaining two items asked for students' current GPA, the measure of achievement, and sex, to allow comparison between females and males.

Data Collection

Since a new questionnaire was constructed from two established surveys and the exact wording of items were slightly adjusted to account for the achievement level being investigated, it was necessary to test this instrument. The pilot included 21 students identified through a request that was sent to faculty members. See Appendix F. Student data that was collected during this initial phase was not included in the final results. Following data collection, Cronbach's Alpha was computed for the items related each factor to determine the components' reliability. Following this analysis, items were updated as needed. Specifically, one item related to metacognitive self-regulation demonstrated negative correlations with the remaining three self-regulation questions. As a result, this item was discarded from the final instrument.

Originally, only one item related to the task value component of motivation was included. After analyzing the reliability of the pilot data, another question pertaining to task value was taken from the MSLQ and added to create a final, 20-item instrument. See Appendix E.

Data for this study was collected at Georgia Southern University during the spring, summer, and fall 2017 semester. The bulk of the survey was distributed approximately mid-semester (mid-to-late April) to help guarantee the relevance of the data. This timing was essential because it could allow sufficient time for sophomore students to become involved and familiar with their second year and the capacity to differentiate it from their experience as a freshman.

Schaller (2005) indicated that sophomore students develop through three stages during their second year: focused exploration, tentative choices, and commitment. Furthermore, Heier (2012) claimed that sophomores must successfully navigate a period of adjustment that begins after they finish their first year and ends sometime during the initial stages of their second year. In short, the development and transition of sophomores gradually occurs over the course of their second year. Collecting data related to these students' experiences at the very beginning of their second year could have led to data that is not representative of the research questions being posed. In other words, the study would have ran the risk of collecting data from sophomore students who have not yet fully immersed themselves into their sophomore role and reflected on what it means to be in their second year. As a result, the decision to wait until the latter half of the academic year to collect data is not only face valid, but adequately justified by and grounded in past research. While ideal, this timing also had to be balanced with sample size needs and the logistics of data collection. As a result, to reach an adequate sample size, it was necessary to collect some of the data in the summer and fall semesters of 2017.

Using the University's online course directory, the researcher first compiled a list of all sophomore-level courses and sophomore-oriented co-curricular programs, the number of student enrolled, and the appropriate points of contact. Following the identification of these contacts, the researcher contacted them to request the participation of their students. See Appendix F.

Since participation depended on consent from both instructors and students, data from all colleges is not included and this limitation is addressed in chapter 5. Sophomores are typically early enough in their college career to not have fully committed to a specific major. However, the attempt to balance data collection across colleges as much as possible could have helped control for latent confounds related to potential differences in students across disciplines. Also, from a practical standpoint, gathering data from more than one college helped the researcher attain an adequate sample size.

Lastly, after the data were collected, the researcher entered participants' responses on the paper surveys into Microsoft Excel and responses that were missing GPA or sex were not included. After this, one item for self-regulation was reversed scored. The responses were then separated by sex, creating one spreadsheet for females and one for males. The missing data for items related to engagement, motivation, and self-regulation were then replaced by the mean for each respective item by sex. Next, items were averaged to compute a composite score for each of the three main variables for both females and males. This resulted in six variables overall, four components for motivation (intrinsic goal orientation, task value, self-efficacy, and perceived autonomy support) and one composite score for engagement and one for self-regulation. The data were then imported into SPSS for analysis.

Data Analysis

As with all quantitative studies, the data analysis was determined by the questions guiding the study. For the present study, this translated into a correlational framework. This best allowed for conclusions to be drawn regarding the nature of the associations between engagement, motivation, and self-regulation of sophomore students at Georgia Southern University.

For research question 1, a Pearson's r was computed in SPSS. Analyses also consisted of regression models to determine if engagement, motivation, and self-regulation adequately predicted achievement (research question 2) or if any of these three variables interacted with one another when predicting achievement (research question 3). Specifically, two regression models were created for both of the sexes for research question 2. For research question 3, each variable was centered about its mean and interaction terms were created, resulting in nine total interaction terms. Three regression models (i.e., engagement and motivation, self-regulation and motivation, and engagement and self-regulation) were created for both females and males, resulting in six models. The base variables were entered into the first step of the models and the interaction terms were entered into the second step. Finally, the last question focused on the potential differences between female and male sophomore students was addressed by visually comparing the female and male regression models from question 2 and 3 to reveal if any of the variables or their interactions predicted academic achievement differently.

Chapter Summary

Since the present research was based on past findings and, as a result, guided by the questions that were constructed prior to data collection, a quantitative approach best served the study. Given these research questions, methodological design choice, and the location and

timing of the data collection, the population and sample included Georgia Southern University students who self-classified as sophomores during the spring, summer, and fall 2017 semesters. Data collection consisted of paper surveys containing 20 items related to participants' demographics, engagement, motivation, and self-regulation. Specifically, surveys were distributed to sophomore students during the 2017 academic year between the middle and end of the spring semester, toward the beginning of the summer semester, and the first two weeks of the fall semester.

After collecting student responses, data was analyzed using correlational methods. These methods permitted the examination of the relationships between each variable and sophomore students' academic achievement. This approach also allowed the researcher to determine if there were any significant interactions among these variables that predicted achievement. Finally, it helped determine if there were any differences in these relationships between female and male sophomore students.

In closing, chapter four will provide the specific findings revealed through the data collected from sophomore students at Georgia Southern University. This chapter will be organized and presented by research question. More specifically, the breakdown of the results includes what the analyses revealed regarding the relationships between each variable, their ability to predict achievement, and any potential interactions between the variables when predicting achievement. Lastly, the differences in these findings between sexes are discussed.

CHAPTER FOUR

REPORT OF DATA

Higher education is situated in a dynamic atmosphere that places specific demands and different students. This, in turn, requires unique needs that are dependent on certain student characteristics. Sophomores, a group of students that have been largely overlooked in both the literature and in practice, are no exception and are presented with distinctive challenges during this second year. Academic engagement, motivation, and self-regulation have been shown to influence student achievement. Further, these relationships have been demonstrated to exist for students at primary, secondary, and university levels. However, past research has largely ignored the unique needs of different types of college students and has not comprehensively examined potential influences on the growing gap between females and males. For these reasons, this study focused on sophomores while investigating achievement separately for both females and males to see if the relationships between engagement, motivation, self-regulation, and achievement differed between the two sexes. The questions that guided the research were:

1) What is the nature of the relationships among academic engagement, motivation, and self-regulation?
2) To what extent do engagement, motivation, and self-regulation predict achievement?
3) To what extent do engagement, motivation, and self-regulation interact when predicting achievement?
4) To what extent does the predictive nature of engagement, motivation, and self-regulation differ between females and males?

To address these questions, a questionnaire was constructed from specific items selected from the MSLQ and the SCEQ. This resulted in a 20-item survey that was initially piloted in a

sophomore-level course during the spring 2017 term at Georgia Southern University. After analyzing the results from the pilot, one item related to self-regulation was removed from the survey due to a low level of reliability. In addition, one item was added for the task value component of motivation. First, potential classes and co-curricular programs were identified and the author contacted the instructors to ask permission to distribute the survey in one of their class or event meetings. The final version of the survey was administered to and collected from students in 2000-level courses across campus at Georgia Southern University during the spring, summer, and fall semesters of 2017. The following section provides details on the findings gathered from the overall demographic data. Following this, descriptive statistics for each variable and the findings for each research question are presented for both females and males.

Respondents

A convenience sample was necessary since data collection was entirely dependent upon instructors who were willing to allow their classes to participate. This resulted in responses from students enrolled in various courses, including: Exercise Science, Mechanical Engineering, Electrical Engineering, Physics, Accounting, Legal Studies, and Business. In addition, the survey was distributed to a group of sophomores at the Southern Leaders Fall Kickoff, an annual event hosted by the Office of Leadership and Community Engagement at Georgia Southern University.

Response Rate

Of the 632 surveys collected, 67 were from freshmen students, 264 were from sophomore students, 233 were from juniors, and 59 were from seniors. Finally, 9 surveys were collected from students who indicated “other” for class year. Since the surveys were distributed in-person in classes across Georgia Southern University’s campus, the response rate was approximately

100 percent. Questionnaires with omitted responses for the items related to engagement, motivation, and self-regulation were replaced with the item's average. In instances where the participant failed to provide their GPA or sex, eight responses were excluded from analysis altogether, resulting in a final total of 264 questionnaire responses from sophomores.

Demographic Data

Existing literature demonstrates that sophomore students have unique challenges related to their achievement. Furthermore, existing studies pertaining to engagement, motivation, self-regulation, and achievement largely exclude second-year undergraduate students. To address this need, participants were asked for their current class year. Similarly, females have begun outpacing male students in terms of enrollment, progression, and graduation and findings in this research area are overwhelmingly based on female students. As a result, participants were asked to provide their sex. From the 264 viable responses collected from sophomore students, 152 indicated they were female (57.5%) and 112 (42.5%) indicated they were male.

Findings

The current study focused on engagement, motivation, self-regulation, and achievement. These variables were measured using select items from the MSLQ (Pintrich et al., 1993) and the SCEQ (Handelsman et al., 2005). For achievement, the outcome variable, participants identified their current GPA. The descriptive statistics for each variable are provided separately for both female and male sophomore students in the following sections.

Engagement

A total of four survey items related to engagement were included, with three of the items from the MSLQ and one item from the SCEQ. These four items, which are established factors of

engagement, related to Help Seeking (HS), Time and Study Environment (TSE), and Skills (S) (Pintrich et al., 1993; Handelsman et al., 2005).

Engagement Score. An average was computed from scores on each individual item to create a composite score of engagement. The sample's aggregated engagement scores were collectively operationalized through the use of four items, three from the MSLQ and one from the SCEQ and were related to help-seeking behavior, use of time and study environment, and skills. The separate frequencies for the scores of engagement presented for females in Figure 7 and for males in Figure 8 below.

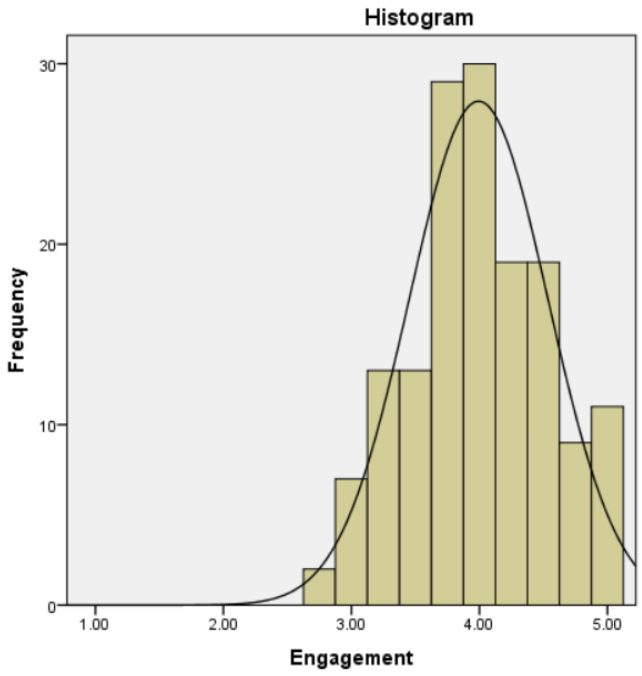


Figure 7. Frequencies of Engagement scores in the studied sample of female students

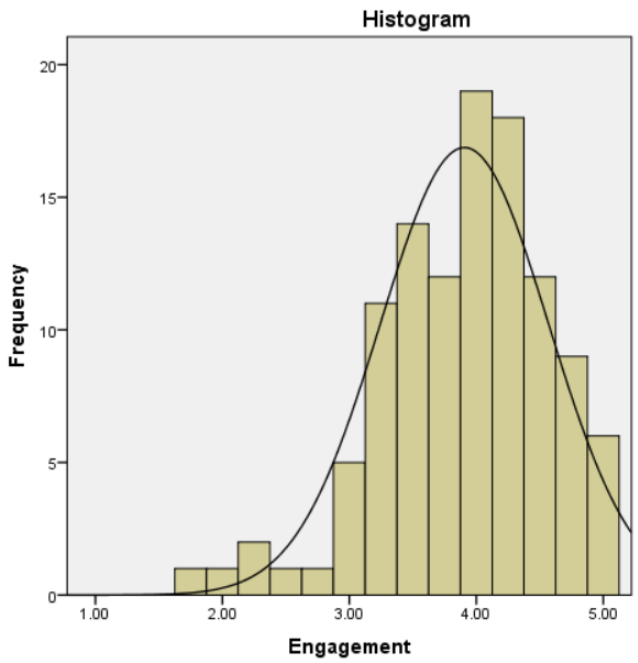


Figure 8. Frequencies of Engagement scores in the studied sample of male students

As shown in Figure 7, the frequency of scores on engagement for females tends toward the higher end of the 1 to 5 scale, with the *M* = 3.99. The same holds for male sophomore students' responses displayed in Figure 8, with the *M* = 3.90. Descriptive statistics for the engagement scores are provided individually for both male and female sophomore students in Tables 2 and 3.

Motivation

Motivation was the next variable considered in this study. Of the included items that relate to intrinsic goal orientation (IGO), task value (TV), self-efficacy (SE), and perceived autonomy support (PAS), all were taken from the MSLQ.

Motivation Scores. Given the breadth of this variable and the number of items included in the study's instrument that relate to students' motivation, an average was computed for each component of motivation (i.e., IGO, TV, SE, and PAS) as defined by the current study, rather than include a single composited score for motivation as a whole. This approach was taken to

not only help make the results as meaningful as possible, but also to not restrict this study to defining motivation as being made up of only these four components. The frequencies for the scores on each component of motivation are presented separately for females and males in Figures 9 through 16 below. Descriptive statistics for each of these four components of motivation are provided separately for both male and female sophomore students in Tables 2 and 3.

