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Examination Of College Student Achievement Within An Ecological Framework

Lauren Mangus
Wayne State University,

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by

LAUREN MANGUS

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DEDICATION

To my family and friends, as well as all of the educators, whose unconditional love, support, and promotion of my self-perceived capability have made this tremendous goal possible to achieve. Also, to all of those who have ever had any doubt about their capabilities. With passion, determination, commitment, and self-efficacy, anything is possible.

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CHAPTER I

INTRODUCTION

Throughout the course of development, much attention is given to individuals' outcomes and the factors that likely predispose adaptive and maladaptive outcomes. A variety of developmental periods throughout the lifespan have been examined in prior research, but there seemingly is a large focus on the time period from adolescence through young adulthood. This transitional period from late teens through the 20's has been recently coined as "emerging adulthood," (Arnett, 2004; 2006; 2007). Moreover, development progresses on a continuum and of great interest is the successful transition to adulthood. This process from childhood and adolescence into adulthood is of specific interest in the proposed study because there is much development that occurs at this juncture. For example, during this time, adolescents begin to formulate perceptions of their identity (Miller, 2002). In fact, this time is the most self-focused age of life (Arnett, 2006). This period of development is often studied in research, as throughout this period of identity formation, individuals typically begin to solidify their skills, needs, and goal-orientation, which often involves occupational goals (Miller, 2002).

Further, individuals begin to formulate their understanding of where they fit into society, often trying to figure out where they fit within the context of their peers and/or other affiliations. As these individuals explore their identities often through love, work, and education, it is often a time period that is of great interest to researchers (Arnett, 2004; 2006). Additionally, given the nature of this unstable period, as identified through social or work commitments, residential changes, and personal values and beliefs, researchers are often eager to explore individuals' behavior, whether adaptive or maladaptive, including risk-taking behavior (Arnett, 2004; 2006). As this can be a stressful time for many, some individuals can feel lost and mental health

problems can ensue or become exacerbated, further giving credence as to why this is a time period that is highly researched (Arnett, 2007).

For slightly over half of all adolescents, a critical part of this transitional period is the experience of attending college (Arnett, 2004). Yet, as college is a context for many emerging adults, many of them have difficulties and are not successful. Further, the ramification of being unsuccessful can involve the individual to cease attending college completely, or discontinue for a certain period of time and then potentially returning (Arnett, 2004). In stating such, it is important to examine factors that aide students in being successful while in college in order to assist in avoiding some of the aforementioned consequences. Contrary to focusing explicitly on successful outcomes, much of the research involving college students and their outcomes focuses on student drop-out and other potentially negative outcomes. Even though it is important to understand the factors that are involved with poorer outcomes, it is imperative to understand what factors contribute to student success to potentially assist other students in achieving as well.

As it is important to understand what can assist in predicting college student outcomes, this study will focus on examining factors that may predict academic success in college. Achievement in college is important because it assists individuals in their level of productivity, career development, and enhances their views of themselves, including their capabilities (Arnett, 2004; 2006; Bandura, 1986). Moreover, the more productive individuals are, in an adaptive sense, the more likely they are to contribute to society as a whole.

The factors selected to be examined for this study are based on multiple theoretical underpinnings and empirical research. Prior research examining student achievement, has often involved examining individual or environmental factors in isolation. At the core of this proposed study is the notion that factors contributing to student achievement are largely grounded in

current developmental systems theory, in which researchers in the field posit that development is dynamic and transactional, implying that an individual's cognitions and behaviors do not occur in a vacuum (e.g., Lerner, 1996; Sameroff, 2000). Further, developmental systems theory includes the notion that the individual's make-up (genotype) interacts with their environmental context (environtype) over time, thereby creating a specific outcome (phenotype) (Sameroff, 2000). As genotype is not the main focus of this study and would be difficult to examine, it will not be included. However, within the context of developmental systems theory perspective, the focus will be on the transactional interplay of the phenotype (i.e., the student, including student characteristics) with the environtype (i.e., student environment).

In further emphasizing the importance of the interactions between individuals and their environments, Urie Bronfenbrenner's ecological approach is assistive in understanding the importance of individuals and the contexts in which they develop. Bronfenbrenner has posited that an individual is nested within an interacting and constantly changing environmental system (Bronfenbrenner, 1977; 1979; 2005). Further, this system is bi-directional, indicating that there are reciprocal relations between the individual and each social context in which he or she is nested within, as well as whatever contexts his or her immediate contexts are nested within.

There has been much developmental research that has utilized ecological models with Bronfenbrenner's theoretical underpinnings. Often, these models have been examined within the context of maladaptive outcomes, such as risk-taking behavior (Small & Luster, 1994). Other research, such as that within the academic arena, has utilized ecological frameworks to explore items such as school readiness (Rimm-Kaufman & Pianta, 2000) and college student retention/departure (Tinto, 1987). This proposed study is unique in that it involves utilizing an ecological perspective to examine factors involved in student achievement.

The proposed study included factors that are intrinsic to the individual (e.g., motivation, self-efficacy, and study habits), as well as environmental variables (e.g., social support, institutional support, and other social variables). These variables have been selected because they have been empirically supported to be involved in student achievement and are theoretically grounded. Yet, what is unique to this study is that these factors are being examined in a contextual, multi-level manner, versus that of being examined in isolation (i.e., either internal or external, but not both), which has been done historically. The specific factors with respect to the individual student and their environment were explored in greater detail in the following section of this proposal.

Individual Factors

The individual factors for this study have been selected, as they have been found to be empirically linked to student achievement. In addition to research, social learning theory also heavily implicates individual factors, such as self-efficacy and motivation, on student achievement (Bandura, 1986; Eccles & Wigfield, 2002; Garcia & Pintrich, 1996). Under the guise of social learning theory, largely engendered by Albert Bandura, cognitions and behaviors are linked together (Bandura, 1986; Miller, 2002).

Motivation. Throughout decades of research, motivation has been linked repeatedly to student achievement (Bandura, 1986; Cassidy & Eachus, 2000; Dennis, Phinney, & Chuateco, 2005; Dweck, 1986; Eccles, & Wigfield, 2002; Garcia & Pintrich, 1996; Hsieh, Sullivan, & Guerra, 2007; Robbins et al., 2004; Turner, Chandler, & Heffer, 2009). When individuals are motivated, they are more likely to engage in a task due to intrinsic factors, such as interest and enjoyment in the activity, or extrinsic factors, such as avoiding a consequence or obtaining a reward (Eccles & Wigfield, 2002; Urdan & Mestas, 2006). Personal motivation has been found

to be a positive predictor of adaptive college student outcomes, especially among at-risk students (Dennis et al., 2005). Motivation is also important with respect to the college educational experience, as students who do not do well in courses tend to report that they lacked the self-discipline to attend class and complete coursework (Arnett, 2004). Moreover, academic underachievement has been reported by college students to likely be an outcome of lack of motivation (Balduf, 2009).

Often times, people are motivated to exhibit a particular behavior due to extrinsic factors, such as pleasing others (e.g., teachers, parents, friends) or to silence skeptics, or intrinsic factors, such as fulfilling a desire to prove something to oneself or to enhance their personal skills (Dennis et al., 2005; Eccles & Wigfield, 2002; Urdan & Mestas, 2006). Considering the vast research in the area of student motivation, often times, students may engage in academic activities to enhance their personal performance, or they may not engage in tasks so as not appear in an unfavorable manner to others (Eccles & Wigfield, 2002). Within the context of this study, it will be important to examine how strongly academic achievement is linked to motivation, and whether motivation is predominantly intrinsic or extrinsic.

Self-efficacy. Self-efficacy has also been linked to student achievement and motivation behavior (Bandura, 1986; Cassidy & Eachus, 2000; Dweck, 1986; Hsieh, Sullivan, & Guerra, 2007; Robbins et al., 2004; Schunk, 1989). In its simplest form, self-efficacy can be understood as an individual's judgment of his or her own capability (Bandura, 1986). Self-efficacy generally is a significant predictor of a college student's perceived purpose in life (Elias & MacDonald, 2007). In fact, it has been found to account for 41% of the variance (DeWitz, Woolsey, & Walsh, 2009). It has also been found to be a significant predictor of expectations of

the college experience and student performance with respect to academic achievement (Cassidy & Eachus, 2000; Chemers, Hu, & Garcia, 2001).

With respect to the individual level, research has purported that student self-efficacy can impact how much time and effort an individual puts toward a task (Bandura, 1986; Eccles & Wigfield, 2002; Hsieh et al., 2007; Robbins et al., 2004; Schunk, 1989). In an academic sense, self-efficacy is important to consider, as individuals who have a lower sense of self-efficacy may not take academic risks due to perceptions of potential failure (Bandura, 1986; Eccles & Wigfield, 2002; Hsieh et al., 2007). Similarly, individuals who have a higher sense of self-efficacy likely will be more inclined to engage in more challenging academics (Hsieh et al., 2007). Much of the self-efficacy research deals with school-age children, but more recent studies regarding college student self-efficacy have revealed that college student self-efficacy is a strong predictor of student achievement (Elias & MacDonald, 2007; Turner, Chandler, & Heffer, 2009; Wilhite, 1990), even when the effects of prior grade point average are accounted for (Chemers et al., 2001). This study included this variable as well.

Study habits. As far as intrinsic factors are concerned, individual behavior, such as student study habits, has also been largely implicated in student achievement (Proctor, Prevatt, Adams, Hurst, & Petscher, 2006; Rau & Durand, 2000; Robbins et al., 2004). As indicated by a large-scale, meta-analysis study, study habits have been found to have a moderate effect size on academic performance at the college level (Robbins et al., 2004). Research has found that when college students have underachieved, they will often attribute their lack of success to a lack of self-directed behavior (Balduf, 2009). When considering study habits, self-discipline is important for students, as some students who fail coursework report that they lack self-discipline to attend to course-oriented tasks (Arnett, 2004). In general, when comparing high-achieving

college students to poor-achieving college students, high-achieving college students have been found to have stronger study habits and skills (Proctor et al., 2006).

Longitudinal research has shown that it is not necessarily the amount of time spent studying that improves student performance, but rather, it is the quality of their time, such as working diligently and frequently on school-related tasks (Rau & Durand, 2000). Yet, more time studying has been found to be associated with higher levels of academic confidence, which likely improves academic achievement (Turner, Chandler, & Heffer, 2009; Wilhite, 1990). The direct link of study habits to academic performance has been a bit occluded in research, as many have found cognitive variables, such as motivation and self-efficacy, to greatly affect this particular student behavior (Robbins et al., 2004). In light of the aforementioned information, the proposed study will investigate student perceptions of their quality of study habits.

Environmental Factors

As indicated by current developmental systems theory (i.e., Lerner, Sameroff), environmental factors are important to consider with individual outcomes. The following environmental factors have been selected based on theory, such as Bronfenbrenner's ecological theory, which indicates the importance of contexts, such as interpersonal relationships and school/work, on individual outcomes. Within the broad areas of interpersonal relationships and school/work, variables within these contexts have been selected to be measured, as there is much empirical support demonstrating a linkage between these factors and student achievement.

Family and peer support. Support to college students has been found to assist them in achieving within the realm of their academics and exhibit persistent academic behavior (Antrobus, Dobbelaer, & Salzinger, 1988; Nicpon et al., 2006; Rodriguez, Bingham Mira, Myers, Morris, & Cardoza, 2003). Support can be evidenced through familial or peer means.

Such support has also been evidenced to promote well-being of students (Niemiec et al., 2006; Rodriguez et al., 2003).

Specifically, emotional support, such as advice, encouragement, and opportunities for socialization, appears to be crucial for a successful college experience (Arnett, 2004; 2006; Alvan, Belgrave, & Zea, 1996). Moreover, emotional support has been shown to assist in the alleviation of the effects of stressors on Latino college students (Alvan et al., 1996). Students have been demonstrated to undergo a large amount of stress during their time at college, which does affect their level of psychological distress, which can, in turn, affect their academic performance (Rodriguez et al., 2003).

Specific to familial support, there is a large body of research available to support the notion that families have played a crucial role in a college student's success (Aquilino, 2006; Castillo, Conoley, & Brossart, 2004; Nicpon et al., 2006; Rodriguez et al., 2003). With specific regard to parenting itself, research has found that parenting characteristics, such as: warmth, support, mutual respect, and acceptance, have played a role in students' academic achievement (Aquilino, 2006; Turner, Chandler, & Heffer, 2009). Overall, parental support has been found to enhance their children's well-being and autonomous self-regulation with respect to academic achievement (Niemiec et al., 2006).

Peer support has been found to have an impact on student well-being and their persistent academic behavior and success (Antrobus et al., 1988; Nicpon et al., 2006; Rodriguez et al., 2003). In particular, for general college stressors, peers have been found to have more of a profound effect on positive student well-being than the family. This was evidenced through utilization of multiple regressions while controlling for variables such as SES, gender, stresses, etc. (Rodriguez et al., 2003). Research has also shown that students have a propensity to perform

better with respect to their grade point average and persistent academic behavior when they have developed satisfying peer relationships (Nicpon et al., 2006). A potential explanation for the significant impact of peers is that students' peers are perceived to be more like them, as they are often closer in age and experiences (Rodriguez et al., 2003). Considering the vast amount of research identifying the profound impact that social support has on student cognitions and behaviors, this study examined the extent to which social support in familial and peer contexts affect student achievement. Social support has been selected because of its empirical implications for student achievement, as well as its involvement in social learning theory, as individual's behaviors are largely affected by others' cognitions and behaviors (Bandura, 1986; Miller, 2002).

Extracurricular activities (work, social outings, organizations/sports). Of concern for college students, is the fact that the period of emerging adulthood also brings upon more responsibilities to the individual, such as work and social activities, which likely play an added role in student behaviors that are linked to outcomes, such as student achievement (Arnett, 2006; Robbins et al., 2004; Tinto, 1987). Many college students face the difficult task of balancing multiple activities while being enrolled in classes (Kuo, Hagie, & Miller, 2004; Wohlgemuth et al., 2007). Not only do students work, but often they partake in organizations and other activities both on and off campus. For many college students, their challenging schedules require them to balance the time they spend between school, work, social activities, and other obligations (Arnett, 2006; Kuo et al., 2004). As a result, it is possible that students may find it difficult to balance all of their external activities along with their coursework, which in turn, could impact their achievement.

Specifically related to work, college students report financial responsibility as a great challenge that they face (Kuo et al., 2004). As a result, often students will work while attending classes to assist with some of the financial burden (Arnett, 2006; Castillo et al., 2004). As self-directedness is an important variable within the realm of student success at the collegiate level, when a student works, this may take away from time to potentially be self-directed with school work (Balduf, 2009). At the same time, adding work to their busy schedule could infringe upon students' study time, making it more difficult to manage their schedule and complete course-related work.

On the other hand, research has posited that students who are involved in organizations and affiliations on or off campus, may positively impact students by giving them a sense of belongingness, thereby enhancing their outcomes (Hurtado & Carter, 1997). One study found that students who are involved in athletics are more likely to persist and achieve within the realm of higher education, as they are more inclined to receive social support, are self-determined, and have a sense of belongingness (Wohlgemuth et al., 2007). This study, considered the extent to which these activities assist or hinder student achievement.

Support from faculty. Research has demonstrated that teachers and faculty can play a vital role in student behavior, including behaviors related to student achievement (Garcia & Pintrich, 1996; Hsieh, Sullivan, & Guerra, 2007; Rimm-Kaufman & Pianta, 2000; Tinto, 1987). In conjunction with teaching effectiveness, instructors play additional roles in students' educational experiences than simply providing instruction. For example, one study has shown that to help students cope with their daily challenges as students, students often consult with a current instructor (Kuo et al., 2004). Students have reported being dissatisfied with their overall college experience when their professors have been characterized as 'indifferent' and avoiding

the 'burdening' undergraduates, insinuating that warmth is more desired by students (Arnett, 2004). Students have also been found to have more favorable outcomes when their professors attempt to reduce test anxiety (Cassidy & Eachus, 2000).

Further, it has been found that students who perceive their instructors favorably with respect to supporting their autonomy, such as through allowing them to participate in course policy-making decisions, were found to be more motivated and had higher levels of self-efficacy (Garcia & Pintrich, 1996). Therefore, it can be presumed that faculty who are perceived as being more supportive, who value their students' input, as well as more self-efficacious and skilled have been shown to impact student motivation (Garcia & Pintrich, 1996). This in turn, can impact student achievement. As each student comes into contact with a faculty member for each course, it is important to examine the extent to which faculty play a role in student achievement in a direct or indirect fashion. In addition to the empirical literature to support the examination of this variable, it is supported by social learning theory, as teachers are an additional source of information which can influence students' cognitions and behaviors.

Institutional support. Having a supportive campus environment can lead to increased achievement and retention (Laird, Chen, & Kuh, 2008; Tinto, 1987; Nicpon et al., 2006). Recent trends have identified that college students have reported not utilizing resources very often, which may be partially due to a lack of perceived supports (Kuo, Hagie, & Miller, 2004). Yet, when students have had access to resources, such as contact with module tutors, students have generally been found to have more lucrative outcomes (Cassidy & Eachus, 2000; Karp, Hughes, & O'Gara, 2008). Research has indicated that students who have higher problem-solving appraisal not only have more adaptive study skills and achieve better, but they are more likely to utilize on-campus resources than those who had lower problem-solving appraisal (Elliott,

Godshall, Shrout, & Witty, 1990). It is important that an institution supports students by providing activities; in addition to providing a supportive environment which enhances students' learning (Kinzie, Gonyea, Shoup, & Kuh, 2008). In general, research has shown that student support services have enhanced students' perceptions and their academic outcomes. Given this notion, this study examined the effect of the institution's perceived support has on student achievement.

Limitations of Past Research

Typically, much of prior research that has examined student achievement has focused on K-12 students, and is lacking at the collegiate level (Robbins et al., 2004). To increase knowledge within the realm of emerging adulthood, it is imperative for this study to examine student achievement at the collegiate level. Often when research has involved college students, especially within an ecological framework, factors such as student attrition and withdrawal have been examined, both negative outcomes, versus that of student achievement. Further, studying student achievement and the predictors of such would hopefully aid in hindering negative student outcomes (e.g., poor student achievement, stressors, student dropout, etc.), while promoting more success. Additionally, when ecological perspectives have been explored, they have been examined in a linear fashion, with one or two variables at a time, versus that of a multi-dimensional, multi-directional approach. More commonly, the student is examined in isolation or environmental variables are examined in isolation. Moreover, especially with respect to variables that have been probed, much research has considered academic and social variables to be separate from one-another.

Purpose of the Study

Given the limitations of past research, for the purpose of this study, the aforementioned variables were considered more transactional in nature and thus examined in a multi-dimensional, ecological manner. In addition, much of the ecologically-framed research has examined risk behavior and college departure decisions, indicating more of a negative framework with maladaptive outcomes versus examining predictor variables leading to more positive, adaptive outcomes, to which this study is more theoretically inclined. Lastly, because some isolated variables are fixed, such as demographic information, it is important to examine factors that are more malleable; thus, more amenable to potential intervention. For instance, gender and ethnicity are fixed variables and cannot be modified through interventions, whereas, motivation, for example, could be potentially modified through various interventions.

Examination of the contextual variables within an ecological framework is rooted in theory and based on specific research as outlined through this proposal. Specifically, studies have demonstrated that factors within an individual, such as motivation, self-efficacy, and study habits are linked together (Garavalia, Scheuer, & Carroll, 2002; Kitsantas & Zimmerman, 2009). Other studies have concluded, through meta-analyses, that multiple variables, such as motivation, self-efficacy, social support, social involvement, academic skills, contextual influences, etc., contribute to student success and retention (Robbins at al., 2004).

Additionally, with respect to external variables, socialization and perceived supports have been found to be linked with student outcomes, as well as internal factors, such as self-efficacy, stress, commitment, and motivation (Chemers, Hu, & Garcia, 2001; Dennis, Phinney, & Chuateco, 2005). Moreover, there are theoretical underpinnings (e.g., social cognitive theory), in conjunction with the specified research, that links outside supports to internal items such as self-

efficacy and motivation (Bandura, 1986). This study strived to utilize theoretical foundations and empirical information to investigate ecological contexts and different combinations of these factors which help to predict college student achievement.

Research Questions

Based on the aforementioned information, the proposed research questions of this study are as follows:

(1) To what degree do intrapersonal/internal factors (motivation, self-efficacy, and study habits) predict college student achievement?

(2) To what degree do external factors (family and peer support, extracurricular activities, support from faculty, and institutional support) predict college student achievement?

(3) What are the combined roles of internal and external systems on college student achievement?

(4) Do external factors moderate the relations between intrapersonal/internal factors and overall college student achievement? Specifically, do family and peer support, faculty support, and institutional support moderate the relationship between self-efficacy/motivation and college student achievement?

(5) What is the role of extracurricular activities? Specifically, do extracurricular activities moderate the relation between study habits and college student achievement?

(6) What are the roles of self-efficacy? Specifically, does self-efficacy moderate the relationship between motivation and college student achievement?

Significance of the Study

It is expected that the results of this study will provide an increased understanding of the predictors of academic success among college students, by incorporating a more global, ecological approach in selecting variables that are believed to most comprehensively explain variance in achievement. It is also expected that institutions will be able to utilize this knowledge to design and implement explicit interventions to assist students in achieving within the college arena. Further, once interventions are implemented, it would be expected that this would lead to an increase in student academic achievement, which in turn would also likely improve retention among college students.

CHAPTER II

EMERGING ADULTHOOD AND COLLEGE EXPERIENCE

Throughout the 20th century there have been drastic changes in the conceptualization of human development, including the concept of adulthood. With respect to social development, the time frame from adolescence to adulthood has changed, as more recently the pathway to adulthood has increased in length (Arnett, 2004). There are multiple reasons as to why this shift may have occurred. First, it could be due to an increase in age when individuals decide to marry and procreate. Further, it may also be the result of the pursuit of higher education, in addition to societal norms for perceptions of the meaning and value of becoming an adult (Arnett, 2004; Arnett, 2006).

This particular time period that is being referred to, which has been coined as "emerging adulthood" by Jeffrey Arnett, has often been described as a time of great uncertainty and exploration with respect to an individual's self-concept, their roles in society, the activities they engage in, their educational and/or occupational transitions, relationships, etc. (Arnett, 2004). The 'emerging adulthood' time period ranges from the ages of 18 to 25 (Arnett, 2004). Similar to Erik Erikson's social-emotional developmental stage: "identity versus identity confusion" in adolescence, Arnett classifies the 'emerging adulthood' timeframe as a time to explore identity and other things, such as delving into love and work options, as well as exploring different ways of living (Arnett, 2004; Santrock, 2006). In addition to being a time of identity exploration, Arnett classifies emerging adulthood as being a period of *instability* (Arnett, 2004; Arnett, 2006). The 'instability' of this span of time is characterized with emerging adults having goals and plans, while continually revising them as needed. Each time an individual revises their plan, they generally clarify their future orientation and goals further, as well as gain a better

understanding of themselves (Arnett, 2004; Arnett, 2006). This timeframe is also unstable because emerging adults often move and relocate to different residential areas. Emerging adulthood is also considered to be a time of possibilities and a time of self-focus, in addition to a time of self-sufficiency (Arnett, 2004; Arnett, 2006).

Given the aforementioned items, emerging adulthood is a period of uncertainty and self-discovery. Further, emerging adult individuals typically do not consider themselves to be adults quite yet. Psychologically speaking, many college students have reported that there are specific cognitions and behaviors that are involved with adulthood, such as assuming responsibility for one's own actions, making independent decisions, and being financially stable and independent (Arnett, 2004; Arnett, 2006).

As many emerging adult individuals attend post-secondary institutions and engage in educational exploration, college is an important context to examine. After high school, approximately two-thirds of emerging adults attend college (Arnett, 2004). Yet, not all students finish as some drop out, and not all students complete their degree in a timely fashion. Student dropout and extension in degree completion can be due to multiple factors, such as not being ready to attend college, not being committed, or being unsure of what they want to do or if they even want to attend school (Arnett, 2004). Additionally, some individuals lack finances or the self-control to exert balance and routine into their schedules, while they and others can often get side-tracked with social events and the individual freedoms that college brings (Arnett, 2004). College can, however, be a positive component of the Emerging Adulthood time period, as it allows students the freedom to explore their interests, learn about themselves, obtain knowledge, progress toward career goals, and meet new people. Essentially, it is a time which can bring an individual success in many different domains.

Other developmental perspectives have conceptualized this time frame of earlier adulthood as one in which a lot of personal growth takes place. For example, with respect to psychosocial development, Erik Erikson is well known for his socio-emotional theory and the developmental progression that one undergoes from birth to death (Santrock, 2006). Specifically, at the juncture of late adolescence and early adulthood, individuals go through an 'identity vs. role confusion' (Santrock, 2006). Identity is a large part of an individual's conceptualizations about their role in society and who they are overall. As part of this pursuit, individuals will often consider career paths which may include higher education. In fact, empirical evidence has demonstrated that psychosocial factors, such as identity, are significant predictors of the pursuit of higher education (Robinson, 2003). Further, psychosocial factors significantly mediate the effects of academic integration on persistence at a particular institution. Identity plays a large role in this stage as it also contributes to student success, including persistence of educational pursuits, in addition to involvement with respect to institutional activities, groups, and faculty-interactions (Robinson, 2003).

Ecological Models

Prior to the late 1970's, much research involving human behavior and development was conducted in a laboratory setting (Bronfenbrenner, 1977; 2005). As a result, theorists and researchers, such as Urie Bronfenbrenner, asserted the position that individual behavior and development does not occur in isolation, but rather within multiple, nested contexts (Bronfenbrenner, 1977; 1979; 2005; Bronfenbrenner & Ceci, 1994; Lerner, 1996). Under this framework, development is considered to occur within multiple, distinct levels of organization (Ford & Lerner, 1992). In addition, each of these levels interacts with one-another in a reciprocal manner (Bronfenbrenner, 1977; 1979; 2005; Ford & Lerner, 1992). Moreover, there

is the assertion that development involves both continuity and change, noting that human development is both static and plastic (Bronfenbrenner, 2005).

Further, human development, (within a bio-ecological framework), has been characterized within the realm of a "process, person, context, time" (PPCT) model (Bronfenbrenner, 2005). This model involves the notion that human development consists of four interrelated components. Specifically, this particular model sheds light on the notion that development is a *process* in which the individual is centered within fused, dynamic contexts (Bronfenbrenner, 1977; 2005; Bronfenbrenner & Ceci, 1994). Further, the individual or *person* themselves brings multiple items to the table for their development, such as: cognitions, behavior, emotions, and biological factors (Bronfenbrenner, 2005; Bronfenbrenner & Ceci, 1994). *Contexts* refer to settings which occur at multiple, nested levels ranging from (small to large): molecular, cellular, organ, organism, home, school, community, etc. This suggests that at each level there is a context in which the individual or a specific item is enveloped within. With respect to *time*, development occurs within multiple dimensions of temporality (e.g., historically, within the family, from birth to death, etc.) across the lifespan (Bronfenbrenner, 1977; 1979; 2005). In addition to this concept of 'time', within the realm of development, environmental stability and consistency over the life span also occurs (Bronfenbrenner & Ceci, 1994). Developmental systems are thought to be rather complex and dynamic, as they wax and wane through the states of: order and disorder, stability and flexibility, as well as integration and segregation (Kelso, 2000).

With respect to context, more recent research has formulated an ecological framework that extends to factors within the individual, such as organs, tissues, cells, molecules, etc. (Lickliter & Honeycutt, 2003; Rutter, Moffitt, & Caspi, 2006). For example, at the genetic level,

each gene resides within a nucleus, which then resides within a cell and so forth. Going down to the molecular level, complex, multi-determined molecules interact with each other within and across cells, in a bi-directional fashion, within physical, biological, and social aspects, lending its hand to development (Gottlieb, 1991; 2002; Lickliter & Honeycutt, 2003). These different aspects of development and other developmental dynamic systems lend their hand to the stability of phenotypic characteristics across time (Lickliter & Honeycutt, 2003).

At each level, there is a contextual nesting that affects the phenotypic expression of that particular gene. Essentially, through a biosocial trajectory, each genotype, coupled with an environtype (environmental surroundings), produces a phenotypic expression (Bronfenbrenner & Ceci, 1994; Gottlieb, 1991; 2002; Rutter, Moffitt, & Caspi, 2006; Sameroff, 2000). This process by which the genotype is thereby expressed as a phenotype is referred to as "ontogeny" (Lickliter & Honeycutt, 2003). This notion of a biosocial trajectory with phenotypic expression has been principally used to explore such things as maladaptive behaviors, psychopathology (Rutter, Moffitt, & Caspi, 2006), chemical dependency (Lessov, Swan, Ring, Khroyan, & Lerman, 2004), and infant attachment as related to parenting quality (Roisman & Fraley, 2008).

Within an ecological makeup, many adaptive and maladaptive behaviors have been explored through various studies. Some of the research that exists using an ecological approach as a theoretical basis of exploration include, but are not limited to: psychopathology (Sameroff, 2000), antisocial development (Granic & Patterson, 2006), child maltreatment (Baumrind, 1994), development of early academic skills (Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Dupere, Leventhal, Crosnoe, & Dion, 2010, Hamre & Pianta, 2000). In particular, Pianta and colleagues have done much work with respect to contextual effects on student achievement, with a particular focus on both the school and home environments, which are each nested within

larger contexts (Burchinal et al., 2002; Hamre & Pianta, 2000). In addition to examination of the school, other environments, such as neighborhoods and communities, have been examined within an ecological framework with respect to their potential effects on student achievement (Dupere et al., 2010). Much research with respect to behavior and cognitions has more recently focused on development throughout multiple contexts. Essentially, the current directions of research have alluded to the notion that individuals' behaviors and cognitions are malleable in regards to individual variables and simultaneous interactions with the contextual environment, lending a hand to the dynamic complexity of development (Kelso, 2000).

For the proposed study, the focus is predominantly at the level of the organism and the context that the individual is embodied within. These extrinsic factors can include people and settings that may impact an individual and, reciprocally, which the individual can affect as well (Bronfenbrenner, 1977; 1979; 2005; Bronfenbrenner & Ceci, 1994). Included within the theoretical underpinnings of an ecological model is the notion of 'reciprocity.' Reciprocity refers to a dyadic relationship between two individuals, two settings, two contexts, or some combination of these aforementioned items (Bronfenbrenner, 1979). In short, they mutually affect each other. Moreover, these items interact in a manner in which they act as a feedback loop, thereby influencing each other.

Given that everything affects everything (Kumsta, Rutter, Stevens, & Sonuga-Barke, 2010; Rutter, Moffitt, & Caspi, 2006), even when individuals are not physically present, their contexts can have an indirect impact on the individual (Bronfenbrenner, 1977; 1979; Bronfenbrenner & Ceci, 1994). For example, a child's parent is part of their ecological environment, where a parent's place of employment is part of the parent's context. Inadvertently, the parent's workplace has the potential to affect the child as well as the parent.

As Bronfenbrenner and others have stated, each nested, contextual factors has a reciprocal relationship not only with the individual, but within and between each ecological factor (Bronfenbrenner, 1979).

More explicitly, Bronfenbrenner purports that there are multiple layers enveloping the individual: the microsystem (the immediate setting in which an individual is within), the mesosystem (the interrelations of microsystems during a specific developmental period), the exosystem (not directly involving the individual, but perhaps enveloping other people which interact with the individual), and lastly, the macrosystem (a super-ordinate level involving culture, political systems, etc.) (Bronfenbrenner, 1977; 1979; 2005). The microsystem can be characterized as what the individual "experiences" (Bronfenbrenner, 1977; 1979). The microsystem can include, but is not limited to, settings (e.g., home, work, and school), activities, personal roles, and interpersonal relationships. Mesosystems involve the interrelations among settings that the individual actively resides within (Bronfenbrenner, 1977; 1979; 2005). For example, this could involve an individual being actively involved in two settings; therefore, the two settings would be interrelated by a common thread, whether that is through means of communication or other behaviors, etc. The exosystem involves contexts in which the individual is not necessarily an active participant (Bronfenbrenner, 1977; 1979; 2005). The exosystem can include, but is not limited to, a parent or spouse's place of employment, a classroom that a sibling is a student in, a friend's social network, or activities of teachers. Essentially, the exosystem involves others' contexts who are interpersonally related with a specific individual or interrelations among settings that an individual is not actively involved within. Lastly, macrosystems involve much broader, contextual variables, such as culture, religion, ethnicities, socioeconomic status, and other potential social strata (Bronfenbrenner, 1977; 1979; 2005).

Ecological models have not particularly been used widely for achievement behavior; especially among college students. Nevertheless, researchers have suggested the use of an ecological perspective to assist in understanding and potentially aiding in college student achievement and adjustment (Dennis, Phinney, & Chuateco, 2005). Often, researchers speak of the importance of school and classrooms as contexts (Eccles & Wigfield, 2002). Further, other researchers have focused on schools nested within communities and neighborhoods (Dupere et al., 2010).

Student Achievement

Achievement behaviors are important to understand, as positive college outcomes yield careers, increased productivity, and other societal contributions. Schunk (1999) has characterized achievement behaviors as associated with goal progress, motivation, and learning. Achievement outcomes are often associated with social and individual influences (Schunk, 1999). Achievement outcomes are often identified as behaviors, such as motivational behaviors (e.g., effort, tenacity, and task choice), progress towards goals, and learning (Schunk, 1999). At times, these behaviors can be observed or measured through marks, such as grades and grade point average. Often, studies involving college students measure academic performance as grade point average (Nicpon et al., 2006; Robbins et al., 2004; Walker & Satterwhite, 2002).

Achievement behaviors coincide and interact with environmental influences and personal characteristics, contributing to reciprocal determinism (Bandura, 1986; Schunk, 1999). Reciprocal determinism, in the case of academic achievement, refers to the extent to which environmental variables, (such as the social influence of peers, families, and teachers), as well as individual variables, (such as goals, self-efficacy, outcome expectancies, self-regulation, etc.), contribute to and interact with other contextual variables (Schunk, 1999).

Research has recognized that there are multiple factors that impact student motivation and attrition (Van Etten, Pressley, McInerney, & Liem, 2008; Tinto, 1987), including items both intrinsic and extrinsic to the individual. Although there has been much research to explore factors individually, or in some combination that likely contribute to student achievement with respect to student achievement, these factors have not been combined in the realm of an ecological framework. Further, much of the research that corresponds to student achievement and selected ecological variables involves elementary and secondary level students. In the upcoming sections, ecological variables within a hypothesized framework will be proposed with respect to how they likely contribute to student achievement. With respect to academic achievement, research has shown that there are individual components (e.g., student beliefs and attitudes), as well as environmental components (e.g., peers, family, faculty, college environment, extracurricular involvement), that are involved (Van Etten et al., 2008). The intrinsic and extrinsic variables, as outlined in the forthcoming sections, were selected carefully based on an extensive literature review with respect to college students and their overall achievement.

With respect to the outcome measure, grade point average (GPA) was selected as it has been widely used in research to measure student success and outcomes. Other research has purported that a student's GPA is helpful in assessing student achievement with respect to learning and is widely used to measure student outcomes (Tuckman, 2003). Additionally, GPA has often been associated with other positive outcomes (Mohr, Eiche, & Sedlacek, 1998). Given these notions, GPA has been selected to be the most immediate, direct measure of success, while also being a measure that is associated with long term success and optimal outcomes.

Contextual Variables

Individual Factors.

Motivation. Achievement motivation has been classified as, "the energization and direction of competence-based affect, cognition, and behavior" (Elliott, 1999). It is well known, through both theory and research, that an individual's motivation and willingness toward accomplishing their goals holds a high degree of importance in the pursuit of educational attainment at the post-secondary level (Tinto, 1987). Dweck and others have asserted that there are many other factors, rather than ability alone, that play a role in a student's persistence or withdrawal behavior from a task when it is perceived to be difficult. Additionally, these factors also affect how they perform overall with respect to utilizing and developing their skills in an effective manner (Dweck, 1986). Quite often, students who discontinue their academic pursuits do not put forth the effort, (thus likely lacking in motivation), to complete a program and are not willing to commit to the overall college experience (Tinto, 1987). With respect to student achievement, achievement motivation has been found to be one of the largest predictors of student success (Robbins et al., 2004).

With respect to motivation, there have been multiple, moderator variables that have been referenced frequently with respect to research and theory. For example, goals, self-efficacy, interest, and attribution have all been identified as different constructs that are considered to have an effect on motivation (Pintrich, 2000). All of these constructs, in addition to motivation itself, affect choice, persistence, and behavior with respect to student achievement outcomes (Pintrich, 2000). Academically speaking, there are multiple theories which can help to explain motivation in relation to achievement, such as: reinforcement theory, cognitive theory, expectancy x value theory, self-worth theory, goal theory, and intrinsic motivation theory (Stipek, 1998). These

theories predominantly take into account cognitions, with the exception of reinforcement theory, which is more concerned with the environment, such as reward contingencies. For the purpose of this study, with respect to motivation, goal theory and intrinsic motivation theory will be the predominant focus. Yet, a general overview of the aforementioned theories is as follows.

Motivation, with respect to *reinforcement theory*, speaks more toward operant conditioning, including antecedents and consequences of behavior (i.e., what comes before and after a behavior). With this theory, grades could be viewed as a consequence of the behavior; therefore, asserting that if a student received a good grade, they would be more inclined to repeat their academically-oriented behavior. Under this theory, other reinforcers, such as praise or tangibles (i.e., stickers or other external items), could be implicated. At the same time, punishment, such as receiving negative grades, could possibly deter a student from replicating their academic behaviors, therefore modifying their behavior (Bandura, 1986; Stipek, 1998).

With respect to *cognitive theory*, cognitive theorists are more focused with respect to how cognitions, such as beliefs and thoughts, will mediate the effect consequences have. With respect to *expectancy x value theory*, which is similar to Bandura's principals of self-efficacy and outcome expectancies, in addition to a person believing they will be able to complete a task, there must be a value assigned to putting forth effort (Bandura, 1986; Stipek, 1998). Eccles and Wigfield (2002) have offered different values related to achievement, such as attainment value, utility value, and intrinsic value. Attainment value refers to the degree of importance doing well on a task has to an individual. Utility value, on the other hand, refers to how useful one perceives a task to be with respect to achieving some sort of goal, such as a career goal. Intrinsic value is in reference to the immediate gratification one feels after performing a task (Eccles & Wigfield, 2002; Stipek, 1998). In addition to these values, Eccles makes an important point that

'cost' is also an important item to consider when examining values. 'Cost' refers to any potential negative outcomes that may be associated with participating in a task, such as failure, embarrassment, anxiety, etc. (Eccles & Wigfield, 2002; Stipek, 1998).

With respect to *self-worth theory*, this theory operates under the notion that individuals perform academically because they want to feel valued (Stipek, 1998). This theory takes into account social norms and the roles of others, including their opinions that influence the students' behaviors. There is also *goal theory*, which posits that students exert effort and are motivated because they are working toward attaining a specific goal (Schunk, 1999; Stipek, 1998). Goals can include, but are not limited to: attaining a good grade, avoiding embarrassment, pleasing parents, proving something to themselves, or disproving peers (Urdan & Mestas, 2006). Students are often motivated, as they see education as a means for opportunities with respect to their future, finances, or self-fulfillment (Hwang, Echols, & Vrongistinios, 2002).

Goal Theory. With respect to goal theory, there are predominantly two different types of goals, learning goals and performance goals (Boekaerts, Pintrich, & Zeidner, 2000; Dweck, 1986; Eccles & Wigfield, 2002; Ertmer, Newby, & MacDougall, 1996; Stipek, 1998). Learning goals refer to mastery of particular concepts and developing an understanding of the content. Performance goals, on the other hand, reflect more extrinsic factors, such as obtaining social approval, performing better than others, etc. (Boekaerts et al., 2000; Dweck, 1986; Stipek, 1998). Goals have also been found to be highly associated with academic persistence (Pascarella & Terenzini, 1983).

With respect to the most salient, distal goals, a recent survey of college students' perceptions of their motivations discovered that grades and graduation were the two primary goals that enhanced their motivation for exhibiting academic behaviors (Van Etten et al., 2008).

Surveyed music education students, on the other hand, were found to be most motivated by mastery of personal goals and challenging tasks (Schmidt, Zdzinski, & Ballard, 2006). Students have also been found to be highly motivated toward succeeding in college, as they want to attain a career that is rewarding (Dennis, Phinney, & Chuateco, 2005). In general, students who set goals are more likely to outperform their counterparts (Friedman & Mandel, 2009).

Dweck has differentiated between the goals of learning and performance, as students who have learning goals are more likely to seek challenging tasks that will further their educational attainment, while students with performance goals are more concerned with how competent they appear, relative to others (Boekaerts et al., 2000; Dweck, 1986; Pintrich, 2000a). In general, individuals with high goals have a propensity to also exhibit a higher self-regulatory capacity and self-evaluative standards (Zimmerman & Bandura, 1994). With respect to mastery goals (with respect to learning goals), Dweck and Leggett (1988) discovered that students with mastery goal orientation maintained positive and adaptive efficacy beliefs in the face of challenging tasks. Additionally, they were found to be more likely to make adaptive attributions of their performance. Research has also shown that mastery goals are often correlated with effort, persistence, positive beliefs about competency, and self-efficacy with respect to school work (Ames, 1992; Urdan & Mestas, 2006).

With respect to performance goals, there has been a distinction of two types: performance-approach and performance-avoidance goals (Elliot, 1999; Pintrich, 2000). These types of goals have been shown to be empirically supported through decades of research (Elliot, 1999). A performance-approach goal constitutes an individual trying to out-perform another in an effort to evidence competence and/or superiority, which is a positive event (Boekaerts et al., 2000; Elliot, 1999; Pintrich, 1999). On the other hand, a performance-avoidance goal involves

an individual behaving in a particular manner to avoid failure or the appearance of incompetency, which is a negative event (Boekaerts et al., 2000; Elliott, 1999; Pintrich, 1999). Students often have multiple goals, aiding in the regulation of their behavior, leading to certain outcomes relating to performance, motivation, affect, and strategy use (Pintrich, 1999). In Pintrich's study (2000b), it was discovered that middle school math students had the most adaptive outcomes over time when they had mastery goals in isolation, or mastery and performance goals combined.

In the face of performance goals, other researchers, such as Urdan and Mestas (2006), have purported that students often either avoid or approach tasks in an effort to enhance their appearance or for competition. With respect to appearance, students are often compelled to perform to enhance their appearance (appearance-approach) or avoid tasks so that others do not view them negatively (appearance avoidance). On the other hand, with respect to competition, students often are either inclined to perform a task to appear more favorably than others (competition-approach) or avoid performing a task because they do not want to look unfavorably when compared to others (competition-avoidance) (Urdan & Mestas, 2006). The other individuals, which a student either would like to impress or avoid unfavorable judgment from, can include peers, family, teachers, etc. Further, the individuals which a student is trying to outperform or avoid looking unfavorably when being compared to, can vary from classmates, other applicants, siblings, etc. (Urdan & Mestas, 2006). Essentially, the individuals that can assist in influencing goals can vary greatly. In addition, it has been found that goals can also change across settings, such as home, classroom, etc. (Pintrich, 2000a).

Overall, research has posited that a combination of both intrinsic motivation and extrinsic motivation, via grades, has the most profound effect on student achievement (Bye, Pushkar, &

Conway, 2007). Additionally, a combination of both types of motivation has been found to be positively associated with learning and adjustment (Deci & Ryan, 1994). Other researchers have concluded that students who are high academic achievers have goals and intentions that are not only a combination of intrinsic and extrinsic motivation, but are also based on future goal orientations as well as personal and social needs (Hwang et al., 2002). Further, motivation, within the realm of personal and/or career-related activities, has been found to positively predict college adjustment (Dennis, Phinney, & Chuateco, 2005).

Intrinsic Motivation. Intrinsic motivation theorists operate under the premise that students are motivated to succeed naturally and do not need extrinsic consequences to help them become more motivated. Essentially, individuals are successful due to the fact that they enjoy how they feel after attaining achievement (Boekaerts, Pintrich, & Zeidner, 2000; Deci & Ryan, 1985a). Often, individuals will be intrinsically motivated to obtain knowledge, to attain accomplishments, or to experience some sort of stimulation (Deci & Ryan, 1985b; Vallerand, Pelletier, Blais, Briere, Senecal, & Vallieres, 1992). Intrinsic motivation has been found to be highly predictive of college student performance in the academic arena (Turner, Chandler, & Heffer, 2009). Additionally, interest plays a significant role in predicting a student's motivation to learn (Bye, Pushkar, & Conway, 2007).

With respect to intrinsic motivation, self-determination is often implicated. Self-Determination Theory often involves concepts, such as conscious choices and decisions, as well as autonomy (Deci & Ryan, 1985b). The basic tenets of Self-Determination Theory involve how drives and impulses act in conjunction with the additional forethought, as well as the theory of the action, implicating more of a purpose and flexibility with respect to cognitions (Deci & Ryan, 1985b). Moreover, there is a freedom from control with self-determination in which

autonomy is heavily associated (Deci & Ryan, 1985a). Self-determination is similar to Bandura's concept of human agency, in that the concepts of free-will and volition are embraced, while the individual manages the interaction between themselves and their environment (Bandura, 1986; Boekaerts et al., 2000; Deci & Ryan, 1985b). Research has demonstrated that self-determination processes often lead to enhanced individual growth and adjustment, in addition to high-quality learning and understanding of concepts (Deci, Vallerand, Pelletier, & Ryan, 1991).

Intrinsic motivation also involves the notion that individuals engage in activities due to factors other than external rewards, such as enjoyment (e.g., mountain climbing, creating art, etc.) (Deci & Ryan, 1985b). Some theorists have implicated physiological items, such as empirical drives (e.g., hunger, thirst, avoidance of pain, sex) or arousal functioning, as potential precursors to intrinsic motivation. Meanwhile, other theorists have discussed the importance of needs and affect, which are more psychological in nature, with respect to intrinsic motivation (Deci & Ryan, 1985b). Some of these needs include, but are not limited to, belongingness, competence, interest, or self-determination (Deci et al., 1991). Locus of causality, a personal sense of effectance, and perceived competence have a propensity to lead to increased intrinsic motivation in individuals (Deci & Ryan, 1985a). Overall, intrinsic motivation has been found to be highly influential on student success and persistence within their educational careers (Garavali et al., 2002).