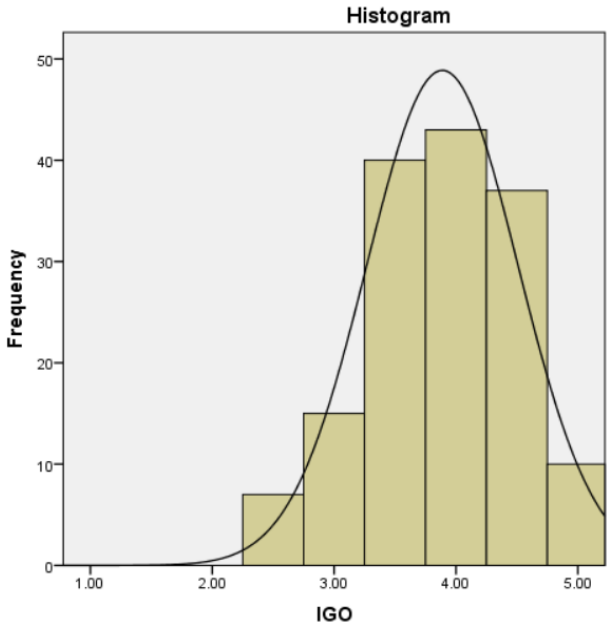


Figure 9. Frequencies of IGO scores in the studied sample of female students

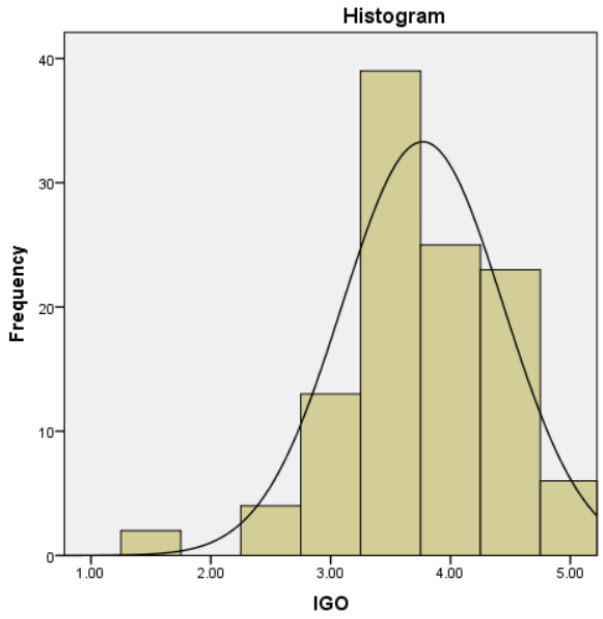


Figure 10. Frequencies of IGO scores in the studied sample of male students

As shown in Figure 9, the frequency of scores on intrinsic goal orientation for females also tends toward the higher end of the 1 to 5 scale, with the *M* = 3.89. Again, the same holds for male sophomore students' responses to items related to intrinsic goal orientation displayed in Figure 10, with the *M* = 3.77.

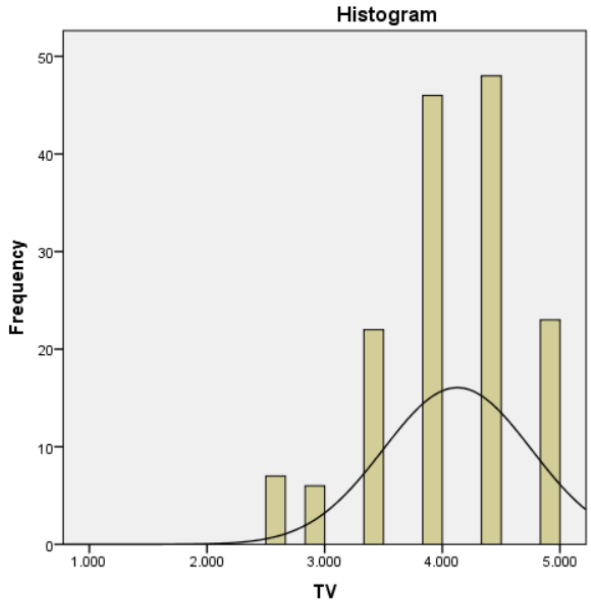


Figure 11. Frequencies of TV scores in the studied sample of female students

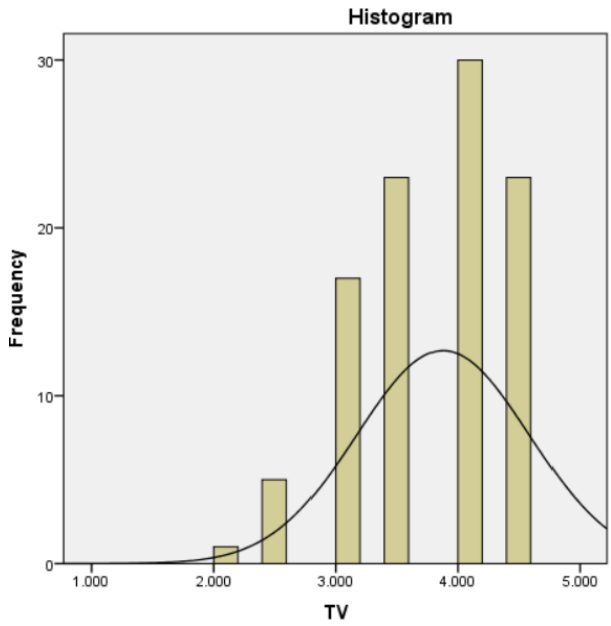


Figure 12. Frequencies of TV scores in the studied sample of male students

The frequency of scores on task value for females also tends toward the higher end of the 1 to 5 scale, with the *M* = 4.12. See Figure 11. The same holds for male sophomore students' responses to items related to task value displayed in Figure 12, with the *M* = 3.88.

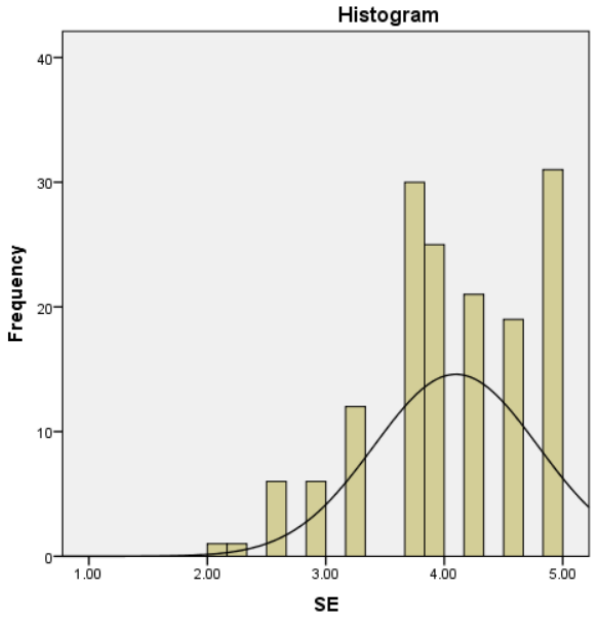


Figure 13. Frequencies of SE scores in the studied sample of female students

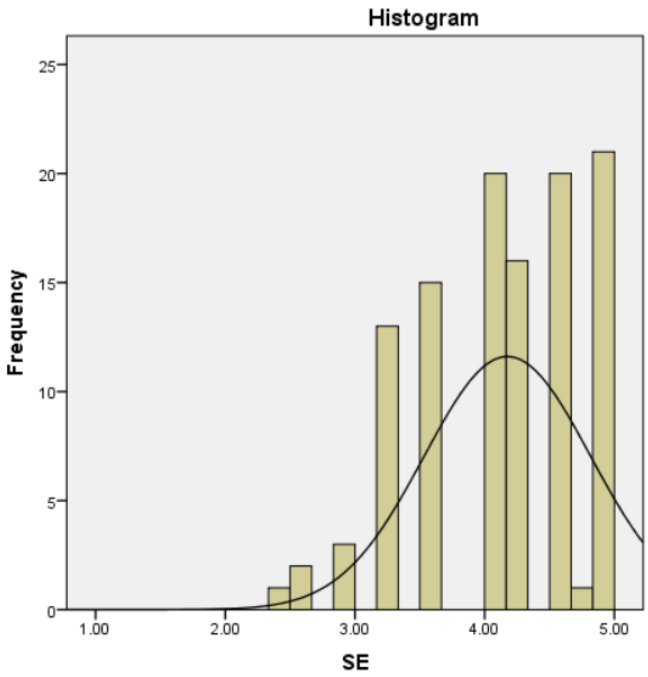


Figure 14. Frequencies of SE scores in the studied sample of male students

The frequency of scores on self-efficacy for females also tends toward the higher end of the 1 to 5 scale, with the *M* = 4.10. See Figure 13. The same holds for male sophomore students' responses to items related to self-efficacy displayed in Figure 14, with the *M* = 4.18.

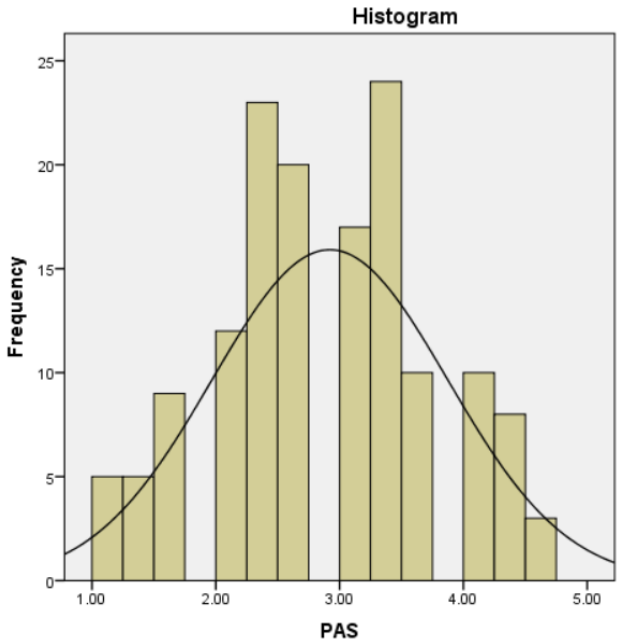


Figure 15. Frequencies of PAS scores in the studied sample of female students

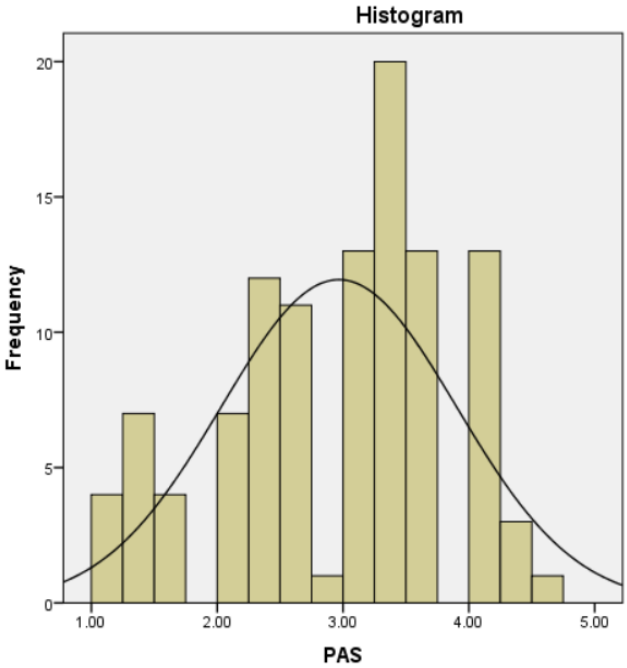


Figure 16. Frequencies of PAS scores in the studied sample of male students

The frequency of scores on perceived autonomy support for females is normally distributed, with the *M* = 2.92. See Figure 15. The same holds for male sophomore students' responses displayed in Figure 16, with the *M* = 2.97.

Self-Regulation

Three items pertaining to self-regulation, all taken from the MSLQ, were included in the questionnaire. The items represented Metacognitive Self-Regulation (MSR) and Effort Regulation (ER) factors of the overall self-regulation construct. One of the items related to self-regulation was reverse scored during analysis: "when course work is difficult, I give up or only study the easy parts."

Self-Regulation Scores. Similar to the other variables, participant's scores on each item related to self-regulation were averaged to obtain a combined score for this study's operational definition of self-regulation. The frequencies for the scores on self-regulation are presented separately for females and males in Figures 17 and 18 below.

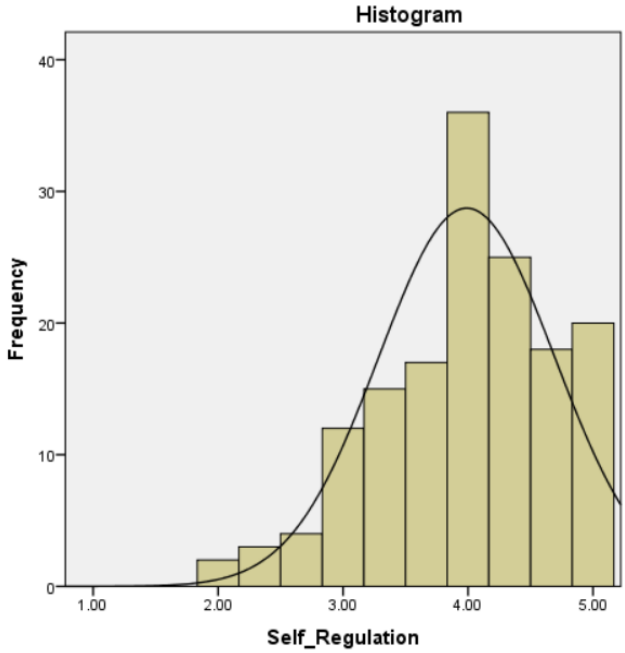


Figure 17. Frequencies of Self-Regulation scores in the studied sample of female students

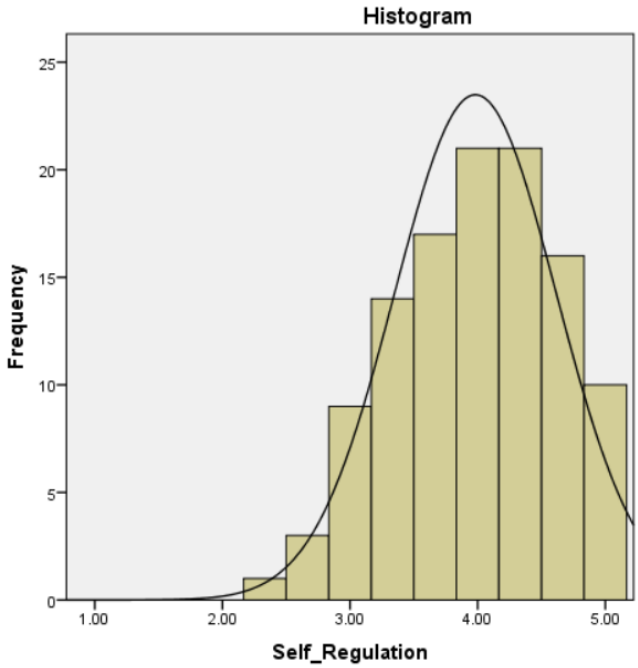


Figure 18. Frequencies of Self-Regulation scores in the studied sample of male students

Similar to most of the other variables, the frequency of scores on self-regulation for females tends toward the higher end of the 1 to 5 scale, with the *M* = 3.99. See Figure 17. The

same holds for male sophomore students' responses displayed in Figure 18, with the *M* = 3.98. Descriptive statistics for the self-regulation scores are provided separately for both male and female sophomore students in Tables 2 and 3.