Amotivation is another component involved in Deci and Ryan's Self-Determination Theory. Amotivation refers to behaviors occurring beyond a person's control, thereby indicating that an individual's performance is not influenced by intrinsic or extrinsic motivation. Amotivation is closely linked to Seligman's concept of learned helplessness, where an individual

does not feel they have control over a particular situation or outcome (Deci & Ryan, 1985a; 1985b; Miller & Norman, 1979; Seligman, Maier, & Geer, 1968). Often, when individuals have amotivation, it indicates that they have assertions that they cannot master an activity, therefore leading to diminished intrinsic motivation (Deci & Ryan, 1985a). Additionally, amotivation results from environmental conditions that are not predictable or controllable (Deci & Ryan, 1985b; Miller & Norman, 1979; Seligman et al., 1968).

Amotivation, as characterized by Deci and Ryan's Self-Determination Theory, has been found to be negatively associated with student achievement (Turner, Chandler, & Heffer, 2009). This theory involves internal and external loci of causality. An internal locus of causality refers to a person believing that they are the cause of their behaviors, while, an external locus of causality involves individuals believing that they are engaging in behaviors to please another person or to achieve a reward (Stipek, 1998).

Self-Determination Theory also involves the concept of self-regulation. Self-regulation involves behaviors that are initially driven by external consequences, but eventually are attached to personal value and worth. Essentially, behaviors are initially driven by external forces, then becoming integrated with internal means, to therefore become self-regulated. Further, this self-regulatory process enhances the desire to execute a specific behavior again (Stipek, 1998). The process through which behaviors go from being extrinsically motivated to being self-determined is referred to as 'internalization and integration' (Deci & Ryan, 1994). It is posited that individuals internalize and integrate behaviors to assist in regulating themselves within the context of the social milieu (Deci & Ryan, 1994).

With respect to Deci & Ryan's theory, there are different ways in which individuals are motivated to perform a behavior. When individuals' behaviors are externally regulated,

individuals are generally motivated by external consequences, such as a rewards or punishment (Deci & Ryan, 1994; Deci et al., 1991). Introjected regulation, on the other hand, involves personal choices with respect to their behavior that may be contingent upon internal pressures and other individuals (e.g., parents, siblings, or peers) (Deci & Ryan, 1985a; 1994; Deci et al., 1991). For example, a student may complete their homework to avoid any potential backlash or guilt-feelings from parents. Introjected regulation involves the individual carrying some internal representation of contingencies, which were once external eventually evolving into the thought of what the individual "should" do (Deci & Ryan, 1985a; 1994). In general, introjected regulation is thought to not be as autonomous as intrinsic motivation, as it involves more external forces (Cokley et al., 2001).

Research has shown that self-regulation, when coupled with self-efficacy, highly predicted achievement among high school and college students (Pokay & Blumenfield, 1990; Zimmerman & Bandura, 1994). Other researchers have considered self-regulation, such as autonomous self-regulation, to involve goal orientation for attending college (Niemiec et al., 2006). With respect to the individual, classroom autonomy has also been found to play an instrumental role in enhancing student intrinsic goal orientation, which is assistive in motivation (Garcia & Pintrich, 1996). Autonomy and motivation have been found to be supported by both parents and faculty (Garcia & Pintrich, 1996).

Motivation has been found to be a very important factor in positive outcomes, including success in multiple facets. With respect to achievement, a meta-analysis of 109 studies was conducted, discovering that academic motivation was the second largest predictor of student achievement, as measured by grade point average; self-efficacy was found to be the largest predictor (Robbins et al., 2004). These predictors were found to be the most salient with respect

to supplemental regression analyses, especially when compared to that of socioeconomic status and high school GPAs (Robbins et al., 2004). Further, it has been demonstrated that students exhibiting academic expectancy motivation when they first entering college are more likely to succeed and have increased academic performance, as indicated through grade point average (Friedman & Mandel, 2009; Robbins et al., 2004). They are also more likely to remain involved in school (Robbins et al., 2004).

Motivation has also been found to be affected by individual factors, such as social class and expectations, as well as student beliefs (Van Etten et al., 2008). For the aforementioned study, student beliefs involved self-efficacy with respect to control and also attitudes toward learning and mastering content. College seniors were also found to report that external factors, such as extracurricular activities, social factors (peers, family, etc.), and college environment (e.g., faculty relationships or physical appearance of university setting) played a role in achievement motivation (Van Etten et al., 2008).

In addition to affecting student achievement, intrinsic motivation and interest have been found to significantly predict positive effect in college students (Bye, Pushkar, & Conway, 2007). Studies have found that as students progress in their collegiate career, they become more intrinsically motivated with respect to their education. Further, extrinsic motivation has been found to be most prominent among freshman; yet, when students progress through their college education, it subsides (Garavalia, Scheuer, & Carroll, 2002). Interest has been found to be a significant predictor of motivation for learning (Bye, Pushkar, & Conway, 2007). Individual motivations for college students have been posited to be based on intellectual curiosity and personal interest, as well as wanting to obtain a career that is rewarding (Dennis, Phinney, & Chuateco, 2005). Moreover, self-efficacy, in addition to enjoyment in an activity, has been

found to highly influence motivation (Deci & Ryan, 1985a). With respect to this particular study, intrinsic and extrinsic motivation is taken into consideration. Additionally, goal orientations and outcome expectancies are imbedded throughout the measures.

Self-Efficacy. Toward the latter part of the 20th century, self-efficacy surfaced through research to be a strong predictor of motivation and learning of students (Zimmerman, 2000). As it has also been shown to be highly predictive of student achievement outcomes, it has been selected as a variable with respect to the study at hand (Brown, Tramayne, Hoxha, Telander, Fan, & Lent, 2008; Chemers, Hu, & Garcia, 2001; Horn, Bruning, Schraw, Curry, & Katkanant, 1993; Hsieh, Sullivan, & Guerra, 2007; Pokay & Blumenfield, 1990; Robbins et al., 2004; Zimmerman & Bandura, 1994; Zimmerman, 2000). Self-efficacy generally refers to an individual's judgments of their perceived capability. Self-efficacy judgments help to provide information to the individual with respect to their performance or the outcomes of their performance (Bandura, 1986; Schunk, 1991). Beliefs, with respect to self-efficacy, largely influence the choices individuals make, the settings they choose with which to exist, the tasks that they approach, the effort they expend toward work, and the level with which they will persevere, as well as how much anxiety they experience (Bandura, 1986). In general, with respect to self-efficacy and task performance, individuals will not perform an action if they think they will fail (Bandura, 1986; Schunk, 1991).

Further, within the context of the student, self-efficacy largely determines the activities that students will engage in, their effort and persistence toward academic tasks, and their emotional reactions (Schunk, 1991; Zimmerman, 2000). For example, one study found that college psychology students with higher self-efficacy chose to engage in more writing activities than those with lower self-efficacy (Tuckman & Sexton, 1990). Further, self-efficacy beliefs are

predictive of rate of performance and how much energy a student will put forth toward a task, which are both components of effort (Brown et al., 2008; Zimmerman, 2000). In examining student achievement of high school and college students, student self-efficacy was found to highly predict achievement (Pokay & Blumenfield, 1990; Zimmerman & Bandura, 1994). Self-efficacy has been also shown to be linked to mastery skill acquisition grades, specifically for grade attainment in writing courses (Zimmerman & Bandura, 1994).

Perceived self-efficacy is differentiated from outcome expectancy, as perceived self-efficacy has to do with judgments about one's own self-capability, whereas outcome expectancy is a proposed judgment about what outcome a behavior will bring (Bandura, 1986; Eccles & Wigfield, 2002). Individuals are also likely to have efficacy expectations, referring to the extent of whether or not they believe they can or cannot perform a specific action (Eccles & Wigfield, 2002). Self-efficacy has been found to be one of the largest predictors of performance in individuals (Bandura, 1986). Further, self-efficacy also influences analytical thinking skills, as well as susceptibility to stress and mental health difficulties (Bandura, 1996).

There are multiple sources of information that help people to formulate self-efficacy judgments. Four of the identified sources are: enactive attainment, vicarious experience, verbal persuasion, and physiological state (Bandura, 1977; 1986; Zimmerman, 2000). Enactive attainment is the most powerful source of efficacy information and is based upon an individual's prior mastery experiences. Vicarious experiences, on the other hand, deal with the behaviors of others and information that is provided to the viewer as a result of others' actions. If another individual performs an action, and they are either successful or not successful based on the behavioral outcome, the individual observing this behavior may or may not be more inclined to

perform the same behavior based on the consequences of the other individual (Bandura, 1977; 1986; Zimmerman, 2000; Zimmerman & Kitsantas, 2002).

When observing models, vicarious information is strengthened when the other individuals are greater in number, are more similar to the viewer (i.e. peers), and are perceived as attractive via intellect, beauty, or power (Bandura, 1986; Stipek, 1998). Verbal persuasion consists of information that others provide to individuals with respect to their sought-after achievements. An individual's physiological state also provides them with information with respect to their self-efficacy. For example, when individuals are very physiologically aroused, such as experiencing feelings of anxiety, their arousal may assist or may hinder their self-efficacy. According to the Yerkes-Dodson Law, a small amount of anxiety is optimal for performance, while an overabundance of arousal can be debilitating (Bandura, 1986; Stipek, 1998).

Self-efficacy enhancement has been found to lead to great behavioral change, especially in a therapeutic sense when individuals are overcoming anxiety and fear (Bandura, 1977). When individuals are able to perform tasks, lending to enactive experiences, their self-efficacy tends to increase more so than through vicarious experiences (Bandura, 1977). Nonetheless, all types of efficacy information can enhance self-efficacy. When individuals experience lower levels of self-efficacy, they have a propensity to shy away from challenging activities, which may lead to occluded change and developmental potential (Bandura, 1986; Schunk, 1991). On the other hand, when individuals experience higher self-efficacy, they tend to expend more effort toward reaching their goals (Bandura, 1986; Zimmerman, 2000). Yet, when individuals experience a small degree of uncertainty with respect to completion of a task and still persevere with a successful outcome, they are likely to increase their sense of self-efficacy (Bandura, 1977).

Self-efficacy has different dimensions, as it varies across different contexts and activities (Bandura, 1986; Zimmerman, 2000). These dimensions include the (1) level of self-efficacy, which is contingent upon task difficulty, (2) generality, which involves the extent to which self-efficacy beliefs can be generalized across settings or activities, and (3) strength, which refers to the amount of self-efficacy one has with respect to accomplishing a particular task (Zimmerman, 2000). In a study conducted by Collins (1985), children with both high and low perceived efficacy were given math problems to solve. Those that perceived themselves as being efficacious were quicker to discard faulty strategies, solved more problems, and chose to rework more of the problems they failed. In addition, the more efficacious students were able to complete the challenging problems more accurately and displayed more positive attitudes; therefore, they were more likely to persist in the face of challenging tasks (Collins, 1985).

In regards to the level of self-efficacy, when students have low self-efficacy they are less likely to put forth effort toward completing a task (Bandura, 1977; 1986; Brown et al., 2008; Schunk, 1991). Further, students who experience failure with respect to enactive experiences, they are more likely to have lower self-efficacy (Bandura, 1977; 1986). Additionally, when students have experienced multiple failures, they have a propensity to experience 'learned helplessness' (Miller & Norman, 1979).

When individuals have the perception that their successes are attributed to means beyond their control, they may have a propensity to give up and essentially feel helpless (Seligman et al., 1968). Attributions often contribute to task performance. Attributions refer to an individual's perceptions with respect to what has helped to contribute to their successes or failures, such as ability, effort, luck, and task difficulty (Rotter, 1966). These attributions can be classified within the realm of either an internal or external locus of control (Rotter, 1966; Schmidt, Zdzinski, &

Ballard, 2006). An internal locus of control has been found to be more positively associated with achievement motivation (Schmidt et al., 2006).

Often times, attribution can contribute to persistence, intensity, and choice in the face of achievement motivation (Graham, 1997). Students who generally attribute their former successful experiences to the tasks being easy or their high ability (both stable factors) have higher expectations of their achievement (Schunk, 1989). On the other hand, when students attribute former successful experiences to factors that are not as stable, such as degree of effort and luck, they typically do not have as high expectations (Schunk, 1989). Research has demonstrated that students with high expectations for future success tend to perceive lack of effort to be internal, unstable, and uncontrollable (Graham, 1997).

There has been a whole host of research linking student outcomes with self-efficacy. Specifically, it has been found that children's self-efficacy regarding their academic capabilities and goals have been strongly linked to their academic achievement (Bandura, 1996). On the whole, self-efficacy has been found to significantly predict academic performance among college students (Horn et al., 1993; Turner et al., 2009). A meta-analysis of 109 studies was conducted, discovering that self-efficacy was found to be the largest predictor of student achievement (Robbins et al., 2004). Self-efficacy was found to be the most salient with respect to supplemental regression analyses, especially when compared to that of socioeconomic status and high school GPAs (Robbins et al., 2004).

Other studies have demonstrated the significance of academic self-efficacy for first year college students, as academic self-efficacy has been found to positively influence academic performance (Chemers, Hu, Garcia, 2001). Research has also demonstrated that student efficacy beliefs involving student prior knowledge, reading strategies, and self-monitoring were highly

correlated with their reading comprehension success (Barkley, 2006). In addition to linking self-efficacy and student achievement, academic efficacy has also been found to be mediated through its impact on adaptive peer relations and academic goals (Bandura, 1996). In general, students with higher self-efficacy have a tendency to exhibit increased participation, work harder, pursue challenging goals, persist longer, and work toward identified goals (Hsieh et al., 2007).

There have been other positive links between self-efficacy and adaptive student behavior. For example, research has evidenced that students who have a higher sense of self-efficacy have a propensity to be more persistent, diligent, and more willing to participate in the classroom (Zimmerman, 2000). This, in turn, can lead to higher student engagement which impacts student achievement. Self-efficacy has also been linked with students' regulation of their learning activities (Caprara et al., 2008). Teacher beliefs about self-efficacy have also been found to be influential on student self-efficacy (Barkley, 2006). Self-efficacy, in general, has found to be highly correlated with student achievement and persistence, as well as academically-related goals (Bandura, 1986; Caprara et al., 2008; Schunk, 1991).

Student self-efficacy has not only been found to be highly predictive of achievement outcomes, but has also been shown to enhance students' learning methods (Zimmerman, 2000). Additionally, self-efficacy is highly involved with academic motivation, effort, persistence, emotional reactions of students, and student activity choices (Chemers, Hu, & Garcia, 2001; Schunk, 1991; Van Etten et al., 2008; Zimmerman, 2000). When students have lower self-efficacy, they tend to have lower levels of motivation as well (Deci & Ryan, 1985b). Further, in first-year college students, self-efficacy has been discovered to be linked student academic performance, in addition to their stress and health (Chemers et al., 2001).

For the specific purpose of this study, self-efficacy will be examined in regards to the extent it impacts students' grades. Research has shown that self-efficacy can impact students' academic performance, as measured by grade point average (Brown et al., 2008; Robbins et al., 2004; Schunk, 1991; Zimmerman & Bandura, 1994; Zimmerman & Kitsantas, 2005). In fact, large-scale meta-analyses have demonstrated that self-efficacy profoundly impacts student achievement, even more so than motivation (Robbins et al., 2004). Moreover, self-efficacy has also been found to be highly predictive of student retention (Robbins et al., 2004).

Study Habits. Study habits are another characteristic, internal to the individual, which has been found to impact student achievement (Tuckman, 2003). Inadvertently, study habits have also been linked to motivation and self-efficacy, which have also been shown to be highly predictive of student performance (Horn et al., 1993; Pintrich & DeGroot, 1990; Robbins et al., 2004). Through research, Pintrich and DeGroot further linked self-efficacy and study habits in that they discovered the more self-efficacy students had, the more inclined students were to make connections between class books and classroom instruction (1990). These students were also found to have an overall higher sense of self-regulated learning (Pintrich & DeGroot, 1990). With respect to study habits and motivation, students have reported that they are motivated to study, as they hope to either attaining positive outcomes, such as occupation, career, financial gains, etc., or to acquire more knowledge (Hwang, Echols, & Vrongistinos, 2002). This generally coincides with interest and goal setting, which are components often involved in motivation (Hwang et al., 2002).

Study habits involve skills in areas, such as time management, preparing for examinations, gathering information from various resources, taking class notes, and communications with faculty and advisors (Robbins et al., 2004). Additionally, good study

habits can also involve meta-cognitive strategies. In conjunction with study habits, effective performance and meta-cognitive strategies have been found to help increase college student GPAs, especially when students have undergone explicit interventions tailored to meta-cognitive strategies (Tuckman, 2003).

Good study habits also involve using adequate self-regulative strategies. Self-regulation can include an individual's ability and their motivation to engender, monitor, and self-evaluate various learning strategies for achievement (Ertmer, Newby, & MacDougall, 1996). Behavioral regulation, including paying attention, following instructions, and inhibiting actions that are not appropriate, has been linked to positive student outcomes, even as early as preschool (McClelland, Connor, Jewkes, Cameron, Farris, & Morrison, 2007). Generally, students who have good regulative strategies also have higher positive control beliefs, which include higher self-efficacy, as well as higher outcome expectancies and higher causal attributions for learning and grades (Horn et al., 1993; Shell & Husman, 2008).

Further, self-regulation involves planning, behaving in a self-controlled manner, and self-reflection (Schmitz, Schmidt, Landmann, & Spiel, 2007; Zimmerman & Kitsantas, 2007). Often times, self-regulation can be considered a function of desired outcomes (goals), behaviors, and continuous monitoring of one's value of goals and behavior (Bandura, 1986). Many researchers have considered self-regulated learning and motivation as the pinnacle of social and cognitive competence among students (Schmitz et al., 2007). With respect to study habits, self-efficacy, and achievement, Zimmerman and Kitsantas (2005) conducted a path analysis in which they discovered that homework habits often influenced self-efficacy, which thereby influenced grade point average in college students (Zimmerman & Kitsantas, 2005).

Typically, students who have stronger self-efficacy have increased academic achievement, as self-efficacy helps them manage their scholastic activities (Zimmerman & Bandura, 1994). Further, self-efficacy generally helps students with self-regulatory functioning, which in turn helps improve their study habits and academic achievement. Some self-regulative strategies can include, but are not limited to, self-enhanced concentration, task management, and completion of task (Zimmerman & Bandura, 1994). Students who lack self-regulation and self-efficacy with respect to academic behaviors, such as studying, tend to not be as successful as those who have higher self-efficacy and self-regulation (Shell & Husman, 2008). On the other hand, students who are not efficacious tend not to exert as much motivation, and therefore not as much effort toward studying (Shell & Husman, 2008). Given research findings, study habits are linked to other intrinsic factors, such as self-efficacy and motivation.

In addition to behavioral regulation, knowledge building strategies, as well as study time, are linked with positive studying habits (Shell & Husman, 2008). Time spent studying is often affected by motivation, self-efficacy, and the activities that one is involved in. Given this notion, this particular dimension will be examined in this study to further delve into student achievement. As components of self-efficacy and motivation have already been explored in great detail and have been found to contribute much toward study habits, other elements of study habits, such as self-regulation and study effort will be examined. In all, study habits have been found to be linked to student success, including grade point average (Robbins et al., 2004). Moreover, study habits and skills have been found to be even more so predictive of college student retention (Robbins et al., 2004).

Environmental Factors

Family and Peer Support. Family and peers are often considered a part of an individual's environmental context. Many parental theorists and researchers (e.g., Baumrind, Maccoby, etc.) have viewed parenting styles as a context with respect to a child's environment. This includes, but is not limited to, the involvement of parental goals and values, parenting style, parenting practices, and the child's willingness to be socialized. Parents also assist in engendering, as well as promoting, the ecological context with which the child resides, whether adaptive or maladaptive (Baumrind, 1994; Mash & Barkley, 2003). All of these items in combination lead to child outcomes, including behaviors such as academic performance (Darling & Steinberg, 1993). Families and peers often interject behaviors and beliefs which aide in potentially shaping an individual's behaviors as well. Family beliefs, created by family practices, guide an individual's behavior, even in an academic sense (Fiese, Wilder, & Bickham, 2000).

In general, meta-analyses of available research have concluded that social involvement, such as social supports, contributes to student achievement in lieu of grade point average (Robbins et al., 2004). Throughout much research, parents specifically have been found to have a profound effect on their child's scholastic performance. Through parents' provisions of genuine concern, encouragement, and support with helping students set realistic expectations and goals, student academic motivation has been reported to increase (Van Etten et al., 2008). Parents can provide support by giving encouragement and assistance to help their children, including their academic performance (Walker & Satterwhite, 2002). Parents also assist in the promotion or hindrance of self-regulation and motivation (Deci & Ryan, 1994). Moreover, research has linked parental involvement and parenting style to academic skills and social

behavior (Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Roopnarine, Krishnakumar, Metindogan, & Evans, 2006). Parent-child relationships have also been found to be correlated with teacher-child relationships, evidencing the importance of parenting style and the relationship between the parent and child (Burchinal et al., 2002).

Research has demonstrated that college freshmen with authoritative parents yielded the best outcomes, including better academic adjustment, higher self-esteem, better social skills, and higher academic goals, compared to their counterparts (Hickman, Bartholomae, & McKenry, 2000). An authoritative parenting style, in general, has been found to be predictive of academic performance in college students (Turner et al., 2009). This is likely due to the fact that authoritative parents tend to be firm, fair, consistent, and nurturing. Moreover, it is helpful to be nurturing when expressing certain expectations, as students who have reported having increased levels of parental pressure were found to perform more poorly than their counterparts (Walker & Satterwhite, 2002).

The parent-child relationship has been found to have a profound link to teacher-child relationships (Pianta, Nimetz, & Bennett, 1997). Moreover, the quality of these relationships has been found to predict student performance. Parents who also support their children's autonomous behavior have been found to have children with greater intrinsic motivation (Deci et al., 1991; Garcia & Pintrich, 1996). In addition to parenting style, parents' academic efficacy has been found to also be linked to student achievement, as well as student self-efficacy, with respect to their academics (Bandura, 1996).

Peers, on the other hand, have the potential to provide not only social support, but also opportunities for social learning. Peers have been found to affect student achievement and academic motivation through their encouragement, listening skills, and support (Van Etten et al.,

2008). Through observing peers, who serve as models, college students have been found to increase their self-regulatory skills, self-efficacy, and potentially enhance interest and academic orientation (Van Etten et al., 2008; Zimmerman & Kitsantas, 2002). These can often lead to increased motivation in individuals as well (Dweck, 1986; Eccles & Wigfield, 2002). Peers are often powerful models and can potentially enhance self-efficacy, as they provide opportunities for vicarious reinforcement and can promote achievement-oriented behaviors (Bandura, 1986; Schunk, 1999). Additionally, students have reported admiring, respecting, or wanting to be like their counterparts who received good grades and abided by school rules (Graham, 1997).

In light of the aforementioned information, peers and family can most certainly influence the behavior of others. Social support can have an impact on the overall college experience, such as grades, adjustment, and academic persistence (Dennis, Phinney, & Chuateco, 2005; Hefner & Eisenberg, 2009; Nicpon et al., 2006; Tinto, 1993; Walker & Satterwhite, 2002). In general, when students are able to form better social ties they are more inclined to have more adaptive outcomes with respect to their achievement (Nicpon et al., 2006; Tinto, 1987). In light of all of the aforementioned information, social support has been chosen to be examined with respect to a student's ecological framework for this particular study.