Grade Point Average

The outcome variable for the study is sophomore students' overall GPA on a 1 to 4 scale.

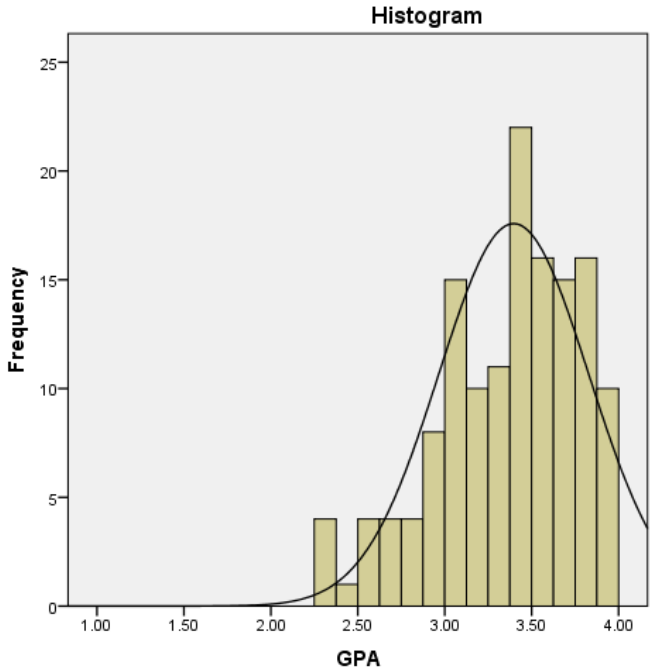


Figure 19. Frequencies of GPA scores in the studied sample of female students

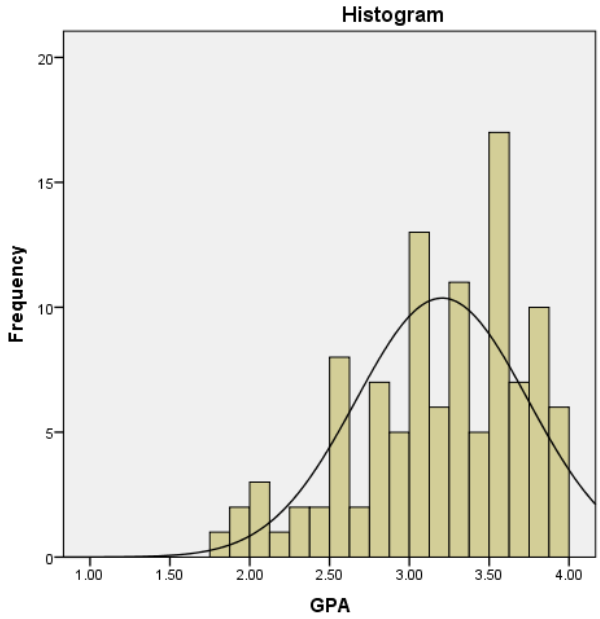


Figure 20. Frequencies of GPA scores in the studied sample of male students

Also similar to many of the other variables, the frequency of scores on GPA for females tends toward the higher end of the 1 to 4 scale, with the *M* = 3.39. See Figure 19. The same holds for male sophomore students' responses displayed in Figure 20, with the *M* = 3.20. Descriptive statistics for the sample's GPA scores are provided separately for both male and female sophomore students in Tables 2 and 3.

Report of the Data Analyses

In total, 264 complete questionnaires were collected from sophomores in classes across the Georgia Southern University campus. One item was reverse coded prior to analyses. See Appendix E. Prior to analyses, averages were computed for each item to provide a composite score for engagement and self-regulation. Motivation scores were aggregated and analyzed by component: Intrinsic Goal Orientation, Task Value, Self-Efficacy, and Perceived Autonomy Support. Averages were calculated separately for these items to provide composite scores for each.

Relationships between Engagement, Motivation, Self-Regulation, and Achievement

The central research question was "What is the nature of the relationships among academic engagement, motivation, and self-regulation?" To answer this question, correlations were computed for each of these variables. Specifically, the scores for engagement, motivation, and self-regulation were analyzed using Pearson's r. Results for both male and female students are presented separately below in Tables 2 and 3, respectively. Descriptive statistics are also provided for each variable.

Table 2. Correlations and Descriptive Statistics for Engagement, Motivation, Self-Regulation, and GPA for Male Sophomore Students

	1	2	3	4	5	6	7
1. Engagement	---						
2. Intrinsic Goal Orientation	.38**	---					
3. Task Value	.53**	.32**	---				
4. Self-Efficacy	.39**	.27**	.40**	---			
5. Perceived Autonomy Support	.18	.06	.05	.00	---		
6. Self-Regulation	.38**	.22*	.39**	.35**	.02	---	
7. GPA	.20*	.12	.15	.38**	-.14	.15	---
M	3.90	3.76	3.88	4.17	2.96	3.98	3.20
SD	0.66	0.67	0.70	0.64	0.93	0.63	0.55
α	0.70	0.41	0.72	0.79	0.79	0.55	--
Min/Max Values	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	0 to 4

**p < .01, *p < .05, n = 112

Table 3. Correlations and Descriptive Statistics for Engagement, Motivation, Self-Regulation, GPA for Female Sophomore Students

	1	2	3	4	5	6	7
1. Engagement	---						
2. Intrinsic Goal Orientation	.48**	---					
3. Task Value	.44**	.45**	---				
4. Self-Efficacy	.52**	.40**	.33**	---			
5. Perceived Autonomy Support	.21**	.17*	.15	.25**	---		
6. Self-Regulation	.52**	.43**	.33**	.51**	.13	---	
7. GPA	.21**	.08	.01	.23**	-.10	.21**	---
M	3.99	3.88	4.12	4.09	2.92	3.98	3.39
SD	0.54	0.62	0.62	0.69	0.95	0.70	0.43
α	0.50	0.44	0.53	0.82	0.76	0.59	--
Min/Max Values	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	0 to 4

**$p < .01$, *$p < .05$, $n = 152$

Motivation Components. For males, intrinsic goal orientation, task value, and self-efficacy were all significantly correlated with one another. Perceived autonomy was not related to any of the other three components of motivation for the male participants. For females, the relationships between all of the motivation components were significantly related except for the relationship between task value and perceived autonomy support.

Engagement and Motivation. Male participants' scores on engagement and motivation were submitted to a correlational analysis. This Pearson's r revealed that three of the four factors of motivation had a significantly positive relationship with engagement. Perceived autonomy support was the only component of motivation that was not related to male sophomores' engagement. For females, all components of motivation demonstrated significant, positive correlations with engagement.

Motivation and Self-Regulation. Next, the scores from the components of motivation and self-regulation were submitted to Pearson's r to reveal their exact relationship. For males, similar to the relationships between motivation and engagement, all components of motivation except for perceived autonomy support shared a significant, positive relationship with self-regulation. For females, the results were similar. Intrinsic goal orientation, task value, and self-efficacy were all significantly positively related to self-regulation—only perceived autonomy support demonstrated no correlation to self-regulation.

Engagement and Self-Regulation. Engagement and self-regulation were also analyzed for potential correlations. For the males, these two variables were positively correlated at the .01 level ($r = .38$). A similar relationship between engagement and self-regulation was found for female sophomores; however, their correlation was even stronger ($r = .52$, $p < .01$).

Engagement, Motivation, Self-Regulation, and Achievement. For males, GPA is significantly correlated with engagement (r = .20, p < .05) and self-efficacy (r = .38, p < .01). Similar results are presented for female sophomore students' engagement (r = .21 p < .01) and self-efficacy (r = .23, p < .01); however, females' self-regulation is also positively correlated at the .01 level (r = .21).

Predictive Capacity of Engagement, Motivation, and Self-Regulation

Building upon the preceding analyses, the second research question was "To what extent do engagement, motivation, and self-regulation predict achievement?" A multiple regression analysis was conducted to predict GPA with composite scores for engagement, each component of motivation, and self-regulation. The results are presented below in Table 4 for both male and female sophomore students.

Table 4. Regression of GPA on Engagement, Motivation, and Self-Regulation for Both Male and Female Sophomore Students

	Male				Female			
Variable	b	se	95% CI	t	b	se	95% CI	t
Engagement	0.08	0.09	-0.09, 0.27	0.93	0.12	0.08	-0.03, 0.29	1.53
IGO	0.00	0.07	-0.14, 0.16	0.10	-0.02	0.06	-0.15, 0.10	-0.40
Task Value	-0.02	0.08	-0.19, 0.13	-0.34	-0.07	0.06	-0.20, 0.04	-1.22
Self-Efficacy	0.29	0.08	0.12, 0.46	3.48**	0.12	0.06	0.00, 0.24	1.98*
Per. Aut. Sup.	-0.09	0.05	-.019, 0.00	-1.82	-0.08	0.03	-0.15, 0.00	-2.20*
Self-Reg.	0.00	0.08	-0.16, 0.17	0.04	0.06	0.06	-0.05, 0.18	1.12

Males: R^2 = .18, adj. R^2 = .13, F = 3.80**, df = 6, 105; n = 112, **p < .01, *p < .05
Females: R^2 = 0.12 adj. R^2 = .08, F = 3.25** df = 6, 145; n = 152, **p < .01, *p < .05

As Table 4 indicates, there is a significant regression equation for males (F (6, 105) = 3.80, p < .01), with an R^2 of .18. Specifically, the regression model for males reveals that one of the components of motivation, self-efficacy (t = 3.48, p < .01), is the only significant predictor of GPA. Therefore, male sophomore participants' self-efficacy accounts for 18% of the variance in their GPA. There is also a significant regression equation for females (F (6, 145) = 3.25, p < .01), with an R^2 of .12. Specifically, the regression model for females reveals that both self-

efficacy (t = 1.98, p < .05) and perceived autonomy support (t = -2.20, p < .05) are significant predictors of GPA. The regression equation for female sophomore participants' shows that self-efficacy and perceived autonomy support account for 12% of the variance in females' GPA. While the relationship between self-efficacy and GPA is positive for both sexes, females' perceived autonomy support and GPA are inversely related.

Interactions between Engagement, Motivation, and Self-Regulation

The third research question was "To what extent do engagement, motivation, and self-regulation interact when predicting achievement?" Regression analyses were conducted and included interaction terms computed from participants' composite scores for engagement, each component of motivation, and self-regulation as the predictor variables and GPA as the outcome variable. Interactions were created and analyzed between each of the four components of motivation (i.e., IGO, TV, SE, and PAS) and the remaining two variables, as well as between the composite scores for engagement and self-regulation. This led to nine total interactions: four between motivation and engagement, four between motivation and self-regulation, and one for engagement and self-regulation. Since none of these individual interactions significantly contributed to the prediction of sophomores' GPA, the results are provided according to each composite variable (i.e., motivation is presented as an aggregate of IGO, TV, SE, and PAS). This resulted in three groups of interactions for both male and female students, which are presented in Table 5 and explained further below.

Table 5. Regression of GPA on Interactions between Engagement, Motivation, and Self-Regulation for Both Male and Female Sophomore Students

Interaction Models	F	df	p
Males			
Motivation and Engagement	0.27	10, 101	0.89
Motivation and Self-Regulation	0.91	10, 101	0.46
Engagement and Self-Regulation	2.90	7, 104	0.09
Females			
Motivation and Engagement	0.26	10, 141	0.90
Motivation and Self-Regulation	0.81	10, 141	0.52
Engagement and Self-Regulation	0.45	7, 144	0.50

As Table 5 shows, the regression models were comprised of interaction terms between all three of the predictor variables. This resulted in three overall groups of interactions for each sex: a model for motivation (i.e., IGO, TV, SE, and PAS) and engagement, one for motivation and self-regulation, and a final model for engagement and self-regulation. The three analyses for males revealed that none of the interactions significantly added to their particular model's capacity to predict sophomore students' GPA. That is, no interaction model significantly predicted male participants' GPA above and beyond the variance that was already collectively accounted for by the distinct scores for engagement, motivation, and self-regulation. Finally, no interactions significantly predicted females' GPA.

While no interaction significantly predicts male sophomores' GPA, there was evidence for an interaction between males' engagement and self-regulation ($F = 2.90$, $p = .09$). Given the size of the sample of male sophomore students in this study, there was not enough statistical power to detect such a relationship, should it exist. However, the results of this interaction might suggest that the slope for engagement and self-regulation changes at different values of the other variable. See Table 6 below.

Table 6. Interactive Statistical Effect for Engagement and Self-Regulation Predicting GPA for Male Sophomore Students

	Engagement			Self-Regulation	
	b	p		b	p
Low Self- Reg. (-1 SD)	-0.14	0.90	Low Engagement (-1 SD)	-0.14	0.23
Self- Reg. at Mean	0.09	0.30	Engagement at Mean	-0.03	0.69
High Self- Reg. (+1 SD)	0.20	0.07	High Engagement (+1 SD)	0.07	0.41

Table 6 reveals two important findings, but these should be considered with caution. While there seems to be evidence for an interaction between male sophomore students' engagement and self-regulation, the current sample size limits the findings. Larger sample sizes employed in future studies will help reveal the true extent of this relationship. For the current study, it would seem that as male participants' self-regulation increases, so does the predictive power of engagement. As their self-regulation increases, the slope for engagement also increases in a positive, linear fashion. In summary, male participants' engagement is most predictive of GPA at higher levels of self-regulation. Secondly, as male participants' level of engagement increases, the slope for self-regulation becomes more positive, but the slope is also weaker. Specifically, for this sample, self-regulation is most predictive of GPA for males with lower levels of engagement, has little predictive power for males with average levels of engagement, and has positive, but weaker, predictive power for males who report higher levels of engagement. In summary, it may be that an interaction between self-regulation and engagement exists for male sophomore students; however, due to the current study's sample size and the number of predictors, there is insufficient power to adequately detect this interaction.