Specific studies have shown that students who are more likely to persist with education and have higher grade point averages perceive more social support than their counterparts (Walker & Satterwhite, 2002). On the contrary, a lack of peer support has a propensity to predict a lower grade point average, as well as poorer college adjustment (Dennis, Phinney, & Chuateco, 2005). Further, family and other supports have been negatively associated with student ill-being while being found to be more conducive to enhance well-being (Niemic et al., 2006; Zaleski, Levey-Thors, & Schiaffino, 1998). A study conducted by Dennis and colleagues discovered that

many ethnic minority college students reported that peers were more helpful with respect to providing emotional support than their parents (Dennis et al., 2005). Further, peer support and acceptance has been found to enhance intrinsic motivation among students (Deci et al., 1991). Additionally, overall social support has been found to decrease loneliness and increase academic persistence (Nicpon et al., 2006).

Parental support, in particular, has been found to have rather profound effects on students. For example, parental support has been shown to enhance not only well-being, but also autonomous self-regulation in adolescents, both lending their hands to adaptive student outcomes (Niemiec et al., 2006). In general, female university students have been found to typically have more support from family and friends than their male counterparts (Duru, 2007; Nicpon et al., 2006).

Much research has suggested that social support and networks are important for college students (Antrobus, Cobbelaer, & Salzinger, 1988; Hefner & Eisenberg, 2009; Zaleski et al., 1998). On-campus social networks, for example, have been shown to assist college students with academic achievement, fostering a sense of belongingness, and commitment to the educational institution, as well as with alleviating stress (Culbert, Lachenmeyer, & Good, 1988). When support is absent, student may exhibit lower achievement and tend to drop out of college or leave the institution (Tinto, 1987). Social support effects are generally two-fold. On one hand, social support mediates successful academic achievement behaviors via observational learning (modeling) and social reinforcement via friends, family, classmates, etc. (Antrobus et al., 1988). On the other hand, campus social networks are generally related to a lower probability of dropping out of college due to a sense of belongingness (Antrobus et al., 1988). Moreover, relatedness, such as parental involvement and peer acceptance, has a propensity to

assist in facilitating motivation among students (Deci et al., 1991). In turn, this likely enhances student achievement.

There are also many other adaptive outcomes that social skills are associated with in the realm of student achievement. Given the circumstances and stressors that individuals face in life, particularly that of college students, it has been found that social supports help students cope with stress, especially as they progress toward their degrees (Culbert et al., 1988). Students with social support are also less likely to binge drink after a negative life event (Hussong, Hicks, Levy, & Curran, 2001). Moreover, college students who have more perceived social support are less likely to experience pathological gambling (Weinstock & Petry, 2008). Social support can also affect individuals' emotional well-being, including depression, as well as any other experienced adversities (Clara et al., 2003; Hefner & Eisenberg, 2009; Zaleski et al., 1998). Essentially, social support has been found to serve as a buffer for adaptive outcomes, such as psychological health (Sameroff, 2000). Moreover, maternal warmth also has been evidenced to serve as a protective factor for maladaptive outcomes in youth (Clarke-Stewart & Dunn, 2006).

Social networks and support are especially important for students who have lower socioeconomic status (SES) and who attend urban public colleges versus those with a higher SES, as higher SES is generally correlated with higher family and institutional support (Antrobus et al., 1988). Further, males and ethnic minorities are at risk for lower social support than their counterparts (Weinstock & Petry, 2008). Research has demonstrated that minorities with strong perceptions of family support have lower perceived stress (Castillo, Conoley, & Brossart, 2004). This indicates that students, especially minority students who are at greater risk for distress, rely on social support to help cope with everyday stressors (Castillo et al., 2004). Moreover, when students are faced with issues relating to college adjustment or academics, they report being in

greater need of emotional support, help, and guidance, as well as being less likely to perceive a sense of social support (Dennis, Phinney, & Chuateco, 2005). Again, as social support has been found to contribute to student achievement, as it is part of the student's context, it has been included as a variable in this particular study.

Extracurricular activities (work, social outings, organizations/sports). When college students have outside commitments and pressures in their lives, how they self-regulate themselves as students can be diminished thereby potentially affecting their educational outcomes in an adverse fashion (Ertmer et al., 1996). Often, these extracurricular commitments involve devotion of time, which thereby reduces time for other formal academic obligations (Van Etten et al., 2008). Nevertheless, student participation in activities often provides opportunities to engage with others with respect to physical activity, intellectual activities, social activities, volunteer opportunities, etc. Additionally, it has also been associated with other positive outcomes relating to student success, persistence, and fostering a sense of belongingness (Pascarella & Terenzini, 1977; Tinto, 1987).

College environments often provide social clubs, athletic programs, and other organized social activities to help foster a sense of community and belongingness with respect to the institution (Antrobus, Dobbelaer, & Salzinger, 1988; Hurtado & Carter, 1997; Karp, Hughes, & O'Gara, 2008; Osterman, 2000). When colleges successfully provide a healthy, caring environment that supports social and intellectual growth among students, this assists in retention and student achievement (Tinto, 1987). Further, participation in activities has been found to coincide with the student's identification with the actual institution (Osterman, 2000; Pascarella & Terenzini, 1977).

Organizational involvement can also lead to other lucrative outcomes, such as an increase enhancement of academic learning through providing opportunities for increased academic discussions and academic social network associations related to academics through various avenues (e.g., Psi Chi or volunteer organizations) (Van Etten et al., 2008). Further, social and academic integration within an institution (e.g., extracurricular activities), has been found to correspond with positive outcomes such as student persistence (Coll & Stewart, 2008; Karp et al., 2008; Pascarella & Terenzini, 1983). Further, through conducting a thorough meta-analysis of 109 available research studies, it has been discovered that social involvement has been found to be positively associated with college student grade point average (Robbins et al., 2004).

As institutional enrollment is expensive, students often have to work to compensate for the financial burdens they face. For example, one study in particular discovered that the amount of hours students worked per week affected the student's GPA, although not significantly (Culbert et al., 1988). Yet, many college students feel that activities, such as working, require a lot of time which often takes away from their studies (Van Etten et al., 2008). Interestingly, Culbert and colleagues (1988) discovered that students who did not have a job at all while enrolled in courses had a significantly lower GPA than those who worked. These results were hypothesized to be potentially linked to the positive attributes (time management skills, motivation, etc.) that are often found in productive individuals; thereby, potentially lending a hand to enhanced study habits. Additionally, the authors postulated that perhaps those that work have increased social support networks, due to increased opportunities for interpersonal contact (Culbert et al., 1988). Moreover, college students believe that involvement in such opportunities likely enhances their experiences, allowing them to be more marketable upon completion of their degree (Van Etten et al., 2008). In addition, some students who are able to maintain balance

within a busy schedule have been able to demonstrate being more inclined to graduate on time (Wohlgemuth et al., 2007). Given that activities are associated within a student's ecological context and their influence on achievement, both directly and indirectly, they have been included to be examined in the proposed study.

Support from faculty. Students spend much of their classroom time in the presence of faculty. As a result, faculty members play an integral role in the college students' educational experience. Faculty contribute in multiple ways to promote safe, learning environments, including validating students through setting expectations, recognizing students, promoting student self-efficacy and autonomy, as well as enhancing student belongingness (Deci et al., 1991; Engstrom, 2008; Garcia & Pintrich, 1996). Moreover, when teachers promote autonomy in students, it often leads to increased self-determination and motivation which, in turn, leads to increased achievement (Deci et al., 1991). Additionally, students who perceive that their teachers stress the importance of grades and promote such indicators of success are more likely to have goals related to performance (Hsieh et al., 2007).

Teachers also serve as models for students and have been found to promote academic engagement through observational learning (Methe & Hintze, 2003; Schunk, 1999). In general, teachers educate students and serve as models, coaches, and facilitators within the context of the classroom and problem-solving activities (Ertmer et al., 1996). Additionally, faculty interactions, along with interactions of other university staff and students, are the major source for student perceptions about the institution (Tinto, 1987). It also assists in fostering a sense of belongingness among students with respect to the institution as a whole, which conversely, aides in student persistence (Coll & Stewart, 2008; Hurtado & Carter, 1997; Karp, Hughes, & O'Gara, 2008). As part of this integration, student interactions with faculty can involve obtaining

information for classes, course content, or career choices, or even assistance with problem solving in general (Coll & Stewart, 2008).

In addition, teachers also promote a learning community model, which is fostered by active learning strategies, assignments, and activities that encourage learning to occur outside of the classroom (e.g., study groups or promotion of university facilities) (Engstrom, 2008; Karp et al., 2008). Student success is also attributed to student engagement, which faculty assist with in respect to engendering and supporting (Kinzie, Gonyea, Shoup, & Kuh, 2008). Faculty also lend their hands in academic motivation, as students have reported that faculty personality and supportive feedback increase their motivation to succeed (Van Etten et al., 2008). In addition, research has shown that when professors were supportive of student classroom autonomy by allowing them to be a part of course policies, students had increased motivation at the end of the semester (Garcia & Pintrich, 1996). Further, when autonomy is supported, intrinsic motivation and self-determined extrinsic motivation are both promoted as well (Deci & Ryan, 1994). In general, autonomy of students in the college classroom has been found to enhance student self-efficacy, further perpetuating student achievement (Garcia & Pintrich, 1996).

Faculty feedback, with respect to student goals, has also been evidenced to help support student self-concept thereby enhancing motivation and achievement (Schmidt, Zdzinski, & Ballard, 2006). Additionally, other professor characteristics that appear to be motivating to students include relating assignments to goals of the class, providing explicit course requirements, identification of critical information for students, presenting well-prepared lectures, and treating students with respect (Van Etten et al., 2008). When professors provide observed behaviors that coincide with psychological and social accessibility, as conveyed

through their teaching style and presented attitudes, students feel more capable of approaching them; this in turn, leads to more lucrative outcomes for students (Pascarella & Terenzini, 1977).

The degree and quality of student-faculty interactions has also been found to be linked to student persistence through their collegiate career (Pascarella & Terenzini, 1977; 1980; Robinson, 2003; Tinto, 1987). The quality of interactions, in fact, has been shown to be more directly linked to student attrition then that of students' personality or background variables (Robinson, 2003). Moreover, the frequency with which these interactions occur has also been associated with college persistence (Pascarella & Terenzini, 1977; 1980). With respect to the student-faculty dyad, interactions involving intellectual and/or course-related concerns have been rendered as the most meaningful to students and contribute most to their persistence (Pascarella & Terenzini, 1983).

The quality of the teacher-child relationship is of great importance, as it has been found to be a potential protective factor for students (Burchinal et al., 2002). Additionally, throughout an individual's entire schooling experience, even as far back as preschool, teacher-child relationship quality have been found to be predictive of student achievement (Pianta, Nimetz, & Bennett, 1997). Moreover, teacher relationships have been found to mediate the effects of student outcomes, both behaviorally and academically, through at least eighth grade and potentially beyond (Hamre & Pianta, 2000). Both teacher involvement and reaching out to students have been linked to student attitudes about the institution and their pursuit of goals (Tinto, 1987).

Successful educators are generally those that promote students to have a genuine enthusiasm for their learning and accomplishments, as well as having a sense of volitional involvement (Deci et al., 1991). Volitional involvement can be equated to the promotion of

student autonomy. Further, when students report higher levels of control and autonomy within an educational realm, it has been found that they achieve higher grades on exams (Deci & Ryan, 1985a).

Additionally, teachers who assist in supporting competence through providing optimal challenges to students and giving appropriate performance feedback have also been asserted to assist in facilitating student motivation (Deci et al., 1991). Research has also demonstrated that when teachers give students positive statements and authentic feedback, self-efficacy beliefs are enhanced, which therefore can possibly lead to higher achievement (Jackson, 2002). With respect to self-efficacy, teacher self-efficacy has also been found to lead to lucrative student outcomes. Teachers that have a higher sense of self-efficacy are more likely to challenge students and scaffold their skills, increase student achievement, and exhibit tenacity with respect to students who are struggling (Schunk, 1991). Essentially, if a teacher believes that they can help a student achieve and succeed, they are more likely to behave in a manner that will enhance student success and achievement.

With respect to instruction specifically, research has demonstrated that the level of instruction is not directly related to course grades (Zimmerman & Bandura, 1994). Yet, teacher instruction has been linked to increased self-efficacy, as well as positive statements about student performance (Bandura, 1986; Zimmerman & Bandura, 1994; Schunk, 1999). Therefore, it is still of importance with respect to student achievement, as self-efficacy is linked to achievement (Zimmerman & Bandura, 1994). Additionally, when faculty have been found to be supporting mastery of concept through quality instruction, students were found to like their classes (Ames, 1992). In all, faculty can help facilitate student achievement in many direct and indirect realms.

As a result, faculty-student interactions have been selected as an ecological variable with respect to promoting student achievement in this study.

Institutional support. When there is support within one's ecological framework, more lucrative outcomes are likely to occur. Not only does social support from family and peers impact student education, but it also support within the university environment is assistive as well. Overall, the campus provides the student with both academic and nonacademic opportunities, such as interpersonal relationships among other students, social activities, as well as assistance from administrative personnel and other faculty (Laird, Chen, & Kuh, 2008; Tinto, 1987). Having a supportive campus environment is conducive to student academic engagement, which in turn leads to increased achievement and retention (Laird, Chen, & Kuh, 2008; Tinto, 1987; Nicpon et al., 2006). In general, it is important that the institution supports student academic engagement through providing activities that enhance student learning (Kinzie et al., 2008).

Further, research has shown that institutional support are important because discontinued enrollment is best predicted by lack of satisfaction with academic guidance, quality of education, and feelings of institutional alienation (Mohr et al., 1998). College campuses are important, as they can promote feelings of belongingness and connectedness, which is helpful for student persistence (Karp et al., 2008; Nicpon et al., 2006; Osterman, 2000). When campuses are able to provide a variety of programs and personal connections, less feelings of loneliness can ensue, which in turn can increase student retention (Karp et al., 2008; Nicpon et al., 2006). Students have reported that they perceive the campus to be more 'friendly' and 'manageable', as well as experiencing alleviated feelings of alienation and helplessness, when campuses provide information networks to aide students (Karp et al., 2008). Further, supportive institutions with

supportive faculty often correspond with institutional commitment, which is correlated with academic persistence (Pascarella & Terenzini, 1983).

It has been suggested that institutions should value supportive programs, such as peer mentoring, study groups, or other support systems, that help students academically or with any stressors, such as college adjustment. In providing these types of supports, it is more likely that students will perceive support which, in turn, would likely aide in student achievement and adaptive college adjustment (Dennis, Phinney, & Chuateco, 2005). Moreover, students are more likely to feel a sense of belongingness when they perceive warmth and caring from others, which an institution with institutional support could provide (Niemiec et al., 2006; Osterman, 2000).

It has been recommended that institutions who are most concerned with supporting academic success, as well as academic persistence, among unprepared undergraduate students need to prepare their faculty and inform faculty of institutional support, as well as encourage faculty to share the information with students (Engstrom, 2008; Tinto, 1987). Additionally, when collegiate institutions demonstrate commitment to achievement of their student body, students are more likely to persist with their education and be successful during the course of completion (Tinto, 1987). Campuses can provide many opportunities to students. Moreover, when campuses provide a supportive climate, students can evidence greater success. To further this assertion, students who live on campus have been found to have higher GPAs and be more successful (Nicpon et al., 2006).

When an institution provides supports which promote institutional affiliation, such as freshman orientation, student residential arrangements, and faculty recruitment, the institution can assist in enhancing the institutional social climate. This, in turn, helps with student-organizational interactions and student perceptions of the institution and faculty (Pascarella &

Terenzini, 1977). In all, the overall institutional experience can really affect a student in a positive manner. Not only does it foster a sense of belongingness, but it can enhance student retention and achievement. As a result of the aforementioned literature, institutional support has also been selected as an ecological variable for the proposed study.

Outcome Measure

Grade Point Average. Student achievement was selected to be measured by grade point average, as it is most commonly used in institutions and college students often report grades as a primary target goal with respect to their academic efforts (Nicpon et al., 2006; Robbins et al., 2004; Van Etten et al., 2008). Many important decisions about students' futures are also based on GPA; therefore, GPA is helpful to assess student achievement with respect to learning (Tuckman, 2003). There are limitations, however, with respect to using grades, as grades are often subjective and are not standardized across subjects, within departments, or across institutions.

On the other hand, there are not many other methodologies that can be used to effectively measure college student achievement. There are norm-referenced achievement assessments that can be utilized with respect to a college student population, but these are broader tests that measure basic skills, such as math calculation, mathematical concepts and applications, spelling, written expression, basic reading, reading comprehension, etc. Given that there are not many effective outcome measures of student achievement, grade point average has been selected.

Again, for the purpose of this study, it is desired to examine how variables within an ecological framework can be utilized to predict college student achievement, as measured by grades. Additionally, it is beneficial to examine GPA, as GPA has also been highly correlated

with other positive outcomes as well. For example, it has been discovered that higher grades leads to increased retention among students (Mohr, Eiche, & Sedlacek, 1998).

CHAPTER III

METHOD

This chapter will describe the various methodologies utilized in this study, including a description of: the research design, variables, participants, instruments/measures, data collection procedures, research questions, and data analyses procedures.

Research Design

This study proposes to utilize a non-experimental research design. The independent variables in this study will not be manipulated. Additionally, treatment will not be provided for participants in this study.

Variables in this study will include the following:

Dependent Variable.

• Student achievement, as defined by grade point average (GPA).

Independent Variables.

• Motivation

• Self-Efficacy

• Study Habits

• Family and Peer Support

• Extra Curricular Activities (work, social outings, organizations/sports)

• Support from Faculty

• Institutional Support

Participants

The participants were be undergraduate students from Wayne State University, a large, mid-western, urban university. During the winter 2010 semester, 30,909 students attended Wayne

State University, indicating a large student body. In total, there are 7,423 part-time undergraduate students and 12,025 full-time undergraduate students, as well as 4,549 part-time graduate students and 3,826 full-time graduate students. Currently, there are 17,601 female students and 12,412 male students. Further, Wayne State University has a largely diverse student body with the following ethnic demographic information: 15,001 White Non-Hispanic students, 7,806 African American students, 2,094 Asian/Pacific Islander students, 726 Hispanic students, 147 American Indian/Alaskan Native students, and 2,497 students whose ethnicity is unknown (Wayne State University, 2010).

The participants in the study were students enrolled in various undergraduate classes, including undergraduate social sciences (i.e., psychology and sociology), as well as foreign language classes. Students voluntarily participated in the study via filling out surveys either online, prior to instructional time, or after instructional time. The study originally included 242 participants, which varied greatly in age range (18-62). Due to the purpose of this study with respect to identification of emerging adults, students from 18-25 were then selected. This resulted in a total number of participants as 195.

Demographic Characteristics of Sample

Students completed a short demographic survey and their responses were measured using a frequency distribution. The demographic questionnaire contained items pertaining to university ranking (i.e., freshman, sophomore, junior, or senior), age, gender, and ethnicity. Additionally, students were asked to report where they presently resided (i.e., on or off campus, with or without their family or a roommate). Students were also asked to report their present, overall grade point average, as that is the dependent measure for this study.

Frequency distributions were calculated regarding the aforementioned, specified demographic domains. Within the selected sample, there were 54 males and 141 females who participated. Students ranged from ages 18 to 25, with a mean age of 20.85 (SD = 2.11). The mean grade point average of the participants was 3.30 (SD = 0.43).

For ethnicity, 64.1% of the participants identified themselves as Caucasian, 15.4% identified as African-American, 7.7% as Asian-American, 1% as Hispanic, and 11.8% identified as "other." Of the 195 students, 16.9% were freshmen, 21.5% were sophomores, 29.2% were juniors, 30.3% were seniors, and 2.1% were post-bachelor's students. With respect to living situations, 16.4% of the students reported to live on-campus, with 61% reporting to live off-campus with a parent or relative, and 22.6% reporting to live off-campus by themselves, with a roommate, or a significant other.

Measures

Motivation. The Achievement-Motivation Scale (AMS) (Vallerand, Blais, Briere, & Pelletier, 1989) was utilized to examine motivation. This inventory was engendered to measure college students' various levels of motivation (Cokley, Bernard, Cunningham, & Motoike, 2001; Vallerand, Blais, Briere, & Pelletier, 1989). The measure was initially created by Vallerand, Blais, Briere, and Pelletier (1989) and was written in French. Shortly thereafter, the measure was translated in English, and was also validated in an English format to measure student's motivation levels (Vallerand et al., 1992).

The AMS has been utilized to examine the effect of faculty encouragement on college students' motivation (Cokley, 2000). Moreover, it has also been used to measure the effects of teaching styles, such as controlling versus autonomy-promoting, on student motivation (Pelletier, Séguin-Lévesque, & Legault, 2002). Further, the AMS has been utilized previously to measure

how motivation affects college student achievement (Turner, Chandler, & Heffer, 2009). This measure has also been included in research to examine the different types of motivation styles that enhance medical students' learning behaviors (Sobral, 2004). Other research has focused on using this measure to obtain more information about motivation involved with physical activity levels and sports-related behaviors (Wang, 2001).

With respect to subscales, the AMS is a widely-used instrument for the purposes of obtaining information about students' intrinsic and extrinsic motivation, as well as amotivation, within an academic setting (Vallerand et al., 1989). The inventory contains questions regarding intrinsic motivation, extrinsic motivation, and amotivation (Vallerand et al., 1992). For intrinsic motivation, there are three subscales: intrinsic motivation toward accomplishments (Intrinsic Motivation-Accomplishment), intrinsic motivation toward knowledge (Intrinsic Motivation-Knowledge) and intrinsic motivation to experience stimulation (Intrinsic Motivation-Stimulation). The subscales that refer to extrinsic motivation are: External Regulation, Introjected Regulation, and Identified Regulation (Vallerand et al., 1992). External regulation corresponds to behavior that is regulated via rewards, constraints, or other external means, while introjected regulation refers to intrinsic motivation that is contingent upon past external contingencies (e.g., "I clean my room because my parents make me") (Vallerand et al., 1992). Identified regulation refers to when individuals value their own behavior and judge it to be important, which therefore aides in regulating the internalization of extrinsic motives (e.g., "I have chosen to go to the gym today because it is something that I value) (Vallerand et al., 1992). Identified regulation is still considered to be extrinsic, as the action itself is pivotal to achieve a goal (Cokley et al., 2001). Amotivation is the last subscale, which corresponds to the motivation

construct when individuals do not have the notion that their actions are tied to contingencies; therefore, they are neither intrinsically nor extrinsically motivated.

The AMS is a 28-item questionnaire, in which an individual answers various questions about various reasons why they go to college. The survey contains statements which indicate a potential reason why they attend school. The students then have to rate the degree to which they agree with the statement. The AMS items are answered on a 7-point likert scale, in which the individual rates each statement as it corresponds with their personal reasons for attending college (e.g., 1 = does not correspond, 4 = corresponds moderately, 7 = corresponds exactly). Some sample questions and statements from the inventory are as follows: "Why do you go to college?" (1) For the pleasure I experience while surpassing myself in my studies, (2) Honestly, I don't know; I really feel that I am wasting my time in school, (3) To prove to myself that I am capable of completing my college degree.