Engagement, Motivation, Self-Regulation, Achievement, and Student Sex

The fourth research question was "To what extent does the predictive nature of engagement, motivation, and/or self-regulation differ between females and males?" A visual inspection of the regression models presented in Table 4 on page 95 indicates that the predictive

nature of these variables was mostly similar for females and males. Self-efficacy is the only predictor of both female and male sophomore students' GPA. Perceived autonomy support is predictive of only females' GPA and the two variables share an inverse relationship.

Chapter Summary

For male sophomore students, the results for the first research question revealed correlations between engagement and three of the four components of motivation, all except perceived autonomy support. A positive correlation was also demonstrated between self-regulation and three of the four components of motivation, again all except perceived autonomy support. Finally, a positive correlation was found between male sophomore students' level of engagement and level of self-regulation. For females, correlation analyses pertaining to the first research question demonstrated positive correlations among engagement and all components of motivation. Additionally, positive correlations were revealed between self-regulation and three of the four components of motivation, all except perceived autonomy support. Finally, similar to males, there was a positive correlation established between engagement and self-regulation.

For the second and third research questions, regression analyses revealed that only self-efficacy was significantly predictive of male participants' GPA. However, both self-efficacy and perceived autonomy support were significantly predictive of GPA for female sophomore students. In terms of research question 3, the results indicated that only the interaction between engagement and self-regulation were significantly predictive of males' GPA. No interactions were predictive of females' GPA. Lastly, for research question 4, female and male sophomore students were shown to hold some similarities regarding the variables predicting their GPA. That is, self-efficacy significantly predicted both male and female sophomore students' GPA. Perceived autonomy support significantly predicted GPA only for female sophomores.

In conclusion, chapter five will open with an overall summary of the results presented in chapter four before providing interpretations of the major findings for each specific research question. Results will then be discussed in the context of educational leadership and what specific implications for practice these findings may have for leaders currently serving institutions of higher education. Chapter five will conclude with recommendations for future research.

CHAPTER 5

SUMMARY, CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

Summary of the Study

Student achievement is influenced by numerous individual and social factors (Hattie & Anderman, 2016). Some examples of the variables that have been examined in the literature are engagement, motivation, and self-regulation (Green, 2015; Karadağ, 2017; Mousoulides & Philippou, 2005). Nevertheless, there are specific aspects of these variables' influence on student achievement that have not yet been adequately addressed by the current body of work.

First, a number of studies have helped establish the independent influence that these variables have on student achievement (Green, 2015; Karadağ, 2017; Mousoulides & Philippou, 2005). Furthermore, there is research that focuses on a partial combination of these variables and their shared influence on achievement (Baumeister & Schmeichel, 2012; Muenks, Wigfield, Yang, & O'Neal, 2017; Reeve & Lee, 2014; Wibrowski, Matthews, & Kitsantas, 2017). However, no research was found that considered the relationships between these three variables simultaneously and how their collective influence might be associated with the achievement of specific student populations—thus revealing a gap in the present literature. Next, as students progress through their undergraduate studies, they encounter and must successfully navigate unique challenges related to a broad scope of these variables. The second year of college is no exception and, based on the literature, sophomore students are especially vulnerable to these barriers to their education (McBurnie et al., 2012; Quinlivan, 2010). There are several reasons for which second-year students might be faced with challenges that could impede their success and even contribute to their dropout.

The vast majority of university support programs focus on the first year and helping students to integrate and establish their engagement on campus (McBurnie et al., 2012; Toblowsky, 2008). Other institutional efforts normally target students transitioning into their senior year to help ensure that the graduating students are ready for their careers or graduate school (Toblowsky, 2008). While these initiatives are important for assisting freshmen and senior students, they could result in fewer resources available for the support of students progressing through their middle years. This, in turn, means these students will receive less support than when they first began college. This could be detrimental for students since the second year can prove to be a particularly stressful time for college students. This pressure stems from the fact that sophomores are in the midst of moving from the open exploration of the first year to encountering of some of their biggest decisions in their second year (Toblowsky, 2008; Vaughn & Perry, 2013).

Finally, of the studies that have explored the potential factors related to undergraduate student success, many of the results are based on samples of female students (Voyer & Voyer, 2014). For the studies that do include results based on samples of either mostly males or a balance of female and male undergraduate students, the studies are typically STEM fields (Voyer & Voyer, 2014). As a result, a limited number studies exist that can provide results from a balanced sample in terms of student class year, sex, and in majors and courses from a variety of disciplines across an institution.

Based on the combined areas of research on achievement, engagement, motivation, self-regulation, sophomore students, and achievement disparities between female and male students, the following research questions were created to guide the current study:

1) What is the nature of the relationships among academic engagement, motivation, and self-regulation?
2) To what extent do engagement, motivation, and self-regulation predict achievement?
3) To what extent do engagement, motivation, and self-regulation interact when predicting achievement?
4) To what extent does the predictive nature of engagement, motivation, and self-regulation differ between females and males?

Overall, to provide a way in which to address and answer these four research questions, a 20-item questionnaire was developed. To accomplish this, the author used items from two instruments, MSLQ (Pintrich et al., 1993) and the SCEQ (Handelsman et al., 2005), which have been used throughout the literature with established reliability and contain items related to college students' academic engagement, motivation, and self-regulation. The resulting survey, in paper form, was physically distributed to students in a variety of undergraduate courses across Georgia Southern University's campus. After data collection, survey responses were entered into Excel, cleaned up, and then imported and calculated in SPSS, with the specific analyses depending on the exact research question.

For the first research question, the results for engagement, motivation, self-regulation, and GPA were submitted to a Pearson's r correlation analysis separately by sex. For the second research question, a regression analysis was employed for each sex to see if the measures of engagement, motivation, and self-regulation significantly predicted female and male sophomores' GPA. Next, to address the third research question, additional regression models (for both females and males) were created to determine if any of the interactions between these three variables predict sophomore students' GPA. Finally, the fourth research question was

addressed by further examining the results from the regression analyses conducted separately for females and males to determine precisely where, if any, differences existed.

Limitations, Delimitations, and Assumptions

First, the study employs a self-report measure as the data collection tool. While students should have relatively low motivation to bias the results by providing information that is not entirely true, social desirability bias is always a threat to self-report methods. Despite ensuring anonymity, when researchers ask personal questions there may be an inherent desire to present oneself more favorably. However, Tangney et al. (2004) measured participants' self-regulation and GPA with both versions of their self-regulation scales and reported that the findings remained significant even when controlling for social desirability bias. So, based on the literature, and in an attempt to keep the survey brief, items related to social desirability are not included. This should still be considered when considering the results and findings.

Also related to the self-report nature of the instrument, note that both female and male responses to all of the variables except for perceived autonomy support tend toward the high end of their scales and, as such, have limited variability. It is possible that this sample of sophomore students created a ceiling effect for these variables by overestimating their engagement, intrinsic goal orientation, task value, self-efficacy, self-regulation, and GPA. More specifically, pertaining to the participants' GPA, while the average Georgia Southern University sophomore student GPA is not provided, the current self-report data on this variable may be unrealistic and should be considered when reviewing the results.

Regarding additional threats to the validity of this study's results, a Cronbach's Alpha analysis indicates that most of the items included in the survey demonstrated low reliability, thus suppressing the relationships and weakening the validity of this study's findings. Also, given the

inadequate size of the sample and large number of variables under examination, it is difficult to assess the potential interactions between all of the included variables. Since there were both moderate inter-correlations between most of the variables and an inadequate sample size, this makes analyzing the data difficult as it inflates the standard error.

Next, this study was not experimental by design and can make no claims regarding causality. Since scores from participants' responses were correlated with one another using a regression model, correlational methods were the approach to data analysis for this study. Again, this methodology was considered when reporting the results.

This study is delimited to second-year, undergraduate students. Information related to student success has been based on evolving approaches, various levels of students' education, numerous relationships between variables, and even inconsistent definitions of such variables. Any claims, as a result, only relate to first-time, full-time postsecondary sophomore students, or the "traditional" university student who is in his or her second year of study. While this allowed the current study to control for class year and investigate the unique needs of sophomore students more closely, comparisons could not be made across class years to strengthen the validity of the findings. The researcher selected Georgia Southern University as the site of study because of its accessibility. Results from a southeastern regional institution in rural Georgia could strengthen the external validity of this line of research.

Major Findings

This research investigated the relationships, through correlation and regression analyses, between engagement, motivation, self-regulation, and GPA. The present study sought to extend existing findings and address the gap in the current body of knowledge by focusing on students in their second undergraduate year and the potential differences between female and male

sophomore students. Descriptive statistics of the sample, the interpretations of the findings for each research question, and conclusions, with specific implications and recommendations, are presented next.

Descriptive Statistics of the Sample

As shown in Figures 7 through 14 on pages 83 through 88, as well as in Figures 17 through 20 on pages 90 through 92, the sample's scores on engagement, intrinsic goal orientation, task value, self-efficacy, self-regulation, and GPA all tend toward the higher end of their scales. This finding holds true for both female and male participants. As a result, the data demonstrate a lack of variability for these variables. For the outcome variable, GPA, both sexes reported an average GPA of above a letter grade of "B," which should be interpreted with caution as this may be slightly above the average Georgia Southern University sophomore student's GPA and not entirely realistic. Perceived autonomy support was the only variable without a large number of high-end responses.

Relationships between Engagement, Motivation, Self-Regulation, and Achievement

Research question 1 pertains to the nature of the relationships among engagement, motivation, and self-regulation, and there are several significant positive relationships. First, for the female sophomore students', IGO, TV, SE, and PAS are all significantly positively correlated with engagement. In addition, IGO, TV, and SE are significantly positively correlated with female participants' self-regulation. The findings do not reveal a statistically significant relationship between the PAS component of motivation and female students' self-regulation. The analysis also shows a significant positive correlation between engagement and self-regulation for female participants. For the relationships between the components of motivation, for females, all share significantly positive associations, except for PAS and TV.

For male sophomore participants', only IGO, TV, and SE components of motivation are significantly positively associated with engagement—the PAS component is not. The results reveal a similar trend for the associations between males' level of motivation and self-regulation. That is, only IGO, TV, and SE are significantly positively associated with self-regulation—the PAS component is not. Male participants also have a significant positive correlation for the final pair of variables, engagement and self-regulation. For the relationships between the components of motivation, for males, IGO, TV, and SE all share significantly positive associations with one another; however, PAS is not significantly associated with any other component of motivation. In summary, it seems that PAS is not strongly related to the other variables. It could be that compared to first-year students, sophomore students feel as if they have less support. This could be problematic since second-year students are typically faced with increasing pressures related to decision making and developing their identity and purpose as not only students, but for their future careers (Heier, 2012). As a result, and to help sophomores internalize their reasons for attending college, it is important for these students to have necessary resources available to them.

Predictive Capacity of Engagement, Motivation, and Self-Regulation

Regression analyses reveal findings for research question 2, "To what extent do engagement, motivation, and self-regulation predict achievement?" Regression models for both sexes includes all six of the variables for each model. Specifically, of all six variables, only self-efficacy is significantly predictive of GPA for both female and male participants. Perceived autonomy support is also significantly predictive of GPA, but only in the female model.

Interactions between Engagement, Motivation, and Self-Regulation and Achievement

Taking the previous regression models a step further, the third research question focuses on the extent to which engagement, motivation, and self-regulation might interact when

predicting achievement. The three interaction models, consisting of interaction terms computed for motivation and engagement, motivation and self-regulation, and engagement and self-regulation, do not significantly predict female sophomore participants' GPA. The same holds true for males; however the model that included the interaction term for engagement and self-regulation might be predictive of GPA, but a larger sample size would be required to provide the statistical power necessary for detecting this interaction. Given the study's sample size, more research is needed to clarify this relationship.

Engagement, Motivation, Self-Regulation, Achievement, and Student Sex

In summary, the final research question pertains to the extent in which the predictive nature of engagement, motivation, and self-regulation differs between females and males. A visual inspection of the correlation and regression analyses reveal a few similarities and differences. First, for the predictive nature of these variables separately, the findings are somewhat similar for females and males. For both sexes, self-efficacy is the only significant predictor of GPA. Secondly, in terms of differences between sexes in the variables' prediction of GPA, perceived autonomy support is also predictive of students' GPA, but only for females. Next, for the predictive nature of the interactions between engagement, motivation, and self-regulation, no interactions predict GPA for either female or male sophomore students in the current sample; however, the interaction between males' engagement and self-regulation could perhaps be significant. Unfortunately, the current sample size restricts the analysis and additional research that includes a larger sample size will be necessary to fully explore the extent of this relationship. In summary, compared to the literature on the achievement gap, the results of this study indicate no significant differences between the sexes included in the current sample.

Implications and Recommendations

Keeping the limitations in mind, the current findings add to the overall literature on achievement and extend the findings to a specific population of students—sophomores. Additionally, this study attempts to address the achievement gap between female and male students by including a more sex-balanced sample. However, contrary to much of the literature, there does not seem to be any major differences in the predictive capacity of engagement, motivation, and self-regulation on achievement between the female and male sophomore participants included in the current study.

The results from this study partially replicate existing knowledge in this area and extend the results to a population of students that are currently underrepresented in the literature. The findings of the present study also provide a starting point from which to inform the practice of leaders in higher education. The results also provide a platform that future research may use to further explore the specific obstacles to achievement that might be encountered in the sophomore year and how these barriers might differ between female and male students. In addition, the findings provide a basis for recommendations for future research and how to improve the study of these variables and their relationship with student achievement.

Implications for Practice

Research on student achievement that examines historically underrepresented students and focuses equally on females and males is important for a number of reasons. First, scholars and educational leaders must address students' unique challenges, which are a product of numerous coexisting relationships between variables that students encounter as they progress through college. Past research has shown that the second year of college proves to be a distinctively challenging time for students (Grasgreen, 2011; Graunke & Woosley, 2005;

Schreiner, 2014). These unique challenges require unique solutions that can only be revealed through systematic inquiry. Secondly, given the growing gap, it is also important for this research to focus on discovering any differences between the relationships of these variables on female and male students' achievement so that leaders in positions to effect real change have reliable findings from which to do so. However, despite the existing studies on student success, there is a substantial gap regarding the practical utility of the discoveries and studies that focus specifically on how leaders in higher education can turn findings into real change for their students.

Sophomore Experience. Given the current findings, there are a number of practical implications for leaders of higher education. For both students and institutions, it is important that college personnel have the information collected and synthesized from studies on student success. This way they will be able to identify students who are academically underprepared or more at risk of dropping out as quickly and effectively as possible. Rather than focus on more reactive academic support services and programs, research in this area and the findings from the current study could provide additional information that is indispensable for building in precise, proactive ways to support students from their first day on campus and through each year until the day they graduate.

First, programming specifically for second year students is a slowly growing trend. Nevertheless, despite evidence that sophomore initiatives provide essential support for students, there are still considerably fewer offerings for sophomore students compared to first-year students. The National Resource Center for the First-Year Experience and Students in Transition (2017) provide lists of the institutions that offer a program for first-year and/or second-year students. In the United States, there are approximately 169 universities with first-year

experience programs but only around 40 institutions with sophomore initiatives (National Resource Center for the First-Year Experience and Students in Transition, 2017). In addition, educators have long faced the challenge of not just teaching content, but also teaching students to transfer what they learn from one experience or setting to the next. This challenge reveals just why support programs beyond the first year are important for student success. Initiatives like second-year experience programs, and similar programs beyond even the second year, would help reinforce and transfer the support students received in their first year. More importantly, they would extend this support to meet students' evolving needs as they face new challenges.

Reflecting on the exact challenges and needs that are experienced by second-year students, some research argues that the sophomore year is a time when students are particularly vulnerable to disengagement (Tobolowsky, 2008). The results from the current study demonstrate that, out of all six variables studied, both female and male sophomore students' perceived autonomy support has the lowest mean and has the weakest correlations with the other variables. Leaders in charge of sophomore initiatives could use this information to focus on supporting second-year students' autonomy, which might positively relate to these students' experiences.

One avenue for leaders to explore can be found in the initiatives that have been successful at other institutions. Research has established that motivation and engagement are closely related and undergraduate students are especially vulnerable to significant disengagement during their second year of college (Reeve & Lee, 2014; Tobolowsky, 2008; Wang & Degol, 2014). As a result, educational leaders in charge of programs supporting student development should include efforts related to the growth of sophomore students' sense of autonomy. For example, some first-year experience programs offer courses where first-year students meet with

professors for informal conversations on certain topics. It could be beneficial to extend this to the second year by establishing a similar offering where sophomore students can engage with professors during their second year (and beyond). Even a one-time conversation with professors at the beginning of their second year could possibly prevent or at least partially alleviate students' uncertainty and eventual disengagement. This would especially help if the students with declared majors are paired with professors from their respective colleges.

Tying this back to past research, Graunke and Woosley (2005) reported that certain aspects have improved the experience of second-year students. Specifically, students' level of certainty in their choice of major was a significant predictor of higher academic achievement (Graunke & Woosley, 2005). As a result, it could be beneficial to implement a program that matches sophomore students with professors for the purpose of starting conversations between the second-year students and professors who teach in majors that interest the sophomore students. Based upon the research provided by Graunke and Woosley (2005), this type of initiative could help increase and support sophomore students' motivation, particularly their autonomy, by promoting confidence in their academic plans (i.e., deciding on a major) and this motivation, in turn, might increase their integration into their eventual program of study.

In addition, Graunke and Woosley (2005) stated that a higher level of satisfaction with faculty interaction increases sophomore students' academic success and that collaborating with faculty members could also increase sophomores' motivation, promote better grades, and strengthen these students' progression toward graduation. Supplementing the collaboration that occurs between students and faculty members inside the classroom with partnership outside the class, like a conversations initiative similar to many FYE programs, could not only improve sophomore students' autonomy through self-assurance in their choice of major and career path

and sophomores' satisfaction with their faculty interactions, but it could also improve and enrich their academic advisement. Related to the current study's findings of lower autonomy support, in a study of sophomore students' perceptions of their learning and development, Schreiner (2014) stated that many of the sophomores were dissatisfied with their advisement (33.2%) and interactions with faculty (22.4%). The current findings somewhat support these findings since items on the survey related to perceived autonomy support were the lowest ranked. A lack of support, compared to what they received as first-year students, could presumably have left the sophomore participants in the current study feeling as if they do not have as much control in their undergraduate experience. Further research should be conducted to specifically investigate the level of autonomy in sophomores compared to other students.

To further frame this research in the context of the current study, autonomy support has been shown to be associated with achievement (Garcia & Pintrich, 1996; Ryan & Deci, 2006). Since perceived autonomy support was low for the sophomore students in the current sample, particularly for the male sophomore students, an initiative that promotes the relationship between sophomore students and faculty members could be of great benefit to students. The benefit could possibly be enhanced if the conversations were geared toward student interest in certain majors and careers. In summary, an initiative of this sort could help relieve some of the burden second-year students feel when they must initially begin the process of choosing a major, encourage their confidence in their subsequent selection of a major and their future plans, help them to integrate into their program of study, promote increased satisfaction and engagement with faculty members and academic advisement that they receive. Additionally, given the established connections between motivation and engagement, these strategies could help stimulate sophomores' engagement as they move forward in their undergraduate education.

Findings from both the larger body of research and the current study reveal a significant relationship between motivation and engagement (Reeve & Lee, 2014; Wang & Degol, 2014). Institutional leaders should then plan initiatives that also specifically promote sophomore students' intrinsic goal orientation, task value, and self-efficacy. While the present results only show a relationship between females' perceived autonomy support and engagement, past research has established the relationship between this variable, students' overall motivation, and engagement (Crede & Phillips, 2011; Pintrich et al., 1993). Therefore, it is worth considering the importance of developing students' autonomy, as it feasibly might strengthen other components of their motivation and, by extension, their engagement.

The relationships between self-efficacy, autonomy support, and GPA are important for guiding institutional practices as they relate to the supporting students in transition. This is particularly true for students in their second-year, which has been an emerging concern for higher education in recent years. The growing attention on sophomores is justified further by changes to state funding models. With these funding approaches becoming increasingly popular, which are based on graduation rather than enrollment rates, the obligation of institutional leaders to find ways to retain students and help students progress is a pressing priority. Thus, finding effective ways to support students during their second year is one issue being faced by institutional leaders who wish to strengthen retention rates and help more of their students graduate. The finding that self-efficacy helps predict both female and male sophomores' achievement not only corroborates past research, such as the work conducted by Pintrich et al. (1991) and Komarraju and Nadler (2013), but it also extends these findings to a population of students who are particularly vulnerable to attrition and not adequately represented in the literature. Furthermore, this study's findings also support and extend the findings of Komarraju

and Nadler (2013) who report that self-efficacy and self-regulation share a positive relationship. The results from the present study reveal that not only is this true for a sample of sophomore students, but the relationship between self-efficacy and self-regulation holds for both female and male sophomore students.

Given the increased rates of drop out that occur during the second year, self-efficacy is essential for both female and male sophomore students. In addition, it is crucial for institutions to support sophomore students' autonomy support. If students become disengaged and experience the slump in their second year, institutional support that stimulates self-efficacy and being more in control of one's own educational outcomes could mean the difference in dropping out of college or eventually graduating for some students.

In summary, while they are not required for all students, first year experience courses are frequently required for special populations such as academically underprepared students (U.S. Department of Education, 2016). It would be beneficial to systematically extend the support that is delivered to students in their first year and build from this initiative to assist students' second year as they encounter unique challenges. Based on the findings of this study and others, educational leaders should consider the affective, behavioral, and cognitive aspects of students' engagement, motivation, and self-regulation, with particular emphasis on both sexes and their self-efficacy and autonomy support.

Administrators and leaders of campus programs could potentially use the information provided by this study and other research to explore creating programs or adding behaviorally and affectively-oriented emphases to supplement academic tutoring (i.e., cognitively-oriented) programs. This could help address ways to promote engagement, motivation, and self-regulation since these variables all have affective, behavioral, and cognitive aspects. For an example from

the current findings, results from males show that perceived autonomy support is not significantly correlated with any of the other variables and this component of motivation had the lowest average score for both males and females. Leaders in charge of both academic units and academic support units could explore the creation of programs, or bridging existing programs, that help reinforce the relationship between instructors and students in a way that supports students' perception of their input and the extent to which they are able to impact their educational outcomes. This would, according to Garcia and Pintrich (2006), also support students' intrinsic goal orientation, task value, and self-efficacy.

Recommendations for Future Research

There is a large body of research pertaining to variables that relate to student success. Yet, more studies that examine and compare how these variables might differ across certain student characteristics are still needed. These comparisons will allow leaders to identify, consider, and address the shifting needs of diverse students as they progress through their undergraduate experience.

First, research has reliably demonstrated that students struggle to transfer what they learn across settings (e.g., between assignments and classes, let alone curricular and co-curricular programs). As a result, while first-year programs provide significant support in terms of students' engagement and motivation, these initiatives cannot be expected to be solely responsible for providing substantial and enduring support well beyond students' first year. This is especially important given the lack of learning transferal that students typically demonstrate. In summary, research has shown that the second year of college is a time of disengagement for many students and that students struggle to apply what they have previously learned to new

situations. These findings, in combination with the current study's findings, justify additional research in this area.

Secondly, there is a lack of adequate research on the evolving challenges that students face as they progress through college. There are also few studies that compare the variables that have been shown to be related to achievement across another important student trait, sex. Given the rising gap in postsecondary achievement between females and males, it is also important to investigate potential differences between the influences on both sexes' achievement. Again, this research would provide academic leaders with essential information from which they could produce resources and opportunities that would have not otherwise been available for their second-year students. Recommendations for research pertaining to both sexes of sophomore students is discussed before considering the weaknesses of the current study and potential strategies for future research to address these shortcomings.

Sophomore Experience. To fully promote engagement, motivation, and self-regulation, research must also further explore the affective, behavioral, and cognitive aspects of these variables and how they might differ for various student populations (e.g., females, males, and sophomores). Providing adequate access for all individuals is a major goal for educational leaders and the challenges of providing a quality education for students who hold a diverse range characteristics do not end once students are enrolled. Educational leaders must then be aware of the specific hurdles faced by their students as they progress so the institutional leaders can then plan and implement specific strategies and programs to successfully address these challenges. Only after this research has been conducted more extensively will the evidence be available to guide the practical, day-to-day decisions of educational leaders as they attempt to identify and address the barriers to their students' success. Given the fact that less attention has been paid to

sophomore students, especially with the established challenges that these students face, an increased focus on this student population is justified (Tobolowsky, 2008). Also, due to the consistent differences that have persisted over a number of years, future research should focus on the achievement differences between female and male college students that places detailed emphases on the exact relationships that might lead to these dissimilarities (Voyer & Voyer, 2014).

For example, building from the present study, future research should continue to focus on the relationships between these variables as they have been shown to relate to student achievement. There are no studies that investigate these specific variables and how their associations with achievement might fluctuate for students in different years of college. That is, it would be beneficial to compare the relationships between engagement, motivation, self-regulation, and achievement across freshman, sophomore, junior, and senior-year students. While the current study does provide insight regarding sophomore students, the findings are focused on these variables' ability to predict GPA for sophomore students. Further analyses should be conducted to help determine exactly how the relationships between engagement, motivation, self-regulation, and GPA might be similar or different for students at various levels of study. For example, a starting point could be a study that compares the levels of engagement, motivation, self-regulation, and GPA between freshman, sophomore, junior, and senior students. This information would help administrators and other educational leaders in charge of academic support programs to strategically earmark specific resources toward certain aspects of students' experiences at particular stages of their college career. This work is essential to identify how these variables and their relationships evolve as students' progress. These results are vital for

institutional leaders as they plan strategies to help students progress at all stages of their undergraduate career and improve the success of all of their students.

In summary, there is a need for future research to address how established relationships between numerous variables and achievement might change as students move through college. In addition, there is a lack of findings for how female and male students differ on various aspects of these variables. This research is necessary because of the trend in sophomore disengagement and the persistent gap between sexes.

Gender Achievement Gap. Exploring the relationships of certain variables and achievement with equal attention provided to both sexes is critical due to the achievement gap between females and males that has long existed and is still growing (Organization for Economic Cooperation and Development [OECD], 2008). Additionally, the current body of literature pertaining to achievement fails to include a specific focus on potential differences between female and male students, despite the fact that a meta-analysis that shows a significant female advantage (Voyer & Voyer, 2014). Females have now surpassed males in terms of college enrollment; in addition to declining enrollments compared to females, males are also falling behind in performance, retention, and graduation (Conger & Long, 2010). Various explanations have been offered for the potential causes of the differences in achievement between female and male college students. Despite this line of research, the results from the present study do not show significant differences between females' and males' relationships between engagement, motivation, self-regulation, and achievement.

The current study attempts to include a balance of female and male students; however, the sample size is still inadequate for fully exploring the relationships between these variables. To this end, future research should attempt to better examine these variables and how they relate

to one another. Instead of focusing on the predictive capacity of these variables on achievement, one option would be for a study to compare the means for each variable to see if they are significantly different between female and male students.

Given the number of studies finding achievement differences between sexes, there is a need for future research to more fully explore the potential dissimilarities in these variables between female and male college students. Furthermore, given the disengagement that students are vulnerable to in their second year, this examination is particularly important for sophomores. It would also be beneficial for research to focus explicitly on comparing how female and male students score on measures of these variables. While the current study does provide insight into how the sexes are similar, these findings are focused on the differences in these variables' relationships with one another and their ability to predict GPA for female and male sophomore students. More work should be done to confirm and explain to what extent the levels of engagement, motivation, self-regulation, and GPA might be similar or different for these students. For example, studies could be conducted that compare the levels of engagement, motivation, self-regulation, and GPA between both sexes of students through the use of t-tests. This information would help administrators and other educational leaders in charge of programs to allocate specific institutional resources toward certain aspects of the sophomore experience.

Instrument. The reliability of the instrument used in this study offers an opportunity for future work in this area by providing information on how one might strengthen the measurement of variables with items related to engagement, motivation, and self-regulation. For the components with weak reliability: engagement, intrinsic goal orientation, task value, and self-regulation, it stands to reason that students are more likely to vary in their specific strategies for engagement, goals, tasks, and self-regulated learning as a part of their educational experiences.

As a result, forthcoming studies should ideally use previous instruments with established psychometric properties, or at least subscales of the MSLQ designed to be used separately from the entire instrument, to help ensure reliability of findings.