With respect to reliability, internal consistency was measured using Cronbach alpha. The values ranged from .83 to .86, with the exception of the Identification subscale, which evidenced an alpha value equivalent to .62 (Vallerand et al., 1992). The researchers also investigated the psychometrics of the instrument on a second sample, with test-retest reliability correlations ranging from .71 to .83 (mean = .79). The reliability levels of this instrument were found to be satisfactory and in accord with the original French-Canadian version (Vallerand, 1992). Further, other research has yielded findings (Cronbach's coefficients ranging from .70 to .86), which are also consistent with Vallerand and colleagues' work, further supporting internal reliability for the AMS (Cokley et al., 2001).

With respect to confirmatory factor analyses, of the seven factors that have been postulated, the confirmatory factor analysis of the initial measurement model evidenced fit

values of 0.89 for the Normal Fit Index, 0.87 for the Adjusted Goodness of Fit Index, and 0.89 for the Goodness of Fit Index. The model, however, did not reach statistical significance in this case, with a chi square of 1228.27 (df = 329, p <.001) (Vallerand et al., 1992). When the researchers added 26 correlated residuals, there was a highly significant improvement of fit, yielding a chi square of 479.63 (df = 26, p<.001). Moreover, results from lambda *x* parameters evidenced a 0.99 correlation value, while those that included the lambda *x* and phi parameters yielded a 0.98 correlation value. The confirmatory factor analysis for the English version mirrored the original French-Canadian version (Vallerand et al., 1992). Confirmatory factor analysis has been further supported by Cokley and colleagues' work, demonstrating a good fit of seven factors (CFI = 0.90, NFI = 0.83) (Cokley et al., 2001). In all, the aforementioned factor analysis findings demonstrate good construct validity.

To demonstrate further construct validity, academic self-concept has been found to be significantly and positively correlated with all of the intrinsic motivation subscales (IM-Knowledge, IM-Achievement, IM-Stimulation; r = .39, r = .32, r = .25, respectively) (Cokley et al., 2001). Academic self-concept was also significantly correlated with the Amotivation subscale (r = -.47), but not for the extrinsic subscales. This renders the overall construct validity, through convergent validity, for the AMS to be partially supported (Cokley et al., 2001). To further support construct validity, several of the subscales were also found to be correlated with grade point average (Cokley et al., 2001). Additionally, tests of group differences by gender and ethnicity were also investigated, finding no statistically significant differences (Cokley et al., 2001). The Cronbach's alpha for the current sample was .92.

Self-Efficacy. The Self-Efficacy for Learning Form (SELF) (Zimmerman, B.J., & Kitsantas, A., 2005) was used to examine self-efficacy in the proposed study. The SELF is a

measure of student self-efficacy as it relates to the academic environment. All of the factors on the SELF load predominantly on a single construct: self-efficacy for learning (Zimmerman & Kitsantas, 2007). Yet, the SELF can be used to specifically examine a student's self-efficacy in the following performance areas: reading, note taking, test taking, writing, and studying (Zimmerman & Kitsantas, 2005). The SELF also takes into consideration students' coping with school-related tasks (Zimmerman & Kitsantas, 2005). The SELF is based on Bandura's Self-efficacy for Self-regulated Learning Scale (SRL), which was found to not be predictive, in a direct sense, of student achievement outcomes as measured by grades (Zimmerman & Kitsantas, 2007). Due to the desire to examine self-efficacy as it relates to student performance, Zimmerman and Kitsantas (2005; 2007) developed a measure to reflect student self-efficacy as it relates to learning and their achievement.

The SELF has been utilized in various research studies to measure self-efficacy in learning environments, such as universities. For example, the SELF was used in a study that examined self-regulatory beliefs as a potential mediating role between homework behaviors and academic achievement (Kitsantas & Zimmerman, 2009). It has been suggested that the SELF could also be helpful for teachers, due to the notion that the SELF scores are significant predictors for many educational outcomes (Schmitz, Schmidt, Landman, & Spiel, 2007).

The SELF consists of 57 items, answered in a likert format, using a scale ranging from 0-100. Students typically rate the probability that they can do something or how capable they perceive themselves to be at completing a specified task (Zimmerman & Kitsantas, 2007). For example, the inventory contains some of the following statements: "When you find that you had to 'cram' at the last minute for a test, can you begin your test preparation much earlier so you won't need to cram the next time?" or "When you don't understand your teacher, can you ask the

right question to clarify matters?" The students have to indicate the percentage that they can "definitely do" something (i.e., 100% indicating that they can definitely do the statement presented and 0% indicating that they cannot definitely do the statement presented) (Zimmerman & Kitsantas, 2005; 2007). The items are then rated in 10-point increments as follows: 0 = definitely cannot do it, 30 = probably can do it, 50 = maybe, 70 = probably can, 100 = definitely can do it (Zimmerman & Kitsantas, 2005; 2007). These scores demonstrate the notion that the higher the rating, the larger the indicator of positive self-efficacy beliefs related to learning (Zimmerman & Kitsantas, 2005; 2007).

As far as reliability is concerned, a Cronbach alpha reliability coefficients of .99 (Zimmerman & Kitsantas, 2005) and .98 (Zimmerman & Kitsantas, 2007) were found for scores on this particular scale. The aforementioned studies examined high school students and college students, respectively. For all of the items, the mean item score was 79.76 and the standard deviation was 13.02 (Zimmerman & Kitsantas, 2005). Further, students' self-reported scores have been found to have a high degree of internally consistent reliability (r = .96) (Zimmerman & Kitsantas, 2005). On an abridged version, the reliability coefficient was found to be .97 (Zimmerman & Kitsantas, 2007). High reliability was found for the individual items on the scale, ranging from .69 to .91, further indicating internal consistency on the measure (Zimmerman & Kitsantas, 2005).

Using other factors, combined, the factors were found to account for 84% of the variance. Each individual factor was also found to account for a specific portion of the variance. For example, factor 1 was discovered to account for 66% variance (eigenvalue of 38.06). Meanwhile, factor 2 accounted for 8% of the variance (eigenvalue of 4.35), factor 3 accounted for 6% variance, (eigenvalue of 3.50), factor 4 accounted for 3% variance (eigenvalue of 1.55),

and factor 5 accounted for 2% variance (eigenvalue of 1.12). Some of the original items were discarded from the scale due to poor factor loadings, yielding the final 57 items (there were 59 initially) (Zimmerman & Kitsantas, 2005). The remaining items with the factor loadings on the first factor (self-efficacy for learning) ranged from .68 to .91. The rest of the items did not load above .40 (Zimmerman & Kitsantas, 2005). Other psychometric studies indicated an exploratory principal component analysis that evidenced nine factors on the abridged version which accounted for 83% of the variance, with an eigenvalue of 35.20 (Zimmerman & Kitsantas, 2007). On the first factor, self-efficacy for learning, the items were found to account for 67% of the variance, with an eigenvalue of 12.76 (Zimmerman & Kitsantas, 2007).

With respect to construct validity, the entire scale was found to have a single, unifying factor: self-efficacy for learning (Zimmerman & Kitsantas, 2005). An examination of a single-factor confirmatory factor analysis was conducted, yielding a very good fit of a single factor structure model with a chi-square of 13.61, p = 1.00, *cfi* = 1.00, *nfi* = .94, *rfi* = .93 (Zimmerman & Kitsantas, 2007). Additionally, on the SELF, validity was measured via teacher ratings of student self-regulatory behaviors that were observed in class (Zimmerman & Kitsantas, 2005). Meanwhile, the correlation between teacher and student ratings was found to be satisfactory (Zimmerman & Kitsantas, 2005).

To further demonstrate the validity of the instrument, the SELF has been found to have a high level of predictive validity for predicting student grade point average (r = .68) (Zimmerman & Kitsantas, 2005). It has also been found to have high validity with respect to predicting student judgments for responsibility of their outcomes (r = .71) and homework, with respect to the quality (r = .75) and quantity (r = .74) (Zimmerman & Kitsantas, 2005). Other studies have found significant predictive validity at a p value of 0.01 (two-tailed) for the following items:

grades (r = .58), perceived responsibility (r = .50), quality of homework (r = .55), and quantity of homework (r = .58) (Zimmerman & Kitsantas, 2007). The Cronbach's alpha for the current sample was .94.

Study Habits. In order to assess study habits, the Homework Scale (Zimmerman & Kitsantas, 2005) was selected to examine student functioning outside of the school environment. The Homework Scale is a component of the SELF, listed above. It measures students' homework behavior on the dimensions of quantity and quality. The quantity component has to do with the amount of time spent completing homework and studying, while the quality component is comprised of items relating to a studying location, scheduling, methodology, and prioritizing (Zimmerman & Kitsantas, 2005).

The quantity component is comprised of two questions: "How much time do you spend on homework every day?" and "How much time do you spend studying for a chapter test?" (Zimmerman & Kitsantas, 2007). Specifically, the items are scored based on the amount of time the student reports. The quality component consists of 5 questions corresponding to regular homework practice (Zimmerman & Kitsantas, 2007). Some question samples are: "Do you have a regular time to study?," "Do you have a regular place to study?," and "How often do you complete your daily assignments?" For the quality component, the first three questions are answered in yes/no format, while the other two questions utilize a likert scale (1 = never, 2 = seldom, 3 = often, 4 = usually, and 5 = always) (Zimmerman & Kitsantas, 2005). The likert items are scored by coding 1 and 2 in a "no" category and coding an answer ranging from 3-5 in a "yes" category. Moreover, "yes" answers are scored as a 'two' and "no" answers are to be scored as 'one' (Zimmerman & Kitsantas, 2005).

With respect to internal reliability, the quantitative component of the Homework Scale has been found to have a Cronbach alpha reliability coefficient of .64 on this brief measure of student homework habits (Zimmerman & Kitsantas, 2005). Meanwhile, the qualitative component was found to have a Cronbach alpha reliability coefficient of .82 (Zimmerman & Kitsantas, 2005). Further, in an additional study examining college students, Zimmerman and Kitsantas found a Cronbach reliability coefficient of .64 for the quantitative scale, while the qualitative scale was discovered to have a Cronbach reliability coefficient of .79 demonstrating internal reliability for the instrument (2007). Between both the quantitative and qualitative measures, a zero order coefficient of .75 was found (Zimmerman & Kitsantas, 2005).

In further exploration of internal reliability, the factorial structure of the qualitative and quantitative domains for the homework scale was analyzed utilizing an exploratory principal component analysis (Zimmerman & Kitsantas, 2005). For the quantity index, a single factor was found to account for 74% of the variance, with an eigenvalue of 1.24. The second factor was not interpreted and had an eigenvalue less than one (Zimmerman & Kitsantas, 2005). For the quantity component, the mean was 3.12, while the standard deviation was found to be 1.03. More specifically, the quality of homework scale was found to have a single factor that accounted for 62% of the variance, with an eigenvalue of 3.09. A second factor was found to have an eigenvalue of .95, which is less than one, and was therefore not interpreted (Zimmerman & Kitsantas, 2005). The mean of the qualitative subscale had a mean of 1.70 and a standard deviation of .34. Moreover, both homework scales were found to have a zero-order correlation of .75 (Zimmerman & Kitsantas, 2005).

Zimmerman and Kitsantas have rendered this instrument to have good content and face validity through the use of the homework portion of the SELF (Zimmerman & Kitsantas, 2005).

Research has used this measure to demonstrate the effect of homework on self-efficacy, which therefore affects overall grade point average, thereby finding self-efficacy as a mediating factor on student achievement (Zimmerman & Kitsantas, 2005). A direct path of homework and its effect on achievement was found to have a path analysis of $p = 0$. Meanwhile, an indirect path of homework affecting grade point average, as explained by self-efficacy, was found to be significant at $p = 0.45$ (Zimmerman & Kitsantas, 2005). In all, the measure has been found to have good predictive validity with respect to homework on student achievement (Zimmerman & Kitsantas, 2005). The Cronbach's alpha for the current sample was .34.

Family and Peer Support. The Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem, Zimet, & Farley, 1988) was utilized to examine perceived support with respect to family and peers. Overall, the MSPSS is used to measure social support in general. More specifically, it measures support within three different domains: family, friends, and significant other (Zimet et al., 1988). In total, the MSPSS contains 12 items and each sub-scale is represented by four items. The MSPSS involves 12 statements, with which an individual rates the extent to which they agree with the statement. The items are rated on a likert scale, ranging from 1 = very strongly disagree to 7 = very strongly agree (Zimet et al., 1988). Some sample items are: "My friends really try to help me," "I get the emotional help and support I need from my family," and "There is a special person with whom I can share my joys and sorrows" (Zimet et al., 1988).

The MSPSS has been used to examine differences between psychiatric and university samples, in which statistically significant differences were found. With respect to the aforementioned investigation, Cohen's *d* effect sizes were found to be: .95 for the Friends subscale, .70 for Family, .44 for Significant Others, and .88 for the Global perceived social

support, indicating moderate to large effect sizes (Clara, Cox, Enns, Murray, & Torgrudc, 2003). In this study, correlations indicated that increased perceptions of social support were related to lower reported depressive symptomology. The largest correlations between the depression ratings and perceived social support were found within the sub-scales of Friends and Family (Clara et al., 2003). Other studies have used the scale to examine the role of social support with adolescent health risk behaviors, such as: suicidal ideation, binge drinking, and drug use (Springer, Parcel, Baumler, & Ross, 2006). Additionally, the MSPSS has also been used to investigate the role of social support with depression, exposure to community violence, exposure to other life-threatening traumas and resiliency in youth (Bruwer, Emsley, Kidd, Lochner, & Seedat, 2008; Hefner & Eisenberg, 2009).

The MSPSS has been utilized in across many cultures to measure social support (Duru, 2007). With respect to the reliability of the instrument, in initial studies, the MSPSS was found to have a Cronbach alpha level of .88 for global internal reliability (Zimet et al., 1988). Moreover, internal reliability has been found to be .86 for the entire scale, and the Cronbach alpha coefficients for the sub-scales were discovered to range from .86 to .90 (Bruwer et al., 2008).

The MSPSS also was found to have a test-retest reliability ranging from .72 to .85, as well as internal reliability for the sub-scales ranging from .85 to .91 (Zimet et al., 1988). Later research for the inventory demonstrated Cronbach alpha reliability coefficients to be .93 for the overall survey, and .91, .89, and .91, respectively, for the subscales of Family, Friends, and Significant Other (Canty-Mitchell & Zimet, 2000). The MSPSS has also been found to have good internal reliability across multiple subject groups, such as pregnant women,

undergraduates, adolescents, and pediatric residents (Zimet, Powell, Farley, Werkman, & Berkoff, 1990).

Among a Turkish sample, the MSPSS-R was found to have satisfactory reliability, including internal and test-retest, while also confirming the three-factors throughout the scale (Basol, 2008; Duru, 2007). The split-half reliability was found to be .90, as well as Cronbach alpha coefficients ranging from .87-.92 for the internal reliability of the subscales (Basol, 2008). Moreover, the internal reliability of the entire scale was been found to be .87 (Duru, 2007).

With respect to the validity of the MSPSS, it has been found to have strong construct validity for the three-subscale structure of the instrument, ranging from .81 to .94 for the subscales (Zimet, Powell, Farley, Werkman, & Berkoff, 1990). Further, the convergent validity has been measured while examining correlations with the Adolescent Family Caring Scale (AFCS). The findings exemplified .76, .33, and .48 for the respective Family, Friends, and Significant Other categories (Canty-Mitchell & Zimet, 2000). Concurrent validity for the measure has also been examined using two scales: the UCLA Loneliness Scale and the Life Satisfaction Scale (Duru, 2007). Results have indicated that the total scale score for the MSPSS is correlated significantly with loneliness measures (.79), as well as with life satisfaction (.90) (Duru, 2007). The Cronbach's alpha for the current sample was .91.

Extracurricular activities (work, social outings, organizations/sports). The Activities Measure (Pascarella & Terenzini, 1977) was used to examine student involvement in extracurricular activities. Similar to the faculty-student relationship measure as listed below, the student activities measure was constructed based on the Clark-Trow typology of students, which is a conceptual model of student subcultures that are identified based on students' degree of involvement with ideas and identification with the institution (Terenzini & Pascarella, 1977).

This particular measure was also based on Tinto's work (Terenzini & Pascarella, 1977). The extracurricular activity measure was adapted from Pascarella and Terenzini's work on faculty-student relationships (1977). In their work, Pascarella and Terenzini also examined different activities, such as extracurricular activities, students were involved in (Terenzini & Pascarella, 1977). With the relationship measure, they additionally examined the amount of time students invested in tasks, both related and unrelated to school (Pascarella & Terenzini, 1980). The purpose for their examination was to explore the role activities may have in contributing to student attrition and dropout (Pascarella & Terenzini, 1980; Terenzini & Pascarella, 1977).

The activity-based questions for this proposed study were extracted from the SUNY Albany Student Experience Study to obtain more insight into student school oriented tasks and other extra-curricular activities. Specifically, these items include reporting the number of hours per week (on average) students spend in organized extra-curricular activities and work (Pascarella and Terenzini, 1980). In addition to the aforementioned items that were involved with the SUNY scale, the present investigator has also added items with respect to the number of hours per week (on average) spent socializing with peers/friends, as well as if the students felt that their time spent in the areas of extracurricular activities, work, and socializing, took away from time spent in their studies. These items were added to examine a socializing component, as well as students' perceptions of these competing obligations and/or lures.

In all, the present scale is proposed to utilize three questions pertaining to the number of hours spent in the areas of: (1) organized extra-curricular activities, (2) work, and (3) socializing activities. Items for the activities component are then coded on a scale of 1 to 4 (e.g., extra-curricular activities are scored as: 1 = 4+ hours/week, 2 = 2-3 hours/week, 3 = <2 hours/week, and 4 = no involvement) (Coll & Stewart, 2008). Additionally, after each question, students will

be asked the following: "Do you feel that these activities took away time spent in your studies?" They will then answer in a simple, "yes" or "no" format, with a 'one' coding for "yes" and a 'two' coding for "no."

Research has evidenced that the extracurricular involvement items of the scale were able to be controlled for statistically when a multivariate analyses of covariance was run in order to discriminate between persistent students versus those who dropped out (Pascarella & Terenzini, 1980). The activities component of the entire survey was considered to be one of three covariates, along with academic achievement and pre-college characteristics (Pascarella & Terenzini, 1980). This portion of the scale has been found to be a valid and reliable component in measuring college student persistence/dropout (Pascarella & Terenzini, 1977, 1980, 1983; Terenzini & Pascarella, 1977).

Additionally, it has been used in studies to examine and provide validity for Tinto's model of student persistence/withdrawal through a path analysis (Pascarella & Terenzini, 1983). The original items have also been utilized in research examining gender differences with the scale items (Baker, Caison, & Meade, 2007). Additionally, they have been used to examine identity as a mediator of institutional integration variables with the prediction of persistence intentions of undergraduate students (Robinson, 2003). For additional psychometric properties and information on the entire scale or for the faculty-student relationship component, please see the forthcoming 'support from faculty' section. The Cronbach's alpha for the current sample, with respect to the original extracurricular activities questions, was -.34.

Support from faculty. The Institutional Integration Scale (Pascarella & Terenzini, 1980) was selected to examine students' perceived support from faculty. Pascarella and Terenzini based their measure of perceived student-faculty relationships on Clark and Trow's

conceptual model of student subcultures (Terenzini & Pascarella, 1977). Additionally, Tinto's model of college dropout was utilized by Pascarella and Terenzini (1980) to identify and compose factors to be measured. Pascarella and Terenzini's work involved looking at freshman persistence and voluntary dropout decisions, while examining potential predictor variables of such, based on students at Syracuse University in New York (Pascarella & Terenzini, 1977, 1980; Terenzini & Pascarella, 1977). Their measures were involved in a large questionnaire entitled "SUNY Albany Student Experience Study." Later researchers who cite different components of the questionnaire, refer to it as the "Institutional Integration Scale" (Baker, Caison, & Meade, 2007; Robinson, 2003) although in Pascarella and Terenzini's earlier work, it is not cited as such (Pascarella & Terenzini, 1977, 1980, 1983; Terenzini & Pascarella, 1977).

As part of the faculty-student relationship measure, students rate nine statements on a likert-type scale ranging from: 1 = strongly agree, 3 = neither agree nor disagree, and 5 = strongly agree. Some of the questions pertain to the interactions with faculty, while others are concerned more with students' perceptions of faculty. For example, statements such as, "Since coming to this university, I have developed a close, personal relationship with at least one faculty member" and "I am satisfied with the opportunities to meet and interact informally with faculty members", are aligned with the interactions themselves. Meanwhile, statements such as "Most of the faculty I have had contact with are interested in helping students grow in more than just academic areas" and "Few of the faculty members I have had contact with are generally interested in students" are in accord with students' perceptions of faculty (Pascarella & Terenzini, 1980).

When examining the faculty-interaction component of the scale, it was discovered to break out into two factors: (1) interactions with faculty and (2) students' perception of faculty

concern (Pascarella & Terenzini, 1980). The interactions with faculty items relate to the accessibility of faculty and the impact of student-professor contacts. The perceptions of faculty concern, on the other hand, corresponds with the degree to which faculty are perceived as being concerned with student development and teaching (Pascarella & Terenzini, 1980).

With respect to the internal reliability of the measure, the Cronbach alpha reliability for the faculty-student interactions factor was .83, while the Cronbach alpha reliability for the faculty concerns factor was found to be .82 (Pascarella & Terenzini, 1980). Given the reliability for these factors, they were deemed as adequate for utilization of the scales for future analysis. Moreover, the alpha reliabilities of the scales ranged from .71 to .84 and all of the simple and partial correlations were significant ($p < .01$) (Pascarella & Terenzini, 1980). They found alpha reliability coefficients of .83 for the faculty relationship questions and .77 for the perceptions of faculty concern questions (Pascarella & Terenzini, 1983). Overall, all five factors were found to have eigenvalues ranging from 6.14-1.67 and the five factors accounted for 44.45 percent of the variance.

Other analyses, based on Pascarella & Terenzini's work (1983), have utilized different levels of factors (academic vs. social) which have demonstrated that the faculty contact questions accounted for 13.3% of the variance, with an eigenvalue of 2.5. The faculty contact questions, when parsed out via the different factors, had alpha reliability coefficients ranging from 0.772 to 0.828 (Coll & Stewart, 2008). The faculty concerns (including student perceptions of faculty concerns) accounted for 8.6 to 13.5% of the variance, with eigenvalues ranging from 1.6 to 2.5. Additionally, the alpha reliability coefficients were found to range from .77 to .80 (Coll & Stewart, 2008). Other research has found the alpha reliability coefficient for the Interactions with Faculty subscale to be .82. Additionally, an alpha reliability coefficient of .73 was also

identified for the subscale relating to student perceptions of faculty concerns (Baker, Caison, & Meade, 2003). Moreover, multicollinearity was examined for these subscales and the tolerance for the Interactions for Faculty subscale was found to be 0.89, with a variance inflation of 1.16.

With respect to content validity, the faculty-interaction components only represent two of five factors for the complete scale, which were found to each have reasonable discriminating power and stability in their function (Pascarella & Terenzini, 1980). Additionally, with respect to validity, the researchers were able to carry out what they purported to measure (college student attrition versus dropout) with the scales. The scores on the scales were able to correctly identify students (78.9% of the cross-validation persisters and 75.8% of the cross-validation dropouts) (Pascarella & Terenzini, 1980).