Research will also need to more fully include the constructs that make up these variables. For example, while the current instrument was taken from the MSLQ and the SCEQ and was kept as short as possible to minimize the time needed in each class, most of the items for the final instrument demonstrated low reliability. So, if practically feasible in terms of data collection, future studies should employ a larger number of items for each of these variables to help ensure the adequate measurement all aspects of these constructs. These variables are expansive in terms of the student experience. That is, each of them have cognitive, behavioral, and affective components that should be addressed.

It also could be that asking students to holistically reflect on their entire undergraduate experience when responding to these items may simply be too broad. Future research might consider having students focus on specific educational experiences (e.g., a particular course or an experience with a co-curricular program). However, this must be balanced with the outcome variable of choice and whether it is a grade on a particular assignment, a course grade, or students' total GPA. While there is a need for targeting the overall sophomore experience to see where students might struggle during their second year, more reliable answers may come from inquiring about more targeted, specific settings. Sophomore students' level of engagement, motivation, and self-regulation likely fluctuate from course to course. For example, while a student's motivation might be low when enrolled in a general education course, the same student's motivation might be much higher when he or she is enrolled in a course related to his or her major (or potential major of interest if undeclared) and is more interesting to the student.

These fluctuations could make it challenging for students to reflect and answer items meant to address their engagement, motivation, and self-regulation at such a global level that includes many various classes, experiences, etc.

Next, when considering the present results, it is important to keep in mind that all of the variables except for perceived autonomy support demonstrated limited variability since both female and male participants tended to provide responses toward the high end of the scales. It is possible that this sample of sophomore students have overestimated their own levels of motivation, engagement, self-regulation, and GPA while underestimating the levels of support received from their instructors. This aspect of self-report instruments should be kept in mind when considering these results and planning future studies.

Finally, there are challenges associated with how certain student populations are defined. For example, sophomore students, while typically formally defined by the number of credit hours that students have accrued, can also be defined by the number of academic years a student has been enrolled in college. The present study adopted the official definition held by the University at which the data was collected. A few respondents in the current study indicated that they were unsure of the year with which they were classified. Clearly defining and explaining this variable in detail will help support the results of future studies.

Sampling. While the current sample of sophomore students was taken from a variety of programs across a few colleges, it does not represent sophomore students from across every discipline, program, or college of the University. However, many students in their second year have likely not yet declared a major, so controlling for this aspect of student characteristics may not be a serious limitation. Finally, while the results for the interaction models pertaining to sophomore students' engagement and self-regulation were not significant for either sex, there

was evidence of a potential interaction between these two variables for the male participants. Unfortunately, given the challenges that the researcher met while trying to collect data specifically from sophomore students, an adequate sample size was not attained. Even so, the current results indicate that an interaction may occur between male sophomore students' engagement and self-regulation. Future studies with larger samples should consider the current findings and investigate further to see if this interaction holds true for other sophomore students.

Methodology. Data collection for this study proved to be challenging since student characteristics are not always readily identifiable. For example, it was difficult to locate sophomore students beyond completing a University web-based search of 2000-level courses. Even after identifying potential courses in which to distribute the survey, the majority of the students were not sophomores. As a result, this is somewhat problematic when collecting information from particular student populations. While this aspect will vary between institutional settings, the inherent practical challenges involved in clearly identifying student populations may be one of the major contributors to the lack of research on the achievement of specific student populations. Future research might consider identifying sophomore-related co-curricular programs as a way of gathering data.

Qualitative Studies. A possible solution to the challenge of gathering data from an adequate number of students could be found in designing and conducting qualitative studies. As the majority of studies in this area are quantitative, it would be beneficial to collect personal accounts of sophomore students that illuminate the students' lived experiences and perspectives as they relate to their engagement, motivation, self-regulation, and achievement. Furthermore, future research could conduct interviews with educational leaders (e.g., faculty and administrators) who have been involved with a second-year experience program. This could

provide a wealth of information about the specific strategies that have proved to be successful in promoting these traits in sophomore students.

Concluding Statement

The findings of this study largely support previous research on engagement, motivation, self-regulation, and achievement. That is, engagement, motivation, and self-regulation are closely related. However, one component of motivation, perceived autonomy support, was not correlated with any other variable for males and was not related to task value or self-regulation for females. Only engagement and self-efficacy are shown to be correlated with male sophomores' GPA, while engagement, self-efficacy, and self-regulation are related to female sophomores' GPA. Finally, self-efficacy predicts both female and male participants' GPA and autonomy support is predictive of females' GPA.

This study extends the findings of the literature to two student populations that are currently underrepresented—male students and sophomore students in general. Many of the findings concerning these variables are based predominantly on first-year female students. As a result, due to both the growing achievement gap between females and males and the increased attrition experienced by students in their second year, findings like the ones from the present study are crucial for informing institutional leaders who wish to address the challenges experienced by these student populations at critical, unique points in their college career. To fully inform the everyday practice of academic leaders, future research should focus on these factors and how they specifically vary between diverse student populations (e.g., female and male students and sophomore students). This could be achieved by comparing female and male students in various years as they progress through their undergraduate career. Only then will leaders have adequate information to inclusively promote the success of a diverse student body.

REFERENCES

Ainslie, G. (1975). Specious reward: A behavioral theory of impulsiveness and impulse control. *Psychological Bulletin, 82,* 463-496. Doi: 10.1037/h0076860

Arnold, A. (1999). Retention and persistence in postsecondary education: A summation of research studies. Retrieved from https://www.tgslc.org/pdf/persistence.pdf

Astin, A. W. (1977). *Four critical years: Effects of college on beliefs, attitudes, and knowledge*. San Francisco, CA: Jossey-Bass.

Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Development, 25*, 297–308.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall

Bandura, A. (1999). Social cognitive theory: An agentic perspective. *Asian Journal of Social Psychology, 2*, 21-41.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, 52*(1), 1-26. Doi:10.1146/annurev.psych.52.1.1

Barkley, E. F. (2009). *Student engagement techniques: A handbook for college faculty*. San Francisco, CA: Jossey-Bass.

Baumeister, R. F., Bratslavksy, E., Muraven, M., & Tice, D. M. (1998). Ego depletion: Is the active self a limited resource? *Journal of Personality and Social Psychology, 74*, 1252-1265. Doi: 10.1037/0022-3514.74.5.1252

Baumeister, R. F., Heatherton, T. F., & Tice, D. M. (1994). *Losing control: How and why people fail at self-regulation*. San Diego, CA: Academic Press, Inc.

Berger, J. B., & Lyon, S. C. (2005). Past to present: A historical look at retention. In A. Seidman (Ed.), *College student retention: Formula for student success* (pp. 1-30). Westport, CT: Praeger Publishers.

Bisese, S. D., & Fabian, D. J. (2006). Sophomore men: The forgotten class, the forgotten gender. *Recruitment & Retention in Higher Education, 20*(3), 1-4.

Bowler, M. (2009). Dropouts loom large for schools. Retrieved from http://www.usnews.com/education/articles/2009/08/19/dropouts-loom-large-for-schools

Burkholder, B., & Leitner, E. (1999). Male students at greater risk for academic probation and academic dismissal. *Everyman: A Men's Journal*, 36.

Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS scales. *Journal of Personality and Social Psychology, 67*, 319 –333.

Carver, C. S. (2014). Self-control and optimism are distinct and complementary strengths. *Personality and Individual Differences, 66*, 24-26.

Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS scales. *Journal of Personality and Social Psychology, 67*, 319-333.

Center for Postsecondary Research (CPR). (2016). *National Survey of Student Engagement: About NSSE*. Retrieved from http://nsse.indiana.edu/html/about.cfm

Chickering, A. W. (1969). *Education and identity*. San Francisco, CA: Jossey-Bass.

Chickering, A. W., & Reisser, L. (1993). *Education and identity* (2nd ed.). San Francisco, CA: Jossey-Bass.

Cohen, J. (1992). A power primer. *Quantitative Methods in Psychology, 112*(1), 1551-159.

College Parents of America. (2016). *Will My College Student Experience a Sophomore Slump?* Retrieved from http://collegeparents.org/2011/09/30/will-my-college-student-experience-sophomore-slump/

Conger, D., & Long, M. C. (2010). Why are men falling behind? Gender gaps in college performance and persistence. *The Annals of the American Academy of Political and Social Science, 627*, 184-214.

Crede, M., & Phillips, L. A. (2011). A meta-analytic review of the motivated strategies for learning questionnaire. *Learning and Individual Differences, 21*(4), 337-346.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks, CA: Sage.

Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology, 24*(4), 349-354. Doi: 10.1037/h0047358

DeCharms, R. (1968). *Personal causation: The internal affective determinants of behavior*. New York, NY: Academic Press.

DeCharms, R. (1976). *Enhancing motivation: Change in the classroom*. New York, NY: Irvington.

DeCharms, R. (1981). *Personal causation and locus of control: Two different traditions and two uncorrelated measures*. In H. M. Lefcourt (Ed.), Research with the locus of control construct. Vol. l. Assessment methods (pp. 337-358). New York, NY: Academic Press.

Delen, E., & Liew, J. (2016). The use of interactive environments to promote self-regulation in online learning: A literature review. *European Journal of Contemporary Education, 15*(1), 24-33.

De Vaus, D. (2014). *Surveys in social research*. New York: Routledge.

Douce, L. A., & Keeling, R. P. (2014). *A strategic primer on college student mental health*. Washington, D.C.: American Council on Education.

Duckworth, A. L., & Seligman, M. E. P. (2005). Self-discipline outdoes IQ in predicting academic performance of adolescents. *Psychological Science, 16*(12), 939-944.

Duru, E., Duru, S., & Balkis, M. (2014). Analysis of relationships among burnout, academic achievement, and self-regulation. *Educational Sciences: Theory & Practice, 14*(4), 1274-1284. Doi: 10.12738/estp.2014.4.2050

Eder, A. B., Elliot, A. J., & Harmon-Jones, E. (2013). Approach and avoidance motivation: Issues and advances. *Emotion Review, 5*(3), 227-229. Doi: 10.1177/1754073913477990

Elliot, A. J., & Church, M.A. (1997). A hierarchical model of approach and avoidance achievement motivation. *Journal of Personality and Social Psychology, 72*(1), 218-232.

Elliot, A. J., & Covington, M.V. (2001). Approach and avoidance motivation. *Educational Psychology Review, 13*(2), 73-92.

Feldman, S. C., Martinez-Pons, M., & Shaham, D. (1995). The relationship of self-efficacy, self-regulation, and collaborative verbal behavior with grades: Preliminary findings. *Psychological Reports, 77,* 971-978.

Feltman, R., & Elliot, A. J. (2012). Approach and avoidance motivation. *Encyclopedia of the Sciences and Learning*, 286-288. Doi: 10.1007/978-1-4419-1428-6_1749

Flynn, T. M. (1985). Development of self-concept, delay of gratification and self-control and disadvantaged preschool children's achievement gain. *Early Child Development & Care, 22,* 65-72.

Fortin, N. M., Oreopoulos, P., & Phipps, S. (2013). *Leaving boys behind: Gender disparities in high academic achievement*. NBER Working Paper 19331, National Bureau of Economic Research, Inc.

Foubert, J., Nixon, M. L., Sisson, V. S., & Barnes, A. C. (2005). A longitudinal study of Chickering and Reisser's vectors: Exploring gender differences and implications for refining the theory. *Journal of College Student Development, 46*(5), 461-471.

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*(1), 59-109.

Fredricks, J. A., & McColskey, W. (2012). *The measurement of student engagement: A comparative analysis of various methods and student self-report instruments*. In Handbook of research on student engagement. Boston, MA: Springer US.

Fredricks, J. A., McColskey, W., Meli, J., Mordica, J., Montrosse, B., and Mooney, K. (2011). *Measuring student engagement in upper elementary through high school: a description of 21 instruments.* Issues & Answers Report. Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Southeast. Retrieved from http://ies.ed.gov/ncee/edlabs.

Freedman, M. B. (1956). The passage through college. *Journal of Social Issues, 12* (4), 12-28.

Freud, S. (1930). *Civilization and its discontents*. London: Hogarth.

Gailliot, M. T., Baumeister, R. F., DeWall, C. N., Maner, J. K., Plant, E. A., Tice, D. M., Brewer, L. E., & Schmeichel, B. J. (2007). Self-control relies on glucose as a limited energy source: Willpower is more than a metaphor. *Journal of Personality and Social Psychology, 92* (2), 325-336. Doi: 10.1037/0022-3514.92.2.325

Gailliot, M. T., Plant, E. A., Butz, D. A., & Baumeister, R. F. (2007). Increasing self-regulatory strength can reduce the depleting effect of suppressing stereotypes. *Personality and Social Psychology Bulletin, 33* (2), 281-294. Doi: 10.1177/0146167206296101

Garcia, T., & Pintrich, P.R. (1996). The effects of autonomy on motivation and performance in the college classroom. *Contemporary Educational Psychology, 21*, 477-486.

Georgia Southern University. (2016). *Classification*. Retrieved from http://catalog.georgiasouthern.edu/undergraduate/academic-information/general-academic-information/classification/

Georgia Southern University. (2016). *Student Achievement*. Retrieved from http://academics.georgiasouthern.edu/vpie/student-achievement/

Grasgreen, A. (2011). *Dump the Slump*. Retrieved from https://www.insidehighered.com/news/2011/09/29/duke_sophomore_convocation_among_programs_designed_to_combat_student_slump

Graunke, S. S., & Woosley, S. A. (2005). An exploration of the factors that affect the academic success of college sophomores. *College Student Journal, 39*(2), 367-376.

Greene, B. A. (2015) Measuring cognitive engagement with self-report scales: Reflections from over 20 years of research. *Educational Psychologist, 50*(1), 14-30, Doi: 10.1080/00461520.2014.989230

Hagger, M. S., Wood, C., Stiff, C., & Chatzisarantis, N. L. (2010). Ego depletion and the strength model of self-control: A meta-analysis. *Psychological Bulletin, 135* (4), 494-525.

Hagger, M. S., Wood, C., Stiff, C., & Chatzisarantis, N. L. (2010). Self-regulation and self-control in exercise: The strength-energy model. *International Review of Sport and Exercise Psychology, 3*(4), 62-86. Doi: 10.1080/17509840903322815

Handelsman, M. M., Briggs, W. L., Sullivan, N., & Towler, A. (2005). A measure of college student course engagement. *The Journal of Educational Research, 98*(3), 184-191.

Hattie, J., & Anderman, E. M. (Eds.). (2016). *International guide to student achievement*. New York, NY: Routledge.