Pascarella and Terenzini also utilized these scales when conducting a path analysis to validate Tinto's model, which further parsed out their prior scales into multiple factors, including academic integration and social integration; further lending a hand to the predictive validity of the instrument (1983). For the faculty concern for student development subscale, the tolerance was found to be 0.92 with a variance inflation of 1.08. Additionally, the overall scale was found to be statistically significant with a logistic regression model (chi square = 97.1693, $df = 11$, $p <$ .00.1), indicating that the predictive validity for this scale is sufficient when it comes to student attrition/drop out (Baker et al., 2003).

Faculty interactions have been found to be correlated with outcomes of freshman persistence and voluntary dropout decisions ($r = .35$), demonstrating some degree of predictive validity (Pascarella & Terenzini, 1980). Further, student-faculty interactions that pertain to intellectual items or course-related concerns were found to have the highest correlation with student persistence and attrition (Pascarella & Terenzini, 1977). This measure has also been

utilized to provide evidence for Tinto's model of student attrition and withdrawal through conducting a path analysis (Pascarella & Terenzini, 1983). Further, other research has utilized the scale to examine identity as a mediator of institutional integration variables for the prediction of undergraduate intentions of persistence (Robinson, 2003). The Institutional Integration Scale has also been utilized to explore gender differences in college student groups (Baker et al., 2007). The Cronbach's alpha for the current sample was .73.

Institutional support. To probe into institutional support at the institutional level, the Survey of Perceived Organizational Support (SPOS) (Eisenberger, Huntington, Hutchison, & Sowa, 1986) was utilized. The Perceived Organizational Support scale was initially engendered to measure the degree to which employees felt supported by their employers, within an organizational sense. This particular measure was used and provided evidence for the notion that individuals do form general beliefs about the extent to which an organization cares for the individual's well-being and values their contributions. The SPOS was found to reduce the level of absenteeism at work (Eisenberger, Huntington, Hutchinson, & Sowa, 1986). Additionally, the SPOS has been used to measure teachers' perceptions within a school environment (Eisenberger et al., 1986).

The survey developers merged commitment statements into the (SPOS). There are 12 statements in all, in which an individual rates the extent to which they agree with the statement at hand. Raters use a 7-point likert scale to answer questions within the following parameters: 1 = strongly disagree and 7 = strongly agree (Eisenberger et al., 1986). Half of the statements are stated positively, while the other half is stated negatively in order to avoid agreement response bias. Items specifically correspond to factors, such as: satisfaction level of employee/student, the employee's/student's performance, employee's/student's anticipated future value, consideration

of employee's/student's opinions, job/school enrichment, employee's/student's well-being, etc. (Eisenberger et al., 1986). Some sample items include: <Insert name of institution> strongly considers my goals and values and <Insert name of institution> is willing to extend itself in order to help me perform my academic responsibilities to the best of my ability.

LaMastro (2001) the SPOS scale in order to utilize it to measure students' perceptions of perceived institutional support. Wording was altered from the original scale, as seen fit, to appropriately measure organizational support at the collegiate level. With these changes, psychometrics were completed on the revised instrument and a factorial analysis identified a single factor, which accounted for 56.3% of the variance and a Cronbach alpha coefficient of 0.80, demonstrating internal reliability of the instrument (LaMastro, 2001). Further, once the scale was finalized, utilizing eight of the original items, the single factor was found to account for 7.8% of the variance, while the scale was found to have a Cronbach alpha of 0.71 for internal reliability (LaMastro, 2001).

Analyses have indicated that the perceived support factor accounts for 93% of the variance, while a potentially minor factor accounts for 6% of the variance (Eisenberger et al., 1986). Moreover, a Cronbach alpha reliability coefficient of 0.97 was found. Item-total correlations were also found to fall within the range of 0.42 to 0.83 (Eisenberger et al., 1986). Additionally, the mean item-total correlation was found to be 0.67, while the median item-total correlation was found to be 0.66.

With respect to validity, when compared to the exchange ideology questionnaire, the SPOS was found to have a Cronbach alpha reliability coefficient of .93, while the exchange ideology questionnaire had a reliability coefficient of .80 (Eisenberger et al., 1986). They had a low correlation (-.10), indicating their level of independence or divergent validity (Eisenberger et

al., 1986). The SPOS has been validated through comparison to other measures, such as the Organizational Commitment Questionnaire, the Affective Commitment Scale (ACS), and the Continuance Commitment Scale (Shore & Tetrick, 1991). In lieu of this comparison, factorial analyses were conducted, as well as an examination of a goodness of fit, which evidenced that all of the scales were differentiable. Although perceived support was found to differentiate between measures, research demonstrated that there was some question with respect to differentiating between perceived organizational support and satisfaction (Shore & Tetrick, 1991).

This perceived institutional support measure was found to be positively correlated with students' positive mood states (Cronbach alpha = .29, p <.001) (LaMastro, 2001). It was also found to be positively correlated with consideration of attending the same institution for graduate school (r = .40, p < .001), the likelihood of financially supporting the institution post-graduating (r = .47, p < .001), and the potential of becoming an active alumni association member (r = .45, p < .001), indicating some degree of predictive validity. Additionally, a significant, positive correlation was found between the perceptions of institutional support and perceptions of faculty support (r = .53, p < .001) (LaMastro, 2001). The Cronbach's alpha for the current sample was .90.

Procedure

After approval from Wayne State University's Human Investigation Committee (HIC), data was collected throughout students' courses at Wayne State University. The examiner of the proposed study contacted professors through various departments, including the college of Education, Psychology, Sociology, and Foreign Languages. The professors were able to then inform their students of this voluntary research participation opportunity. Professors, at their own discretion, were able to opt to count students' participation in this research study as extra

points or extra credit, or any other additional considerations. Students from undergraduate courses were be able to voluntarily participate.

Initially, the study provided a website link to the self-report survey in order to make the participation process as easeful as possible. Yet, due to difficulties with participation, the principal investigator instead contacted professors to potentially visit their class to share information regarding the study and allow students to voluntarily participate by filling out the survey on-site. Participation was on a voluntary basis and no negative consequences were imposed if students chose to not participate.

Prior to filling out the survey, the investigator outlined and inform the students of the following: its purpose, instructions for filling out the instruments, and investigator contact information in the event there are any questions that students may have. All students were provided with an information sheet regarding the study. The survey took approximately 15-25 minutes to fill out.

Data Analysis

Data accrued from the web was gathered, as well as individual participant data filled out via paper and pencil surveys. The data was then transcribed by the principle investigator into an SPSS spreadsheet. SPSS was then utilized to examine the data, including conducting frequency distributions to probe into demographics. With respect to specific research hypotheses and questions, inferential statistical analysis was used through SPSS and AMOS. In addition, an alpha criterion of 0.05 was utilized to examine statistical significance. The following table (Table 1) presents the research questions, hypotheses, variables used, and proposed statistical analyses.

Table 1

Research Questions

Research Question 1: To what degree do intrapersonal/internal factors (motivation, self-efficacy, and study habits) predict college student achievement?		
Research Hypotheses	Variables	Statistical Analyses
H1: The individual factors (motivation, self-efficacy, and study habits) will explain a statistically significant proportion of variance in college student achievement.	<u>Predictor variables</u> Individual factors: • Motivation • Self-efficacy • Study habits <u>Criterion variable</u> • College student achievement	Stepwise Multiple Regression
Research Question 2: To what degree do external factors (family and peers support, support from faculty, extracurricular activities, and institutional support) predict college student achievement?		
Research Hypotheses	Variables	Statistical Analyses
H2: The environmental factors (social support, activities, faculty support, and institutional support) will explain a statistically significant proportion of variance in college student achievement.	<u>Predictor variables</u> Environmental factors: • Perceived social support • Extracurricular activities • Perceptions of faculty • Perceived University Support <u>Criterion variable</u> • College student achievement	Stepwise Multiple Regression
Research Question 3: What are the combined roles of internal and external systems on college student achievement?		
Research Hypotheses	Variables	Statistical Analyses
H3: A combination of individual and environmental factors will explain more variance in college adjustment than either set of factors in isolation.	<u>Predictor variables</u> Individual factors: • Motivation • Self-efficacy • Study habits Environmental factors: • Perceived social support • Activities • Perceptions of faculty • Perceived University support <u>Criterion variable</u> • College student achievement	Hierarchical Multiple Regression Analyses

<table>
<tr><td colspan="3">Research Question 4:
Specifically, do external factors moderate the relationship between intrapersonal/internal factors and overall college student achievement?</td></tr>
<tr><td>Research Hypotheses</td><td>Variables</td><td>Statistical Analyses</td></tr>
<tr><td>H4: Environmental factors will
moderate the relations between
the individual factors and
college student achievement.
• H4a: Social support will moderate the relation between self-efficacy and college student achievement.
• H4b: Faculty support will moderate the relation between self-efficacy and college student achievement.
• H4c: University support will moderate the relation between self-efficacy and college student achievement.
• H4d: Social support will moderate the relation between motivation and college student achievement.
• H4e: Faculty support will moderate the relation between motivation and college student achievement.
• H4f: University support will moderate the relation between motivation and college student achievement.</td><td><u>Independent variables</u>
Individual factor:
• Self-efficacy
• Motivation

<u>Moderating Variables</u>
Environmental factors:
• Perceived social support
• Perceptions of faculty
• Perceived University support

<u>Dependent variable</u>
• College student achievement</td><td>Path Analysis</td></tr>
<tr><td colspan="3">Research Question 5:
What is the role of extracurricular activities? Specifically, do extracurricular activities moderate the relationship between study habits and college student achievement?</td></tr>
<tr><td>Research Hypotheses</td><td>Variables</td><td>Statistical Analyses</td></tr>
<tr><td>H5: Extracurricular activities will moderate the relation between study habits and college student achievement.
• H5a: Time spent in organized extra-curricular activities will moderate the relation between time spent</td><td><u>Independent variables</u>
Individual factor:
• Study habits
o Time spent studying
o Setting Task Priorities

<u>Moderating Variables</u></td><td>Path Analysis</td></tr>
</table>

studying and college student achievement. • H5b: Time spent working will moderate the relation between time spent studying and college student achievement. • H5c: Time spent socializing will moderate the relation between time spent studying and college student achievement. • H5d: Time spent in organized extra-curricular activities will moderate the relation between setting task priorities and college student achievement. • H5e: Time spent working will moderate the relation between setting task priorities and college student achievement. • H5f: Time spent socializing will moderate the relation between setting task priorities and college student achievement.	Individual factor: • Extracurricular activities o Time spent in organized extra-curricular activities o Time spend working o Time spent socializing <u>Dependent variable</u> • College student achievement	
Research Question 6: What role does self-efficacy play? Specifically, does self-efficacy moderate the relationship between motivation and college student achievement?		
Research Hypotheses	Variables	Statistical Analyses
H6: Self efficacy will moderate the relation between motivation and college student achievement.	<u>Independent variables</u> Individual factor: • Motivation <u>Moderating Variables</u> Individual factor: • Self-efficacy <u>Dependent variable</u> • College student achievement	Path Analysis

CHAPTER IV

RESULTS

The purpose of the study was to examine various predictors of college student achievement within an ecological framework. Based on theory and research, both internal and external variables were examined. Self-efficacy, motivation, and study habits were utilized for external variables. Meanwhile, external variables, such as time spent in extracurricular activities and perceived support from significant others, faculty, and the college institution as a whole, were examined.

With respect to the data, underlying assumptions were tested via examination of scatterplots. Results demonstrated that the assumptions were met for the overall model, as well as for the predicted variables. For the research questions at hand, statistical significance was determined using a criterion alpha level of .05. Means and standard deviations are included in Table 2. The correlation matrix for all variables is included in Table 3.

Table 2

Descriptive Statistics

Females (N =141)	Number	Mean	SD	Range	
				Minimum	Maximum
Self-Efficacy	141	3.89	.542	2.49	4.84
Motivation	141	5.40	.81	2.32	6.96
Study Habits (# hours on homework each day)	141	2.65	1.43	.00	10.0
Study Habits (setting task priorities)	141	3.70	1.09	1.00	5.00
Activities (# hours spent in extra-curricular activities each week)	141	8.36	7.72	.00	45.00

Activities (# hours spent working each week)	141	25.62	9.22	2.00	50.00
Activities (# hours spent socializing)	141	14.43	14.48	1.00	100.00
Perceived Social Support	141	5.86	.98	2.25	7.00
Perceived Support from Faculty	141	3.38	.68	1.22	4.89
Perceived Support from Institution	141	2.94	1.00	.00	5.17

Males (N =54)	Number	Mean	SD	Range	
				Minimum	Maximum
Self-Efficacy	54	3.64	.50	2.40	4.88
Motivation	54	5.17	.83	3.00	6.64
Study Habits (# hours on homework each day)	54	2.87	1.91	10.00	50.00
Study Habits (setting task priorities)	54	3.71	.98	2.00	5.00
Activities (# hours spent in extra-curriculars each week)	54	10.42	7.01	1.00	30.00
Activities (# hours spent working each week)	54	25.55	8.67	1.00	40.00
Activities (# hours spent socializing)	54	16.97	13.74	2.00	80.00
Perceived Social Support	54	5.59	1.07	2.50	7.00
Perceived Support from Faculty	54	3.34	.56	1.89	5.00
Perceived Support from Institution	54	2.81	.82	.64	4.25

Table 3

Intercorrelation Matrix for All Study Variables (n=297)

	GPA	Self-Efficacy	Motivation	Study Habits1	Study Habits2	Activities 1	Activities 2
GPA	---						
Self-Efficacy	.25**	---					
Motivation	.07	.34**	---				
Study Habits1	.13	.14*	.27**	---			
Study Habits6	.32**	.31**	.27**	.17*	---		
Activities1	.02	-.09	-.16*	.01	.10	---	
Activities2	-.03	-.04	-.04	-.19**	-.04	-.01	---
Activities3	-.11	-.02	-.06	-.02	-.05	.03	-.06
Perceived Social Support	.12	.28**	.17*	.12	.23**	.04	-.00
Perceived Faculty Support	.12*	.15*	.14*	-.08	.13	-.05	-.15*
Perceived Institutional Support	.12	.17*	.28**	-.05	.10	.01	-.10

Note. **p<.01, *p<.05

Activities 3	Perceived Social Support	Perceived Faculty Support	Perceived Institutional Support
---			
.06	---		
.04	.08	---	
-.04	.19**	.39**	---

With respect to data analyses, a one-way Analysis of Variance (ANOVA) was conducted to determine if any of the variables measured differed by gender. Particular attention was given to gender, as there were significantly more females than males in the study. In addition, prior research has noted gender differences when exploring college student achievement and academic self-efficacy in college students (Caskie, Sutton, & Eckhardt, 2014; Ehrmann & Massey, 2008).

Prior to conducting the ANOVA tests, Levene's statistics were run to determine any violations of homogeneity. None of the homogeneity tests ran demonstrated significance; therefore, none of the underlying assumptions were violated. In the one-way ANOVA analyses themselves, there was a significant difference by gender for self-efficacy (F (2,195) = 12.153, p = .001). The effect size was 0.059, indicating a medium effect size. Given that there was a significant difference found between gender groups for self-efficacy, gender was included as a predictor for specified analyses. No other variables demonstrated significant differences between gender groups. The aforementioned results are included in Table 4.

Table 4

Analyses of Variance for Self-Efficacy by Gender

	Sum of Squares	df	Mean Square	F
Between Groups	2.39	1	2.39	12.15**
Within Groups	37.93	193	.197	
	40.32	194		

**$p < 0.01$

Stepwise Regression Analyses

In order to examine the extent to which various combinations of variables (i.e., both internal and external) predicted college student achievement, stepwise regression analyses were conducted. The first two research questions focus on the extent to what degree each internal (i.e., motivation, self-efficacy and study habits), as well as the extent each external (i.e., participation in extracurricular activities and perceptions of support from significant others, university faculty, and the university organization as a whole), factors predicted student achievement.

Research Question 1: To what degree do intrapersonal/internal factors (motivation, self-efficacy, and study habits) predict college student achievement?

In examining whether a combination of internal factors (i.e., motivation, self-efficacy, and study habits) predicted college student achievement, a stepwise multiple regression analysis was utilized. As gender was a variable needing to control for, gender was also entered as a variable within the stepwise model. The subsequent individual, internal variables were entered (i.e., self-efficacy, motivation, daily amount of time spent on homework, as well as setting task priorities for homework). The overall model was found to be significant ($R^2 = .14$, $p < .000$), indicating that internal factors accounted for 14% of the variance when examining student achievement. Regarding the individual variables, the variables found to be significant within the model were self-efficacy ($\beta = .20$, $t = 2.41$, $p = .017$) and setting task priorities ($\beta = .20$, $t = 3.70$, $p < .001$). The remainder of the variables that were input in the stepwise multiple regression model were not found to be statistically significant. See Table 5.

Table 5

Stepwise Multiple Regression Analysis

Internal factors on student achievement

Predictor	B	SE B	β	t	p
Constant	2.37	.28		8.58	.000
Gender	.01	.07	.01	.12	.905
Self-efficacy	.17	.07	.18	2.41	.017
Motivation	-.04	.04	-.08	-1.02	.308
Amount of time spent on homework	.02	.02	.06	.81	.416
Setting task priorities	.11	.03	.27	3.70	.000

Note. R^2 =.135, (F =5.88, df = 189)

Research Question 2:

To what degree do external factors (family and peers support, support from faculty, extracurricular activities, and support services) predict college student achievement?

To examine the extent to which external factors contributed to student achievement, another stepwise multiple regression was completed. With inputting the variables of support from significant others, time spent in extracurricular activities, time spent working, time spent socializing, perceived support from faculty, and perceived organizational support, the model was not found to be significant (R^2 = .06, p = .009). Given that the external variables collectively accounted for 6% of the variance, they were not found to significantly predict college student

achievement. In addition, none of the variables were found to have any significance independently within the model. See Table 6.

Table 6

Stepwise Multiple Regression Analysis

External factors on student achievement

Predictor	B	SE B	β	t	p
Constant	2.70	.26		10.42	.000
Faculty support	.10	.05	.15	1.91	.057
Social support	.05	.03	.11	1.46	.146
Time spent in extra-curriculars	.00	.00	.03	.40	.691
Time spent working	-.00	.00	-.01	-.17	.866
Time spent socializing	-.00	.00	-.12	-1.67	.098
Organizational support	.02	.04	.04	.51	.608

Note. R^2 =.056, (F =1.86, df = 188)

Research Question 3:

What are the combined roles of internal and external systems on college student achievement?

In order to examine the entire ecological model, a hierarchical multiple regression was completed. As significant gender differences were found with respect to the self-efficacy variable, gender was used as a first predictor in the step-by-step analysis. For the second step, the internal variables (i.e., self-efficacy, motivation, and study habits), while the external variables (i.e., perceived social support, time spent in extracurricular activities, perceptions of faculty support, and perceptions of organizational support) were input for the third step.

The overall analysis revealed significance, as both the external and internal variables accounted for 16% of the variance for academic achievement ($R^2 = .16$, $p < .001$). For specific variables, again, self-efficacy ($\beta = .17$, $t = 2.15$, $p < .05$) and setting task priorities for homework ($\beta = .25$, $t = 3.35$, $p < .001$) were the only significant individual predictors for college student achievement. No other individual variables indicated significant prediction of college student achievement. In general, the overall model, with a combination of all variables, resulted in the greatest amount of variance for college student achievement, versus either all internal variables or all external variables alone. See table 7 for hierarchical multiple regression results.

Table 7

Hierarchical Multiple Regression Analysis

Combined role of internal and external factors on student achievement

Predictor	B	SE B	β	t	p
Constant	2.22	.34		6.45	.000
Step 1					
Gender	.00	.07	.00	.02	.984
Step 2					
Self-efficacy	.16	.07	.17	2.15	.033
Motivation	-.05	.04	-.10	-1.33	.187
Amount of time spent on homework	.02	.02	.07	1.02	.311
Setting task priorities	.10	.03	.25	3.35	.001
Step 3	.08	.05	.11	1.51	.135
Faculty support					
Social support	.00	.03	.00	.10	.922
Time Spent in extra-curricular activities	.00	.00	.00	.03	.979
Time spent working	.00	.00	.01	.17	.866
Time spent socializing	-.00	.00	-.10	-1.40	.162
Organizational support	.02	.04	.05	.69	.494

Note. $R^2 = .161$, ($F = 3.20$, df = 183)

Research Question 4: Specifically, do external factors moderate the relationship between intrapersonal/internal factors and overall college student achievement?

With respect to this particular research question, the overall hypothesis included that all environmental factors would moderate, to some degree, the relationships between the individual factors and college student achievement. Given that there were numerous environmental and individual factors, six additional hypotheses were engendered. For each hypotheses, a path analysis was run using AMOS. In addition to running the statistical analyses, parameters and model fit were also examined.

In examining model fit, according to recent research, it has been suggested that utilizing RMSEA to determine model fits in small samples (i.e., small degrees of freedom), may not be the most appropriate, as there is a propensity to encounter numbers larger than .10 (i.e., the cutoff) (Kenny, Kaniskan, & McCoach (2014). More specifically, .01 is considered to be an excellent fit, .05 a good fit, and .08 a mediocre fit (MacCallum, Browne, and Sugawara (1996). Moreover, according to Kenny, Kanishan, and McCoach (2014), utilizing CFI with small samples is more appropriate to determine the model fit. According to Hu and Bentler (1999), CFI's are less affected by sample size and models that are greater than 0.90 are considered to be a good fit (Bentler, 1990).

H4a: Social support will moderate the relation between self-efficacy and college student achievement. The association social support has with self-efficacy and its association with student achievement were examined. For this particular model, the RMSEA was .919, indicating that the model was not a good fit for the data. The CFI, however, was 1.00, indicating a good fit model for a smaller sample size, such as the sample size for this study. Social support was not found to significantly moderate the relationship between self-efficacy and college student

achievement (p = .865). See figure 1 below for the actual model and Table 8 for the results of the path analysis.

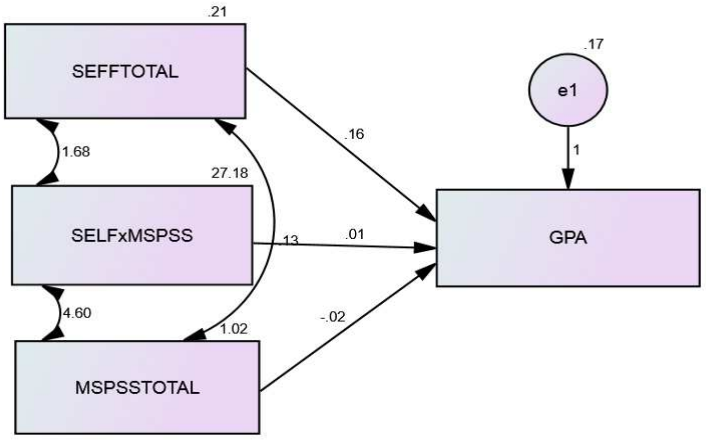

Figure 1. *Moderation Analysis- Path Analysis. Academic performance (GPA) and Self-Efficacy with Social Support as Moderator.* SEFF, Self-Efficacy; SELF, Self-Efficacy; MSPSS, Social Support; GPA, Grade Point Average.