Heier, M. (2012). *Summary report: Understanding the sophomore year experience.* Seattle, WA: The University of Washington Division of Student Life.

Jacob, B. A. (2002). Where the boys aren't: Non-cognitive skills, returns to school and the gender gap in higher education. NBER Working Paper 8964, National Bureau of Economic Research, Inc.

Job, V., Walton, G. M., Bernecker, K., & Dweck, C. S. (2015). Implicit theories about willpower predict self-regulation and grades in everyday life. *Journal of Personality and Social Psychology*, *108* (4), 637-647.

Karadağ, E. S. (2017). *The factors effecting student achievement: Meta-analysis of empirical studies*. Cham, Switzerland: Springer International Publishing. Retrieved from https://ebookcentral.proquest.com/lib/gasouthern/detail.action?docID=4858694.

Komarraju, M., & Nadler, D. (2013). Self-efficacy and academic achievement: Why do implicit beliefs, goals, and effort regulation matter? *Learning and Individual Differences*, *25*, 67-72.

Lemons, J. L., & Richmond, D. R. (1987). A developmental perspective of sophomore slump. *National Association of Student Personnel Administrators Journal*, *24*(3), 15-19.

Lightner, R., Benander, R., & Kramer, E. F. (2008). Faculty and student attitudes about transfer of learning. *InSight: A Journal of Scholarly Teaching*, *3*, 58-66.

Mallinckrodt, B., & Sedlacek, W. E. (1987). Student retention and the use of campus facilities by race. *NASPA Journal, 24*(3), 28-32.

Maloney, P. W., Grawitch, M. J., & Barber, L. K. (2012). The multi-facture structure of the brief self-control scale: Discriminant validity of restraint and impulsivity. *Journal of Research in Personality, 46*(1), 111-115.

McBurnie, J. E., Campbell, M., & West, J. M. (2012). Avoiding the second year slump: A transition framework for students progressing through university. *International Journal of Innovation in Science and Mathematics Education, 20*(2), 14-24.

McClelland, D. C., Atkinson, J. W., Clark, R. A., & Lowell, E. L. (1953) *The achievement motive*. New York, NY: Appleton-Century Crofts.

McKeough, A., Lupart, J., & Marini, A. (Eds.). (1995). *Teaching for transfer: Fostering generalization in learning*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Mead, N. L., Baumeister, R. F., Gino, F., Schweitzer, M. E., & Ariely, D. (2009). Too tired to tell the truth: Self-control resource depletion and dishonesty. *Journal of Experimental Social Psychology, 45*(3), 594-597. Doi: 10.1016/j/jesp.2009.02.004

Meredith, L. S., Sherbourne, C. D., Gaillot S., Hansell, L., Ritschard, H. V., Parker, A. M., & Wrenn, G. (2011). *Promoting psychological resilience in the U. S. military*. RAND Corporation.

Mischel, W., Shoda, Y., & Peake, P. K. (1988). The nature of adolescent competencies predicted by preschool delay of gratification. *Journal of Personality and Social Psychology, 54,* 687-696.

Mousoulides, N., & Philippou, G. (2005). *Students' motivational beliefs, self-regulation strategies, and mathematics achievement*. In Chick, H. L. & Vincent, J. L. (Eds.).

Proceedings of the 29th Conference of the International Group for the Psychology of Mathematics Education, Vol. 3, pp. 321-328. Melbourne: PME.

Muenks, K., Wigfield, A., Yang, J. S., & O'Neal, C.R. (2017). How true is grit? Assessing its relation to high school and college students' personality characteristics, self-regulation, engagement, and achievement. *Journal of Educational Psychology, 109*(5), 599-620

Muraven, M., & Baumeister, R. F. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin, 126*(2), 247-259. Doi: 10.1037//0033-2909.126.2.247

Muraven, M., Baumeister, R. F., & Tice, D. M. (1999). Longitudinal improvement of self-regulation through practice: Building self-control strength through repeated exercise. *Journal of Social Psychology, 139,* 446-457. Doi: 10.1080/00224549909598404

Muraven, M., & Slessareva, E. (2003). Mechanisms of self-control failure: Motivation and limited resources. *Personality and Social Psychology Bulletin, 29,* 894-906.

Muraven, M., Tice, D. M., & Baumeister, R. F. (1998). Self-control as limited resource: Regulatory depletion patterns. *Journal of Personality and Social Psychology, 74*, 774 – 789.

National Resource Center for the First-Year Experience and Students in Transition. (2017). Sophomore-Year Resources. Retrieved from http://tech.sa.sc.edu/fye/resources/soph/program_list.php?goto=1

Nes, L. S., Evans, D. R., & Segerstrom, S. C. (2009). Optimism and college retention: Mediation by motivation, performance, and adjustment. *Journal of Applied Social Psychology, 39*(8), 1887-192. Doi: 10.1111/j.1559-1816.2009.00508.x

Organization for Economic Cooperation and Development (OECD). (2008). The reversal of gender inequalities in higher education: An on-going trend by Stephen Vincent-Lancrin, Chap. 10 in *Higher Education to 2030, Vol. 1: Demography*.

Pintrich, P. R., Smith, D. A. F., Garcia, T., & McKeachie, W. J. (1993). Reliability and predictive validity of the motivated strategies for learning questionnaire (MSLQ). *Educational and Psychological Measurement, 53*, 801-813.

Pintrich, P. R., Smith, D. A. F., Garcia, T., & McKeachie, W. J. (1991). *A manual for the use of the motivated strategies for learning questionnaire (MSLQ)*. Ann Arbor, MI: National Center for Research to Improve Post-secondary Teaching.

Pintrich, P. R. (1999). The role of motivation in promoting and sustaining self-regulated learning. *International Journal of Educational Research, 31*, 459-470.

Pintrich, R. R., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology, 82*, 33-40.

Pritchard, M. E. & Wilson, G. S. (2003). Using emotional and social factors to predict student success. *Journal of College Student Development, 44*, 18-28.

Quinlivan, T. (2010). *Investigating the transition process across the undergraduate degree: implementing a peer mentoring program to address the second year slump*, PhD Thesis, School of Health Sciences, RMIT University, Australia.

Reeve, J., & Lee, W. (2014). Students' classroom engagement produces longitudinal changes in classroom motivation. *Journal of Educational Psychology, 106*(2), 527-540. Doi: 10.1037/a0034934

Reiss, S. (2012). Intrinsic and extrinsic motivation. *Teaching of Psychology, 39*(2), 152-156.

Reiss, S. (2004). Multifaceted nature of intrinsic motivation: The theory of 16 basic desires. *Review of General Psychology, 8*(3), 179-193.

Reuter, M., Cooper, A.J., Smillie, L.D., Markett, S., & Montag, C. (2015). A new measure for the revisted reinforcement theory: Psychometric criteria and genetic validation. *Frontiers in Systems Neuroscience, 9*(38), doi: 10.3389/fnsys.2015.00038

Ridder, D., Lensvelt-Mulders, G., Finkenauer, C., Stok, F. M., & Baumeister, R. F. (2012). Taking stock of self-control: A meta-analysis of how trait self-control relates to a wide range of behaviors. *Personality and Social Psychology Review, 16*(1), 76-99. Doi: 10.1177/1088868311418749

Roberts, C. M. (2010). *The dissertation journey: A practical and comprehensive guide to planning, writing, and defending your dissertation* (2nd ed.). Thousand Oaks, CA: Sage.

Roussel, P., Elliot, A. J., & Feltman, R. (2011). The influence of achievement goals and social goals on help-seeking from peers in an academic context. *Learning and Instruction, 21*, 394-402. Doi:10.1016/j.learninstruc.2010.05.003

Ryan, R. M., & Deci, E. L. (2008). From ego depletion to vitality: Theory and findings concerning the facilitation of energy available to the self. *Social and Personality Psychology Compass*, *2*(2), 702-717. Doi: 10.1111/j.1751-9004.2008.00098.x

Ryan, R. M., & Deci, E. L. (2006). Self-regulation and the problem of human autonomy: Does psychology need choice, self-determination, and will? *Journal of Personality, 74*(6), 1557-1586.

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*, 54-67.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*, 68–78.

Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology, 57*(5), 749-761.

Scales, P. C., Benson, P. L., Roehlkepartain, E. C., Neal, M., & Kielsmeier, J. C. (2006). The role of developmental assets in predicting academic achievement: A longitudinal study. *Journal of Adolescence, 29*(5), 692-708.

Schaller, M. A. (2005). Wandering and wondering: Traversing the uneven terrain of the second college year. *About Campus, 10*(3), 17-24.

Schmeichel, B. J., Harmon-Jones, C., & Harmon-Jones, E. (2010). Exercising self-control increases approach motivation. *Journal of Personality and Social Psychology, 99*(1), 162-173.

Schreiner, L. (2014). *Sophomore to Junior Year Retention.* [PowerPoint slides]. Retrieved from http://www.cic.edu/News-and-Publications/Multimedia-Library/CICConferencePresentations/2014%20CAO%20Institute/20141103_Sophomor_to_Junior_RetentionWorkshop.pdf

Scott, D. M., Spielmans, G. I., & Julka, D. C. (2004). Predictors of academic achievement and retention among college freshmen: A longitudinal study. *College Student Journal, 38*(1), 66-80.

Shoda, Y., Mischel, W., & Peake, P. K. (1990). Predicting adolescent cognitive and self-regulatory competencies from preschool delay of gratification: Identifying diagnostic conditions. *Developmental Psychology, 26*, 978-986.

Skipper, T. L. (2005). *Student development in the first college year: A primer for college educators*. Columbia, SC: University of South Carolina, National Resource Center for the First Year Experience and Students in Transition.

Tangney, J. P., Baumeister, R. F., & Boone, A. L. (2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality, 72*(2), 271-324.

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition*. (2nd ed.). Chicago, IL: University of Chicago Press.

Tobolowsky, B. F. (2008). Sophomores in transition: The forgotten year. In B. Barefoot & J. L. Kinzie (Eds.), *New directions for higher education* (pp. 59-67). New York, NY: Wiley Online Library.

Todo, N., Sun, T., & Inoue, S. (2016). Effects of perceived autonomy on student engagements and academic performance in Japanese university students. *Advanced Applied Informatics, 5*, 517-522. Doi: 10.1109/IIAI-AAI.2016.140

Trowler, V. (2010). *Student engagement literature review*. York, ENG: The Higher Education Academy.

U.S. Department of Education. (2016). *First Year Experience Courses*. Retrieved from https://ies.ed.gov/ncee/wwc/Docs/InterventionReports/wwc_firstyear_102116.pdf

Vaughn, M. S., & Parry, P. (2013). The statement of purpose speech: Helping students navigate the “sophomore slump.” *Communication Teacher, 27*(4), 207-211.

Vohs, K. D., Baumeister, R. F., & Schmeichel, B. J. (2012). Motivation, personal beliefs, and limited resources all contribute to self-control. *Journal of Experimental Social Psychology, 48*, 943-947.

Vohs, K. D., & Heatherton, T. F. (2000). Self-regulatory failure: A resource-depletion approach. *Psychological Science, 11*, 249 –254.

Vohs, K. D., & Schmeichel, B. J. (2003). Self-regulation and the extended now: Controlling the self alters the subjective experience of time. *Journal of Personality and Social Psychology, 85*(2), 217-230. Doi: 10.1037/0022-3514.85.2.217

Voyer, D., & Voyer, S. D. (2014). Gender differences in scholastic achievement: A meta-analysis. *Psychological Bulletin, 140*(4), 1174-1204. Doi: 10.1037/a0036620

Wang, M. T., & Degol, J. (2014). Staying engaged: Knowledge and research needs in student engagement. *Child Development Perspectives, 8*(3), 137-143. Doi: 10.1111/cdep.12073

Wibrowski, C. R., Matthews, W. K., & Kitsantas, A. (2017). The role of a skills learning support program on first-generation college students' self-regulation, motivation, and academic achievement. *Journal of College Student Retention, 19*(3), 317-332. Doi: 10.1177/1521025116629152

Wolfe, R. N., & Johnson, S. D. (1995). Personality as a predictor of college performance. *Educational and Psychological Measurement, 55*, 177-185.

Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology, 81*(3), 329-339. Doi:10.1037/0022-0663.81.3.329

Zusho, A., & Pintrich, P. R. (2003). Skill and will: The role of motivation and cognition in the learning of college chemistry. *International Journal of Science Education, 25*, 1081-1094. Doi: 10.1080/0950069032000052207

Appendix A

Informed Consent

COLLEGE OF EDUCATION

DEPARTMENT OF LEADERSHIP, TECHNOLOGY, AND HUMAN DEVELOPMENT

INFORMED CONSENT

Dear Participant,

My name is John LeMay and I am a doctoral student in the Educational Leadership Program at Georgia Southern University. I am conducting research for my dissertation regarding the relationships between student engagement, motivation, self-regulation, and achievement.

The purpose of this research is to investigate student engagement, motivation, self-regulation, and the potential relationships with achievement. Participation in this research involves the completion of a 20-item questionnaire and will take no more than five minutes to complete.

There will be minimal discomfort or risk in completing this questionnaire.

The benefits to participants include learning about educational research and its processes and an opportunity to reflect on these aspects of their university experience.

The benefits to society include possibly shedding light on the benefits of these variables and their relationships with achievement to better inform the practices of campus educational leaders.

The researcher will have access to the data collected and it will be securely preserved on the researcher's password-protected USB drive following completion of the study. Participant names are not collected as part of the questionnaire. The information obtained will be published in the dissertation document by the researcher, shared with the dissertation committee, and then published electronically as a part of the requirements for the doctoral program. Your confidentiality as a participant in this study will remain secure. Subsequent uses of data will be subject to standard data use policies that protect the anonymity of individuals and institutions.

You have the right to ask questions and have those questions answered. If you have any questions about this study or experience any adverse effects because of your participation, please contact the researcher or the researcher's faculty advisor, whose contact information is located at the end of this document. For

further information concerning your rights as a research participant, please contact Georgia Southern University's Office of Research Compliance at IRB@georgiasouthern.edu or (912) 478-0843.

There is no compensation for completing this questionnaire.

You do not have to participate; you may stop at any time by simply placing your survey face down on your desk when you leave class, or by placing it in the provided envelope.

There is no penalty for deciding not to participate in the study; you may decide at any time you do not want to participate further and may withdraw without penalty.