Table 8

Moderation Analysis- Path Analysis

Academic performance (GPA) and Self-Efficacy as Moderated by Social Support

	Estimate	S.E.	C.R.	P
GPA←Self-Efficacy	.16	.40	.40	.690
GPA←Social Support	-.02	.26	-.08	.935
GPA←Self-Efficacy x Social Support	.01	.07	.17	.865

Note. ***$p < .001$; **$p < .01$; *$p < .05$

H4b: Faculty support will moderate the relation between self-efficacy and college student achievement. In examining the degree to which faculty support moderates the relationship between self-efficacy and student achievement, the results were not statistically significant (p = .555). In addition the model did not present a good fit, according to the RMSEA (RMSEA = .895). However, according to the CFI (CFI = 1.00), the model was a good fit, given the sample size. See figure 2 below for the specified model and table 9 for the path analysis results.

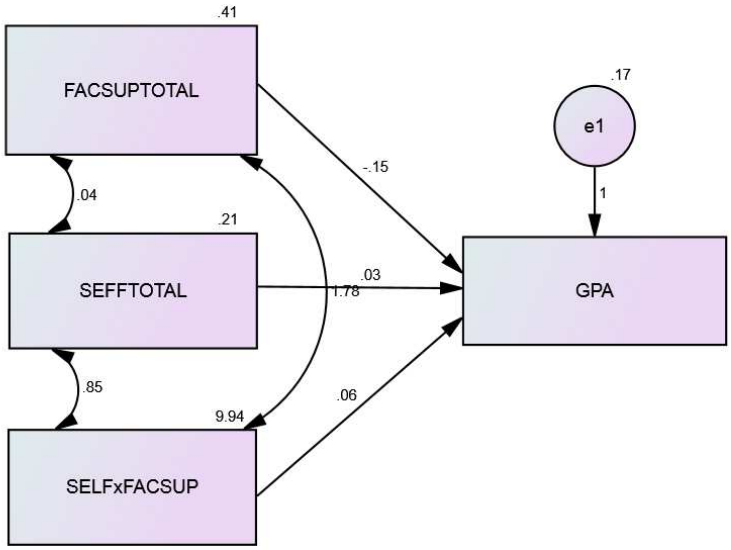

Figure 2. *Moderation Analysis- Path Analysis. Academic performance (GPA) and Self-Efficacy with Faculty Support as Moderator*. FACSUP, Faculty Support; SEFF, Self-Efficacy, SEFF, Self-Efficacy; GPA, Grade Point Average.

Table 9

Moderation Analysis- Path Analysis

Academic performance (GPA) and Self-Efficacy as Moderated by Faculty Support

	Estimate	S.E.	C.R.	P
GPA←Faculty Support	-.15	.40	-.36	.716
GPA←Self-Efficacy	.03	.33	.08	.937
GPA←Self-Efficacy x Faculty Support	.06	.10	.59	.555

Note. ***$p < .001$; **$p < .01$; *$p < .05$

H4c: University support will moderate the relation between self-efficacy and college student achievement. For the model examining the degree to which organizational support moderates the relationship between self-efficacy and student achievement, the model did not present a good fit, according to the RMSEA (RMSEA = .833). Yet, according to the CFI (CFI = 1.00), the model was a good fit, given the sample size. For the specific path analysis, the results were not statistically significant (p = .553). See figure 3 below for the specified model and table 10 for the path analysis results.

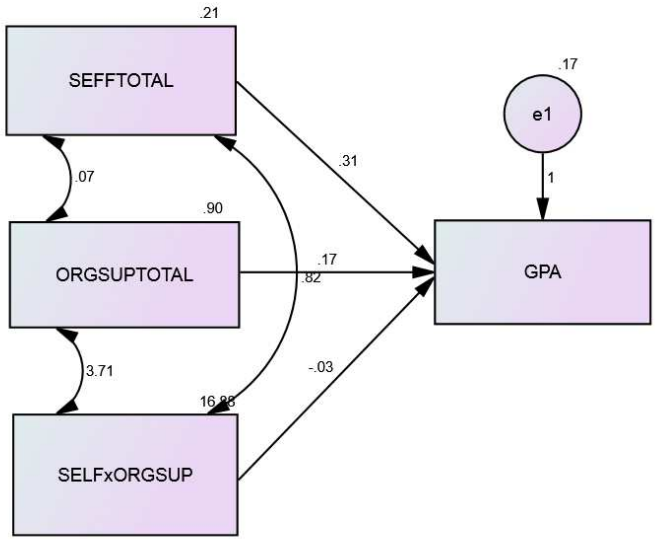

Figure 3. *Moderation Analysis- Path Analysis. Academic performance (GPA) and Self-Efficacy with Organizational Support as Moderator.* SEFF, Self-Efficacy; ORGSUP, Organizational Support; SELF, Self-Efficacy; GPA, Grade Point Average.

Table 10

Moderation Analysis- Path Analysis

Academic performance (GPA) and Self-Efficacy as Moderated by Organizational Support

	Estimate	S.E.	C.R.	P
GPA←Self-Efficacy	.31	.16	1.96	.050
GPA←Organizational Support	.17	.22	.76	.450
GPA←Self-Efficacy x Organizational Support	-.03	.06	-.59	.553

Note. ***$p < .001$; **$p < .01$; *$p < .05$

H4d: Social support will moderate the relation between motivation and college student achievement. The relationship social support has on motivation and its impact on student achievement were examined. For this particular model, the RMSEA was .884, indicating that the model was not a good fit. The CFI, however, was 1.00, indicating a good fit model for a smaller sample size. Social support was found to not significantly moderate the relationship between motivation and college student achievement (p = .220). See figure 4 below for the actual model and Table 11 for the results of the path analysis.

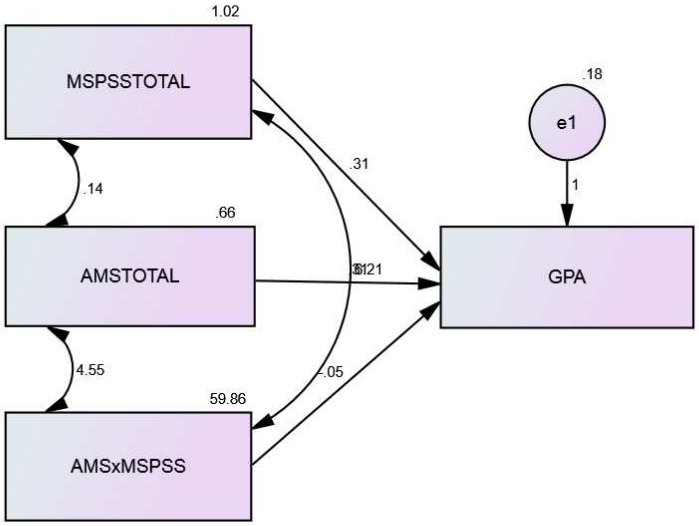

Figure 4. *Moderation Analysis- Path Analysis. Academic performance (GPA) and Motivation with Social Support as Moderator.* MSPSS; Social Support; AMS, Motivation; GPA, Grade Point Average.

Table 11

Moderation Analysis- Path Analysis

Academic performance (GPA) and Motivation as Moderated by Social Support

	Estimate	S.E.	C.R.	P
GPA←Social Support	.31	.22	1.43	.152
GPA←Motivation	.31	.28	1.32	.188
GPA←Motivation x Social Support	-.05	.04	-1.23	.220

Note. ***$p < .001$; **$p < .01$; *$p < .05$

H4e: Faculty support will moderate the relation between motivation and college student achievement. The degree to which faculty support moderates the relationship between motivation and student achievement was examined. Faculty support was found to not significantly moderate the relationship between motivation and college student achievement (p = .277). For this particular model, the RMSEA was .836, indicating that the model was not a good fit. The CFI, however, was 1.00, indicating a good fit model for a smaller sample size. See figure 5 below for the actual model and Table 12 for the results of the path analysis.

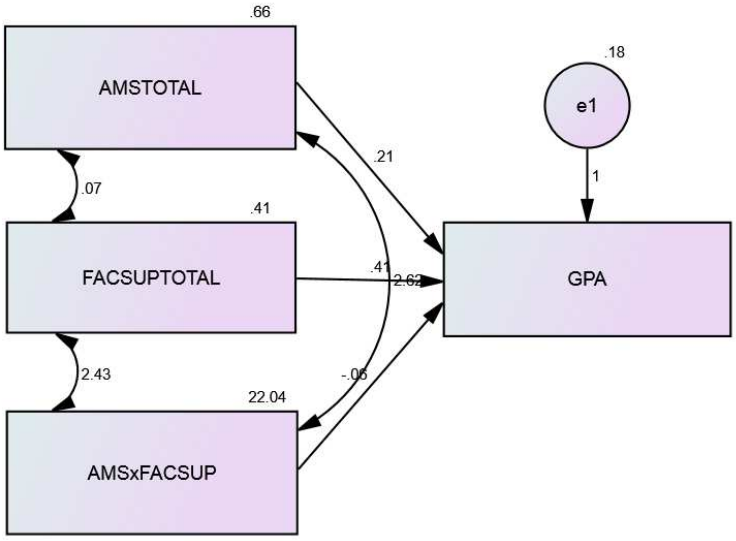

Figure 5. *Moderation Analysis- Path Analysis. Academic performance (GPA) and Motivation with Faculty Support as Moderator*. AMS, Motivation; FACSUP, Faculty Support; GPA, Grade Point Average.

Table 12

Moderation Analysis- Path Analysis

Academic performance (GPA) and Motivation as Moderated by Faculty Support

	Estimate	S.E.	C.R.	P
GPA←Motivation	.21	.18	1.19	.234
GPA←Faculty Support	.41	.28	1.46	.145
GPA←Motivation x Faculty Support	-.06	.05	-1.09	.277

Note. ***$p < .001$; **$p < .01$; *$p < .05$

H4f: University support will moderate the relation between motivation and college student achievement. The relationship between organizational support and motivation, and its impact on student achievement was examined. Organizational support was not found to significantly moderate the relationship between motivation and college student achievement (p = .272). For this particular model, the RMSEA was .836, indicating that the model was not a good fit. The CFI, however, was 1.00, indicating a good fit model for a smaller sample size. See figure 6 below for the actual model and Table 13 for the results of the path analysis.

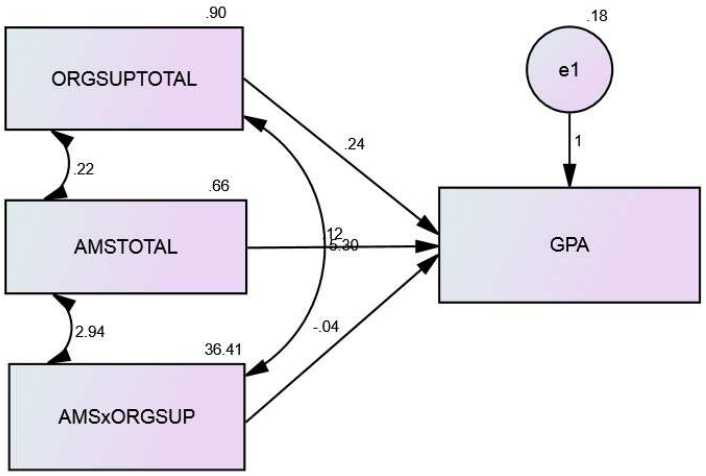

Figure 6. *Moderation Analysis- Path Analysis. Academic performance (GPA) and Motivation with Organizational Support as Moderator*. ORGSUP, Organizational Support; AMS, Motivation; GPA, Grade Point Average.

Table 13

Moderation Analysis- Path Analysis

Academic performance (GPA) and Motivation as Moderated by Organizational Support

	Estimate	S.E.	C.R.	P
GPA←Organizational Support	.24	.18	1.37	.171
GPA←Motivation	.12	.10	1.19	.235
GPA←Motivation x Organizational Support	-.04	.03	-1.10	.272

Note. ***$p < .001$; **$p < .01$; *$p < .05$

Research Question 5: What is the role of extracurricular activities? Specifically, do extracurricular activities moderate the relationship between study habits and college student achievement?

For this particular research question, the overall hypothesis was that all time spent engaged in extra-curricular activities would moderate, to some degree, the relationships between study habits (i.e., time spent on homework and setting task priorities for assignments) and college student achievement. Six additional hypotheses were engendered, given that there are two domains for study habits, as well as three possibilities for extra-curricular activities (i.e., organized activities, work, and socialization). For each hypotheses, a path analysis was run through AMOS. In conjunction with running the aforementioned statistical analyses, parameters and model fit were also examined. For the model fit, as stated previously, CFI will be preferred to examine over RMSEA, given the small sample size for this study (Kenny et al., 2014). Yet, RMSEA values will still be reported.

H5a: *Time spent in organized extra-curricular activities will moderate the relation between time spent on homework and college student achievement.* The extent to which time spent engaged in organized extra-curricular activities affected the relationship between time spent on homework and college student achievement was examined. Time spent in organized extra-curricular activities was found to not significantly moderate the relationship between motivation and college student achievement ($p = .759$). For this particular model, the RMSEA was .064, indicating that the model was a good to moderate fit. The CFI, however, was 1.00, indicating a good fit model for a smaller sample size. See figure 7 below for the actual model and Table 13 for the results of the path analysis.

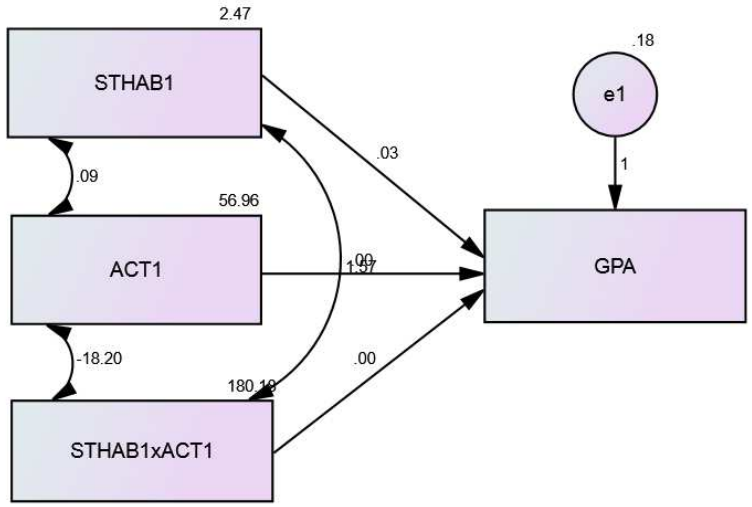

Figure 7. *Moderation Analysis- Path Analysis. Academic performance (GPA) and Study Habits (time spent on homework) with Activity involvement (time spent in extra-curricular activities) as Moderator.* ACT1, Time Spent in Extracurricular Activities; STHAB1, Time Spent on Homework; GPA, Grade Point Average.

Table 14

Moderation Analysis- Path Analysis

Academic performance (GPA) and Study Habits (time spent on homework) as Moderated by Time Spent in Extra-Curricular Activities (time spent in organized extra-curricular activities)

	Estimate	S.E.	C.R.	P
GPA←Time Spent on Homework	.04	.02	1.78	.075
GPA←Time Spent in Extra-curricular Activities	.00	.00	.23	.820
GPA← Time Spent on Homework x Time Spent in Extra-curricular Activities	-.00	.00	-.31	.759

Note. ***p < .001; **p < .01; *p < .05

H5b: Time spent working will moderate the relation between time spent studying and college student achievement. The relationship between time spent on homework and college student achievement was examined as well as the degree to which time spent working would moderate this relationship. With respect to model fit, the RMSEA was .075, indicating that the model was a moderate fit. The CFI, however, was 1.00, indicating a good fit model for a smaller sample size. Time spent in organized extra-curricular activities was found to not significantly moderate the relationship between motivation and college student achievement ($p = .528$). See figure 8 below for the actual model and Table 15 for the results of the path analysis.

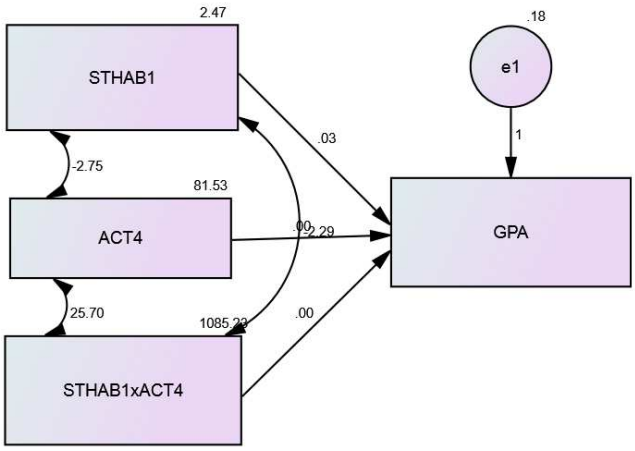

Figure 8. *Moderation Analysis- Path* Analysis. Academic *performance (GPA) and Study Habits (time spent on homework) with Activity Involvement (time spent working) as Moderator*. STHAB1, Time Spend on Homework; ACT4, Time Spent Working; GPA, Grade Point Average.

Table 15

Moderation Analysis- Path Analysis

Academic performance (GPA) and Study Habits (time spent on homework) as Moderated by Time Spent in Extra-Curricular Activities (time spent working)

	Estimate	S.E.	C.R.	P
GPA←Time Spent on Homework	.03	.02	1.73	.084
GPA←Time Spent Working	-.00	.00	-.16	.875
GPA← Time Spent on Homework x Time Spent in Working	.00	.00	.63	.528

Note. ***p < .001; **p < .01; *p < .05

H5c: Time spent engaged in social activities will moderate the relation between time spent on homework and college student achievement. The degree to which time spent engaged in social activities moderates the relationship between time spent on homework and college student achievement was examined. For the model fit, the RMSEA was .027, indicating that the model was an excellent to good. The CFI was 1.00, indicating a good fit model for a smaller sample size. In all, time spent in organized extra-curricular activities was not found to significantly moderate the relationship between motivation and college student achievement ($p = .569$). See figure 9 below for the actual model and Table 16 for the results of the path analysis.

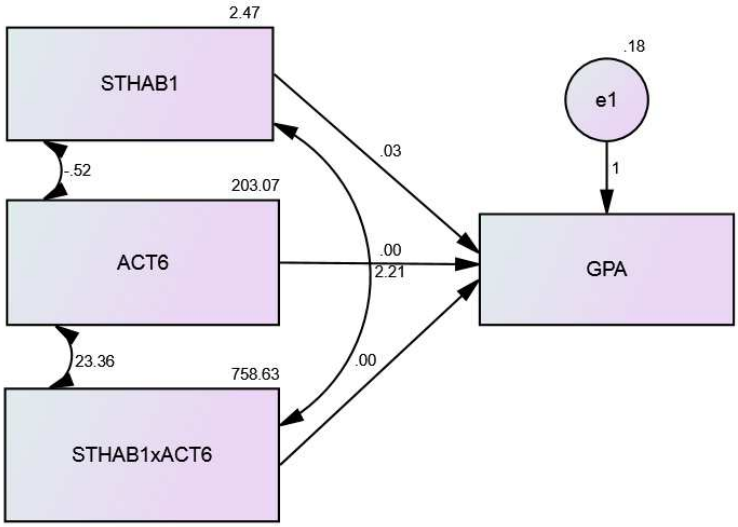

Figure 9. *Moderation Analysis- Path* Analysis. Academic *performance (GPA) and Study Habits (setting task priorities) with Activity Involvement (time spent in social activities) as Moderator*. STHAB1, Setting Task Priorities; ACT6, Time Spent in Social Activities; GPA, Grade Point Average.

Table 16

Moderation Analysis- Path Analysis

Academic performance (GPA) and Study Habits (setting task priorities) as Moderated by Time Spent in Extra-Curricular Activities (time spent in social activities)

	Estimate	S.E.	C.R.	P
GPA←Setting Task Priorities	.03	.02	1.71	.087
GPA←Time Spent Socializing	-.00	.00	-1.49	.137
GPA← Setting Task Priorities x Time Spent Socializing	.00	.00	.57	.569

Note. ***p < .001; **p < .01; *p < .05

H5d: Time spent in organized extra-curricular activities will moderate the relation between setting task priorities and college student achievement. The extent to which time spent engaged in organized extra-curricular activities affected the relationship between setting task priorities and college student achievement was examined. Time spent in organized extra-curricular activities was found to not significantly moderate the relationship between motivation and college student achievement (p = .332). For this particular model, the RMSEA was .156, indicating that the model was not a good fit. The CFI, however, was 1.00, indicating a good fit model for a smaller sample size. See figure 10 below for the actual model and Table 17 for the results of the path analysis.

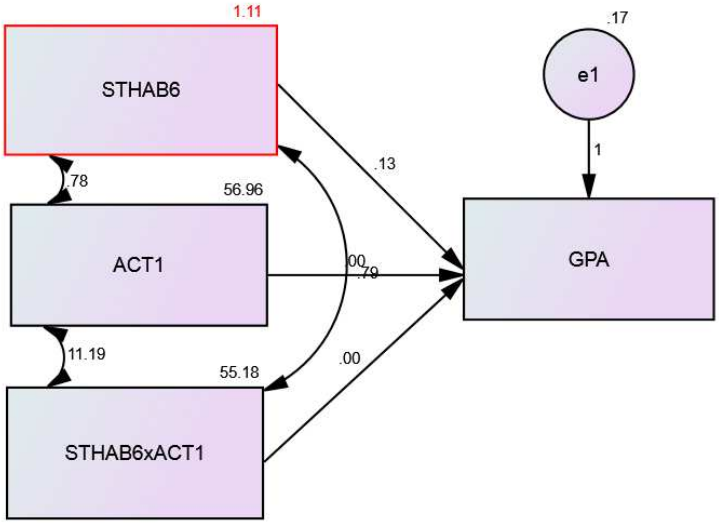

Figure 10. *Moderation Analysis- Path Analysis. Academic performance (GPA) and Study Habits (setting task priorities) with Activity involvement (time spent in extra-curricular activities) as Moderator.* STHAB6, Setting Task Priorities; ACT1, Time Spend in Extracurricular Activities; GPA, Grade Point Average.

Table 17

Moderation Analysis- Path Analysis

Academic performance (GPA) and Study Habits (setting task priorities) as Moderated by Time Spent in Extra-Curricular Activities (time spent in organized extra-curricular activities)

	Estimate	S.E.	C.R.	P
GPA←Setting Task Priorities	.13	.03	4.74	***
GPA←Time Spent in Extra-curricular Activities	-.00	.00	-.35	.728
GPA← Setting Task Priorities x Time Spent in Extra-curricular Activities	-.00	.00	.97	.332

Note. ***p < .001; **p < .01; *p < .05

H5e: Time spent working will moderate the relation between setting task priorities and college student achievement. The relationship between setting task priorities and college student achievement was examined as well as the degree to which time spent working would moderate this relationship. With respect to model fit, the RMSEA was .156, indicating that the model was not a good fit. The CFI, however, was 1.00, indicating a good fit model for a smaller sample size. Time spent in organized extra-curricular activities was found to not significantly moderate the relationship between motivation and college student achievement (p = .908). See figure 11 below for the actual model and Table 18 for the results of the path analysis.