You must be 18 years of age or older and working towards your first undergraduate degree to consent to participate. If you consent to participation and to the terms above, please continue to the questionnaire.

You may receive a copy of this consent form for your records. If you wish to have a copy, simply email the researcher and a copy will be sent to you. This project has been reviewed and approved by the GSU Institutional Review Board under tracking number 17321.

Title of Project: Engagement, Motivation, Self-Regulation, and Achievement in Georgia Southern University Sophomore Students
Principal Investigator: John LeMay, jlemay@georgiasouthern.edu
Research Advisor: Dr. Daniel Calhoun, 912-478-1428, dwcalhoun@georgiasouthern.edu

By starting the questionnaire, you consent to participate in this study.

Appendix B

Questionnaire Instrument

What is your current class year?
Freshman Sophomore Junior Senior Other (Please describe): _____

What is your current overall GPA? (1.0 - 4.0) (Please be as precise as you can): _____

What is your biological sex?
Female Male

The remaining questions are related to your experiences in all your coursework thus far. They do not pertain specifically to any one course. So, as you answer, think generally about all of the university courses you have taken up to this point. There are no right or wrong answers, just answer as accurately as possible.
Use the scale below to answer the following items. If a statement is very true of you, select 5. If a statement is not at all true of you, select 1. If a statement is more or less true of you, select a number between 1 and 5 that best describes you.

1	2	3	4	5
not at all true of me	somewhat untrue of me	a bit of both	somewhat true of me	very true of me

---

In my courses, I prefer course material that really challenges me so I can learn new things.
1 2 3 4 5

The most satisfying thing for me in my courses is trying to understand the content as thoroughly as possible.
1 2 3 4 5

I am very interested in the subject matter covered in my courses.
1 2 3 4 5

I am confident I can do an excellent job on the assignments and tests in my courses.
1 2 3 4 5

I expect to do well in my courses.
1 2 3 4 5

Considering the difficulty of my courses, the teachers, and my skills, I think I will do well in my courses.

1 2 3 4 5

The instructors were willing to negotiate course requirements with students.

1 2 3 4 5

Students had some choice in course requirements or activities that would affect their grade.

1 2 3 4 5

The instructors made changes to course requirements or activities as a result of student comments or concerns.

1 2 3 4 5

I try to think through a topic and decide what I am supposed to learn from it rather than just reading it over when studying.

1 2 3 4 5

When I become confused about something I'm reading for a course, I go back and try to figure it out.

1 2 3 4 5

Even when course materials are dull and uninteresting, I manage to keep working until I finish.

1 2 3 4 5

When course work is difficult, I give up or only study the easy parts.

1 2 3 4 5

I ask the instructors to clarify concepts I don't understand well.

1 2 3 4 5

I attend courses regularly.

1 2 3 4 5

I make good use of my study time for my courses.

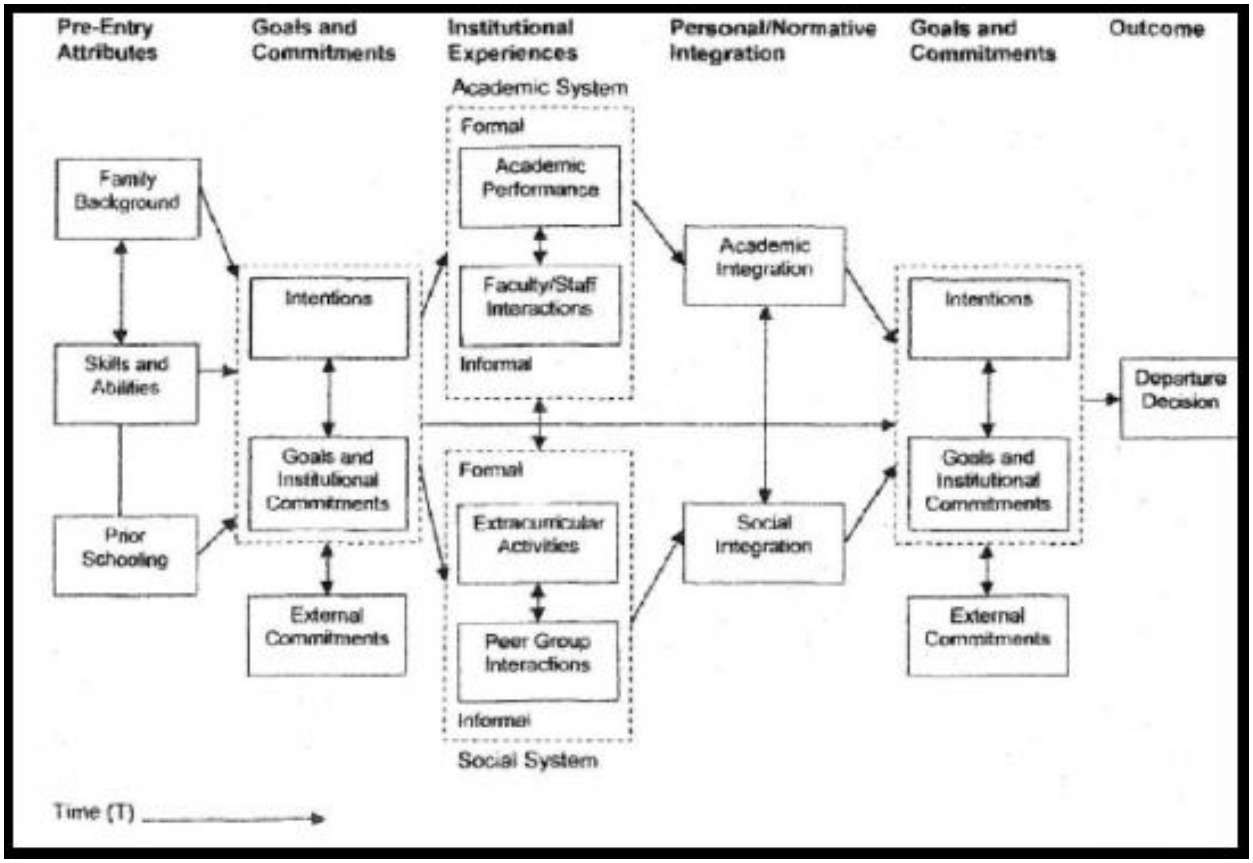
1 2 3 4 5

I find ways to make course material relevant and applicable to my life.

1 2 3 4 5

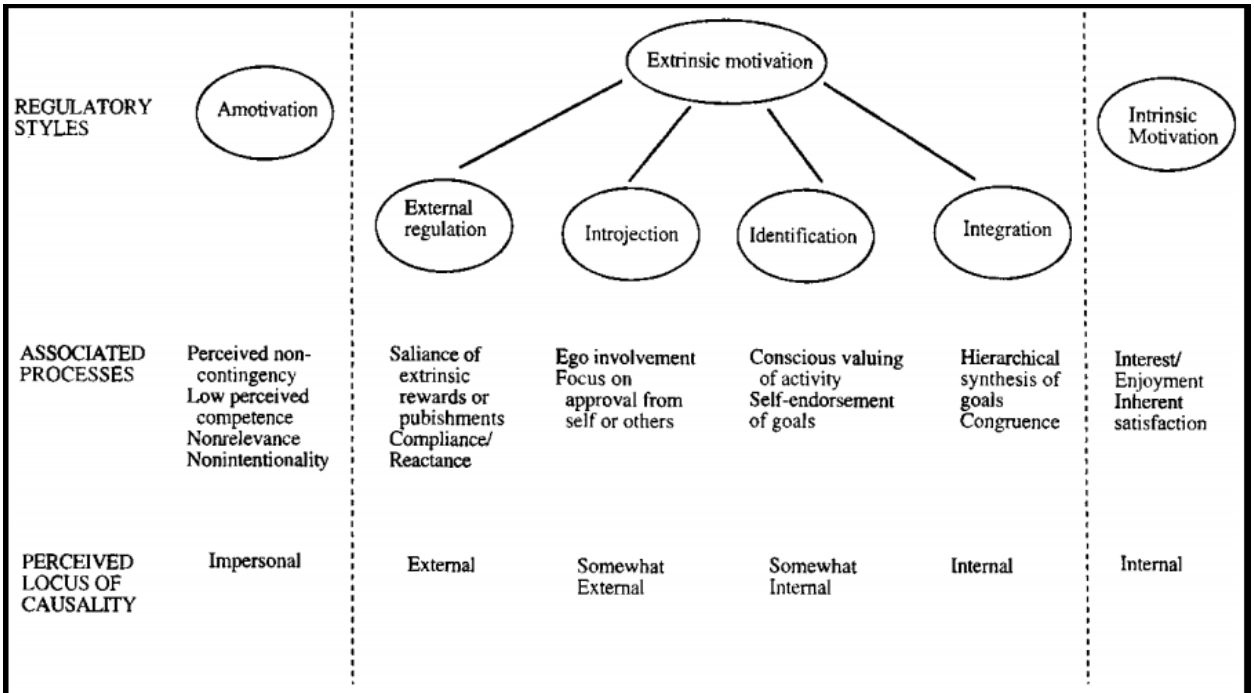
Appendix C

Longitudinal Model of Institutional Departure (Tinto, 1993)



Appendix D

Taxonomy of Human Motivation (Ryan & Deci, 2000)



A taxonomy of human motivation.

Appendix E

Survey Items by Source

MSLQ (Pintrich et al., 1993) and SCEQ (Handelsman et al., 2005)

MSLQ				
Variable	**Subscale**	**Original Item**	**Adapted Item**	**Literature**
Motivation	Intrinsic Goal Orientation	In a class like this, I prefer course material that really challenges me so I can learn new things.	In *my courses*, I prefer course material that really challenges me so I can learn new things.	Pintrich et al. (1991); Pintrich et al. (1993); Crede & Phillips (2011)
		The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible.	The most satisfying thing for me in *my courses* is trying to understand the content as thoroughly as possible.	Pintrich et al. (1991); Pintrich et al. (1993); Crede & Phillips (2011)
	Task Value	I am very interested in the subject matter covered in this course.	I am very interested in the subject matter covered in *my courses.*	Pintrich et al. (1991); Pintrich et al. (1993); Zusho & Pintrich (2003); Crede & Phillips (2011)
		Understanding the subject matter of this course is very important to me.	Understanding the subject matter of *my courses* is very important to me.*	
	Self-Efficacy	I am confident I can do an excellent job on the assignments and tests in this course.	I am confident I can do an excellent job on the assignments and tests in *my courses.*	Pintrich et al. (1993); Ryan & Deci (2006); Crede & Phillips (2011)
		I expect to do well in this class.	I expect to do well in *my courses.*	Pintrich et al. (1993); Ryan & Deci (2006); Crede & Phillips (2011)

		Considering the difficulty of this course, the teacher, and my skills, I think I will do well in this class.	Considering the difficulty of *my courses*, the teachers, and my skills, I think I will do well in *my courses*.	Pintrich et al. (1993); Ryan & Deci (2006); Crede & Phillips (2011)
	Perceived Autonomy Support	The instructor was willing to negotiate course requirements with students.	The *instructors were* willing to negotiate course requirements with students.	Pintrich et al. (1993); Crede & Phillips (2011)
		Students had some choice in course requirements or activities that would affect their grade.	Students had some choice in course requirements or activities that would affect their grade.	Pintrich et al. (1993); Crede & Phillips (2011)
		The instructor made changes to course requirements or activities as a result of student comments or concerns.	The *instructors* made changes to course requirements or activities as a result of student comments or concerns.	Pintrich et al. (1993); Crede & Phillips (2011)
Self-Regulation	Metacognitive Self-Regulation	I try to think through a topic and decide what I am supposed to learn from it rather than just reading it over when studying. **	I try to think through a topic and decide what I am supposed to learn from it rather than just reading it over when studying. **	Pintrich et al. (1993); Ryan & Deci (2006); Crede & Phillips (2011)
		When I become confused about something I'm reading for this class, I go back and try to figure it out.	When I become confused about something I'm reading for *a course*, I go back and try to figure it out.	Pintrich et al. (1993); Ryan & Deci (2006); Crede & Phillips (2011)
	Effort Regulation	Even when course materials are dull and	Even when course materials are dull and	Pintrich et al. (1993); Ryan & Deci (2006);

		uninteresting, I manage to keep working until I finish.	uninteresting, I manage to keep working until I finish.	Crede & Phillips (2011)
		When course work is difficult, I give up or only study the easy parts (Reversed).	When course work is difficult, I give up or only study the easy parts.	Pintrich et al. (1993); Ryan & Deci (2006); Barkley (2009); Crede & Phillips (2011)
Engagement	Help Seeking	I ask the instructor to clarify concepts I don't understand well.	I ask *my instructors* to clarify concepts I don't understand well.	Astin (1984); Pintrich et al. (1993); Barkley (2009); Crede & Phillips (2011)
	Time and Study Environment	I attend class regularly.	I attend *my courses* regularly.	Astin (1984); Pintrich et al. (1993); Barkley (2009); Crede & Phillips (2011)
	Time and Study Environment	I make good use of my study time for this course.	I make good use of my study time for *my courses*.	Astin (1984); Pintrich et al. (1993); Barkley (2009); Crede & Phillips (2011)
SCEQ				
Engagement	**Factor**	**Original Item**	**Adapted Item**	**Literature**
	Skills	I find ways to make the course material relevant and applicable to my life.	I find ways to make course material relevant and applicable to my life.	Astin (1984); Handelsman et al. (2005); Barkley (2009)

*Item added for data collection in final study.
**Item removed for data collection in final study.

Appendix F

Faculty Recruitment Email

Dear Instructor,

My name is John LeMay and I am a doctoral student in the educational leadership program at Georgia Southern University. As a part of my dissertation, I am conducting research focused on the relationships among student engagement, motivation, self-regulation, and achievement. I am interested in how these might interact to predict achievement in sophomore students, a group that is currently underrepresented in the literature.

I am requesting your permission to allow your students to complete a brief, 20-item questionnaire. The choice to contact you personally was based on a course search on the University's website for sophomore-level courses in the Spring 2017 semester. Student participation will be completely voluntary.

The cover letter and questionnaire are attached for your review. This survey should take students no more than 5 minutes to complete. If you wish to allow your students to participate, please respond to this email and I will contact you to schedule the best time for your students to complete this survey.

Thank you in advance,

John LeMay
162 Reserve Lane
Statesboro, GA 30458
jlemay@georgiasouthern.edu