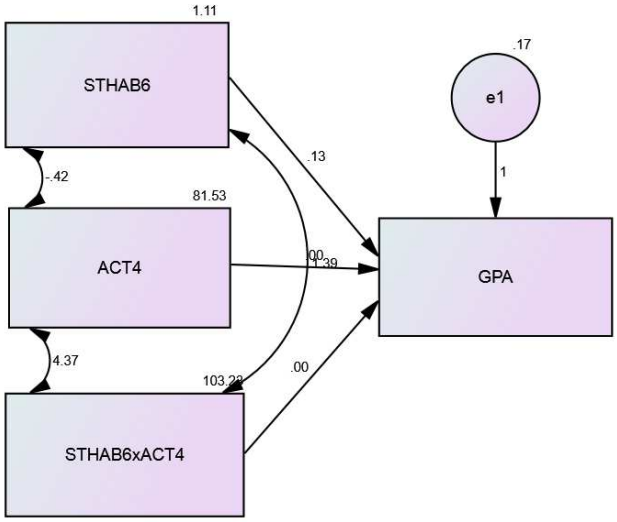

Figure 11. *Moderation Analysis- Path Analysis. Academic performance (GPA) and Study Habits (setting task priorities) with Activity Involvement (time spent working) as Moderator*. STHAB6, Setting Task Priorities; ACT4, Time Spent Working; GPA, Grade Point Average.

Table 18

Moderation Analysis- Path Analysis

Academic performance (GPA) and Study Habits (setting task priorities) as Moderated by Time Spent in Extra-Curricular Activities (time spent working)

	Estimate	S.E.	C.R.	P
GPA←Setting Task Priorities	.13	.03	4.61	***
GPA←Time Spent Working	-.00	.00	-.26	.799
GPA← Setting Task Priorities x Time Spent in Working	.00	.00	-.12	.908

Note. ***p < .001; **p < .01; *p < .05

H5f: Time spent engaged in social activities will moderate the relation between setting task priorities and college student achievement. The degree to which time spent engaged in social activities moderates the relationship between setting task priorities and college student achievement was examined. For the model fit, the RMSEA was .124, indicating that the model was not a good fit. Yet, the CFI was 1.00, indicating a good fit model for a smaller sample size. In all, time spent in organized extra-curricular activities was not found to significantly moderate the relationship between motivation and college student achievement (p = .574). See figure 12 below for the actual model and Table 19 for the results of the path analysis.

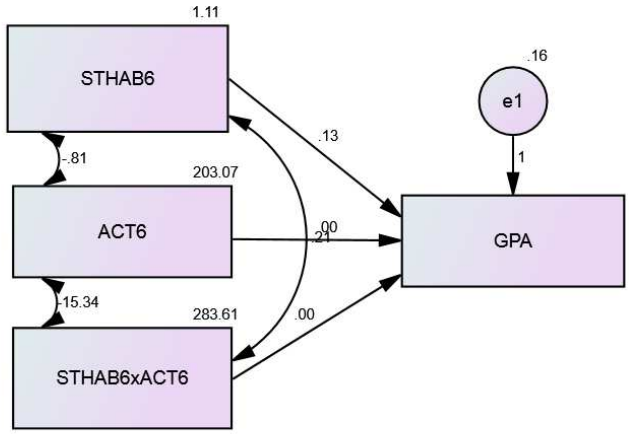

Figure 12. *Moderation Analysis- Path Analysis. Academic performance (GPA) and Study Habits (setting task priorities) with Activity Involvement (time spent in social activities) as Moderator.* STHAB6, Setting Task Priorities; ACT6, Time Spent in Social Activities; GPA, Grade Point Average.

Table 19

Moderation Analysis- Path Analysis

Academic performance (GPA) and Study Habits (setting task priorities) as Moderated by Time Spent in Extra-Curricular Activities (time spent in social activities)

	Estimate	S.E.	C.R.	P
GPA←Setting Task Priorities	.13	.03	4.60	***
GPA←Time Spent Socializing	-.00	.00	-1.34	.179
GPA← Setting Task Priorities x Time Spent Socializing	-.00	.00	-.56	.574

Note. ***p < .001; **p < .01; *p < .05

Research Question 6: What role does self-efficacy play? Specifically, does self-efficacy moderate the relationship between motivation and college student achievement?

Self-efficacy was examined as a moderator for the relationship between motivation and college student achievement. A path analysis using AMOS was conducted. While running path analysis parameters, the model appeared to be a good fit with respect to the comparative fit index (CFI = 1.00) and chi-square (CMIN = .00). The root mean square error approximate (RMSEA) did not indicate that the model was a good fit, however (RMSEA = .192). Again, RMSEA may not be the best indicator of fit, as CFI for smaller samples is more appropriate (Kenny, Kaniskan, & McCoach, 2014). In examining the analysis, self-efficacy did not appear to be a significant moderator with respect to moderating the relationship between motivation and college student

achievement ($p = .84$). See Table 20 for the results of the path analysis, as well as figure 13 the graphic representation.

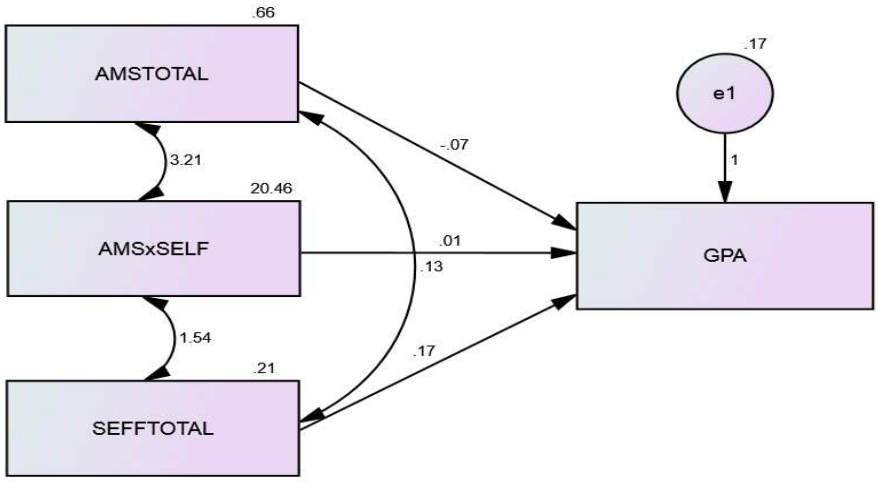

Figure 13. *Moderation Analysis- Path Analysis. Academic performance (GPA) and Motivation with Self-efficacy as Moderator*. AMS, Motivation; SELF, Self-Efficacy; SEFF, Self-Efficacy; GPA, Grade Point Average.

Table 20

Moderation Analysis- Path Analysis

Academic performance (GPA) and Motivation as Moderated by Self-efficacy

	Estimate	S.E.	C.R.	P
GPA←Motivation	-.07	.28	-.25	.804
GPA←Self-Efficacy	.17	.36	.47	.637
GPA←Motivation x Self-Efficacy	.02	.07	.21	.837

Note. ***$p < .001$; **$p < .01$; *$p < .05$

A posteriori analyses

After examining the aforementioned research questions for the emerging adult sample, examining predictors of college student achievement for the entire original sample was conducted to denote any potential differences. When utilizing the original sample, which involved students 18 to 62 years of age, the overall analysis revealed significance, as both the external and internal variables accounted for 17% of the variance for academic achievement ($R^2 = .17$, $p < .001$). For specific variables, similar to the emerging adult sample, self-efficacy ($\beta = .20$, $t = 2.39$, $p < .005$) and setting task priorities for homework ($\beta = .23$, $t = 3.37$, $p = .001$) were significant. However, contrary to the emerging adult sample, faculty support ($\beta = .15$, $t = 2.21$, $p < .05$) was found to also be a significant predictor of college student achievement in the original sample. See table 21 for the a posteriori hierarchical multiple regression results.

Table 21

A posteriori Hierarchical Multiple Regression Analysis:

Combined role of internal and external factors on student achievement

Predictor	B	SE B	β	t	p
Constant	2.12	.31		6.89	.000
Step 1					
Gender	.00	.06	.00	.06	.955
Step 2					
Self-efficacy	.19	.07	.20	2.39	.004
Motivation	-.06	.04	-.11	-1.54	.124
Amount of time spent on homework	-.02	.01	-.10	-1.50	.135
Setting task priorities	.09	.03	.23	3.37	.001
Step 3					
Faculty support	.10	.04	.15	2.21	.028
Social support	.04	.03	.10	1.50	.135
Time Spent in extra-curricular activities	.00	.00	.00	.05	.958
Time spent working	-.00	.00	-.04	-.61	.546
Time spent socializing	-.00	.00	-.09	-1.53	.128
Organizational support	-.01	.03	-.03	-.39	.700

Note. R^2 =.169, (F =4.25, df = 241)

CHAPTER V

DISCUSSION

College is a critical period of time for many emerging adults. Prior research has indicated that unsuccessful college experiences have a propensity to lead to increases in dropout and/or temporary discontinuation (Arnett, 2004). Given that this a critical time, in conjunction with a heightened desire for students to be more successful in college, achievement has been of great interest to researchers, educators, and other professionals. Student achievement in college leads to increased levels of productivity, career development, and helps to enhance individual's views of themselves, including their self-perceived capabilities (Arnett, 2004; 2006; Bandura, 1986). In general, all of the aforementioned, adaptive outcomes of achievement lead to enhanced societal contributions as a whole.

Although student achievement has been a focal point of much research and societal attention, much of the prior research has focused on achievement variables in isolation. As development and behavior do not occur in a vacuum, but are rather transactional and dynamic in nature (Lerner 1996; Sameroff, 2000), it is important to examine individuals within nested contexts (Bronfenbrenner, 1977 1979; 2005). Based on the prior theoretical underpinnings and research, the purpose of this study was to further examine variables, within a contextual framework, which help to enhance student achievement. The variables chosen were based on research and theory, as well as the notion that they are malleable, which lends them to being more susceptible to intervention.

The variables that were selected for this study were those that are part of individual's cognitions and behaviors, as well as variables that occur within and throughout individuals' contexts. Many prior studies have concluded, including through meta-analyses, that multiple,

individual variables, such as motivation, self-efficacy, social support, social involvement, and academic skills, among others, contribute to student success and retention (Robbins at al., 2004). Moreover, other research regarding external variables has indicated that socialization and perceived supports have been found to be linked with student outcomes, as well as internal factors, such as self-efficacy, dedication, distress, and motivation (Chemers, Hu, & Garcia, 2001; Dennis, Phinney, & Chuateco, 2005).

Although this study posited to examine multiple, contextual, dynamic factors impacting student achievement, self-efficacy and self-directed study skills, such as setting task priorities, were found to be the most significant predictors of student achievement. Studies have also shown that additional executive functioning skills, in conjunction with planning and organizing, are supportive with respect to student achievement in both children and adults (Barkley & Fischer, 2011). Other studies have found that self-efficacy mediates the relationship of many variables on student achievement (Hoigaard, Kovac, Overby, & Haugen, 2014). However, many of the variables that were proposed to potentially moderate various associations with student achievement were not found to significantly do so for this sample of emerging adults. Despite non-significant findings, there was a sound theoretical and empirical rationale for this model, which was more complex in variable inclusion and statistical analyses than many prior. Thus, it may be interpreted that despite the merit of the proposed model, those variables do not interact in the way proposed, and the results clearly reveal that self-efficacy and prioritizing study habits emerged as strongest even in the presence of the other factors. However, it was also interesting to note, though, that when older students were included in the sample, the entire model demonstrated that faculty support was actually a significant predictor of student achievement, as were both self-efficacy and self-directed study habits.

With respect to the results and implications for the emerging adult population, it is important to note the significant role of both self-efficacy and self-directed study habits had in student achievement. This is consistent with prior research, which has recognized the importance of self-efficacy as a strong predictor of student achievement across many student ages (Cassidy & Eachus, 2000; Hsieh, Sullivan, & Guerra, 2007; Robbins et al., 2004; and Schunk, 1989). Furthermore, research has also noted the importance of self-directed study habits (Proctor et al., 2006; Rau & Durand, 2000; Robbins et al., 2004). In addition, longitudinal research has indicated that quality, rather than quantity of homework and other school-related work production is important with respect to student success (Rau & Durand, 2000). Prior research has also found that lack of student success has been directly linked to self-directed behavior (Balduf, 2009). The current results support these findings in an emerging adult college-aged sample, as well as the full sample that included both traditional 18-25 year olds and nontraditional older bachelor's level students.

Limitations and Future Directions

Regarding limitations for this study, one limitation was the smaller sample size. The study originally had 242 participants; however, this specific research was examining emerging adulthood and 47 of the participants were older. Variations were noted in responses of younger versus older students, which warrants further examination. Presently, college students vary across a wide portion of the developmental continuum and age range. For example, one third of college students now are over the age of 25 (National Student Clearinghouse, 2012). Moreover, much older adults are increasingly attending college (Scala, 1996). This is important to consider when we examine the "21st century college student" (National Student Clearinghouse, 2012).

The sample also included more females than males, which even though gender differences were accounted for, it is hoped that future research could include a more evenly dispersed sample. In addition, the sample involved students from one urban university. In the future, it will be beneficial to extend research to other institutions, including rural and urban settings.

Other limitations included utilizing self-report measures. As a result, some questions were left blank. Additionally, it is feasible that some questions were filled out incorrectly, given some of the examiner's responses, such as inconsistencies in response set. Furthermore, students self-reported grade point averages, which may have led to estimations. Grade point averages can be subjective, vary by school, vary by department, vary by class, etc. Future research may wish to explore other options such as GPA within one's major, GPA in most recent semester, etc., and not only cumulative GPA.

Implications for Practitioners and Future Educators

This study highlighted two key pieces in the puzzle to potentially unlocking student achievement in college—self-efficacy and setting task priorities. Each involves cognitive-behavioral and executive processes, respectively. It is important for educators and practitioners to understand how important student self-efficacy, or their own perceived self-capability, is in their achievement. For the future, it may be beneficial to explore ways that school cultures and relationships can help foster students' perceptions of their perceived capabilities. As we know, intelligence does not predict achievement well (Gresham & Vellutino, 2010; Stuebing et al., 2009). Given this aforementioned researched notion, it is important to understand what practitioners and educators can do to help foster achievement in individuals, as well as what practitioners and educators can do to help empower the individuals to help be successful in their

academic journey. This is especially salient when considering the number of undergraduate college students who struggle with the developmental transition, socially and/or academically, to college, some of whom even fail and drop out. This has implications for both the university environment and for those working at the high school level to prepare adolescents for this critical life transition.

With respect to self-efficacy, supporting students' goal orientation and perseverance can help support student self-efficacy (Komarraju & Nadler, 2013). Researchers have also suggested that educators become more aware of students' personality traits to help enhance students' self-esteem and self-efficacy (Di Giunta et al., 2013), and this applies at both the high school and college levels. Thus, building relationships with students would likely assist in enhanced communication, while creating avenues to help support students with goal-setting, perseverance, and self-esteem. This would also be in addition to enhancing overall self-efficacy. Further, this would likely help support school belongingness, which also has been shown to lead to improved academic outcomes for students (Voelkl, 2010). Helping enhance student self-efficacy would also likely support both homework performance and academic achievement (Kitsantas & Zimmerman, 2009).

In conjunction with examining ways to help support self-efficacy, it would also likely benefit educators and practitioners to examine ways to help support organizational, sequencing, and planning strategies for students to help scaffold their skills with setting task priorities. It is clear that executive functioning skills, such as self-monitoring, planning, and organizing, are rather important skills when considering student achievement (Roebers, Cimeli, Rothlisberger, & Neuenschwander, 2012). As many of these skills are important within the educational context,

explicit teaching of organizing and planning regarding tasks would likely benefit many students, again both at the high school and college levels.

Research has also shown that with respect to student executive functioning, continuous dialogue with constructive feedback has been supportive of student outcomes. In addition, explicit teaching in self-instruction and problem solving, while helping direct students to their performance and outcomes, have been shown to help students be increasingly successful as well (Miranda, Presentacion, Siegenthaler, & Jara, 2011). Moreover, other research has shown that different aspects of executive functioning training through electronics, such as games, has been helpful to support childrens' development and outcomes as well (Van Der Oord, Ponsioen, Geurts, Ten Brink, & Prins, 2014). Fostering perceptions and increasing motivation with respect to homework and its importance would also likely be beneficial to help enhance executive functioning capacity in individuals (Kitsantas & Zimmerman, 2009).

Even though self-efficacy and setting task priorities with homework were found to be significant predictors in this study, it is important to note that there are other factors that should not be discounted by educational professionals. For example, other studies have shown the importance of motivation and other skills involving executive functioning as they relate to student achievement (Hong, Peng, & Rowell, 2009). Further, these other important factors have been shown to interface with homework completion and self-efficacy as well (Hong et al., 2009; Kitsantas & Zimmerman, 2009). In conclusion, the results of this study confirm those of others and add to the literature by showing that even in a more complex model of predictors of emerging adults' college academic success, self-efficacy and prioritizing study habits reigned as most powerful. This has direct implications, as discussed above, for prevention and intervention.

APPENDIX A

1) What is your university status? (please circle one.)

Freshman Sophomore Junior Senior Post-Bachelor's Graduate

2) What is your age? _____

3) What is your sex? (please circle one.) MALE FEMALE

4) What is your ethnicity? (please circle one.)

African-American Hispanic Caucasian Asian-American Other

5) Where do you currently live? (please circle one.)

On-campus Off-campus with a parent or relative Off-campus by self or with roommate

6) What is your current, overall GPA (grade point average)? _____

**** AMS- Achievement-Motivation Scale (Vallerand, R.J., Briere, N.M., & Pelletier, L.G. (1989).**

Using the scale below, indicate to what extent each of the following items presently corresponds to one of the reasons why you go to college.

Does not correspond at all	Corresponds a little		Corresponds moderately	Corresponds a lot		Corresponds exactly
1	2	3	4	5	6	7

WHY DO YOU GO TO COLLEGE?

---

1. Because with only a high-school degree I would not find a high-paying job later on

1 2 3 4 5 6 7

2. Because I experience pleasure and satisfaction while learning new things.

1 2 3 4 5 6 7

3. Because I think that a college education will help me better prepare for the career I have chosen.

1 2 3 4 5 6 7

4. For the intense feelings I experience when I am communicating my own ideas to others.

1 2 3 4 5 6 7

5. Honestly, I don't know; I really feel that I am wasting my time in school.

1 2 3 4 5 6 7

6. For the pleasure I experience while surpassing myself in my studies.

1 2 3 4 5 6 7

7. To prove to myself that I am capable of completing my college degree.

1 2 3 4 5 6 7

8. In order to obtain a more prestigious job later on.

1 2 3 4 5 6 7

9. For the pleasure I experience when I discover new things never seen before.

1 2 3 4 5 6 7

10. Because eventually it will enable me to enter the job market in a field that I like.

1 2 3 4 5 6 7

11. For the pleasure that I experience when I read interesting authors.

1 2 3 4 5 6 7

12. I once had good reasons for going to college; however, now I wonder whether I should continue.

1 2 3 4 5 6 7

13. For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments.

1 2 3 4 5 6 7

14. Because of the fact that when I succeed in college I feel important.

1 2 3 4 5 6 7

15. Because I want to have "the good life" later on.

1 2 3 4 5 6 7

16. For the pleasure that I experience in broadening my knowledge about subjects which appeal to me.

1 2 3 4 5 6 7

17. Because this will help me make a better choice regarding my career orientation.

1 2 3 4 5 6 7

18. For the pleasure that I experience when I feel completely absorbed by what certain authors have written.

1 2 3 4 5 6 7

19. I can't see why I go to college and frankly, I couldn't care less.

1 2 3 4 5 6 7

20. For the satisfaction I feel when I am in the process of accomplishing difficult academic activities.
1 2 3 4 5 6 7

21. To show myself that I am an intelligent person.

1 2 3 4 5 6 7

22. In order to have a better salary later on.

1 2 3 4 5 6 7

23. Because my studies allow me to continue to learn about many things that interest me.

1 2 3 4 5 6 7

24. Because I believe that a few additional years of education will improve my competence as a worker.
1 2 3 4 5 6 7

25. For the "high" feeling that I experience while reading about various interesting subjects.

1 2 3 4 5 6 7

26. I don't know; I can't understand what I am doing in school.

1 2 3 4 5 6 7

27. Because college allows me to experience a personal satisfaction in my quest for excellence in my studies.

1 2 3 4 5 6 7

28. Because I want to show myself that I can succeed in my studies.

1 2 3 4 5 6 7

**** SELF-EFFICACY FOR LEARNING FORM (SELF) (Zimmerman, B.J., & Kitsantas, A., 2005)**

---

1 = Definitely **cannot** do it

2 = Probably **cannot** do it
3 = Maybe
4 = Probably **can** do it
5 = Definitely **can** do it

Choose a number (1-5 from above) to indicate your answer

_____ 1. When you notice you are having trouble concentrating on a reading assignment, can you refocus your attention and learn the material? (R)

_____ 2. When you don't understand a paragraph you have just read, can you clarify it by careful rereading? (R)
_____3. When you have trouble recalling key facts in a reading assignment, can you find a way to remember all of these two weeks later? (R)

_____4. When you have trouble remembering complex definitions from a textbook, can you redefine them so that you will recall them? (S)

_____5. When you feel very anxious before taking a test, can you remember all the material you studied? (T)

_____6. When you have tried unsuccessfully to study for an hour, can you set and attain an important study goal during your remaining time? (S)

_____7. When you are given an extensive reading assignment to cover before class the next day, can you set aside enough time in your schedule to finish it? (R)

_____ 8. When you don't understand your teacher, can you ask the right question to clarify matters? (N)

_____ 9. When your teacher gives a rambling disorganized lecture, can you reorganize and rewrite your notes before the next class meeting? (N)

_____10. When you find your homework assignments vary greatly in length each day, can you adjust your time schedule to complete them? (S)

_____11. When you notice that your notes are much less complete than another student's, can you write down all the teacher's points during the next lecture? (N)
_____12. When you notice that you are getting behind in your homework during the week, can you catch up during the next weekend? (S)

_____13. When another student asks you to study together for a course in which you are experiencing difficulty, can you be an effective study partner? (S)

_____14. When you have missed several classes, can you make up the work within a week? (S)

_____15. When you find the assignment you are reading doesn't make sense, can you interpret it by using text clues, such as headings or italics? (R)

_____16. When you miss a class, can you find another student who can explain the lecture notes as clearly as your teacher did? (N)

_____17. When problems with friends and peers conflict with school work, can you keep up with your assignments? (S)

_____18. When the assigned reading is boring, can you find a way to motivate yourself to learn it fully? (R)

_____19. When a homework assignment, such as learning vocabulary words, is repetitive and uninteresting, can you make it into an exciting challenge? (S)

_____20. When an assigned reading is poorly written, can you figure out its meaning so you can explain it well on an essay test? (R)

_____21. When a teacher's lecture is over your head, can you find a way to get the information clarified before the next class meeting? (N)

_____22. When your teacher's lecture is very complex, can you write an effective summary of your original notes before the next class? (N)

_____23. When you are having trouble understanding assigned reading material, can you find a classmate who can explain everything clearly to you? (R)

_____24. When you feel moody or restless during studying, can you focus your attention well enough to finish your assigned work? (S)

_____25. When you are trying to understand a new topic, can you associate new concepts with old ones sufficiently well to remember them? (S)

_____26. When a lecture is especially boring, can you motivate yourself to keep good notes? (N)

_____27. When you are having trouble comprehending a reading assignment, can you find key sentences that will help you understand each paragraph? (R)

_____28. When you have to take a test in a school subject you dislike, can you find a way to motivate yourself to earn a good grade? (T)

_____29. When you have time available between classes, can you motivate yourself to use it for studying? (S)

_____ 30. When you had trouble understanding your instructor's lecture, can you clarify the confusion before the next class meeting by comparing notes with a classmate?
(N)

_____31. When you feel anxious during an exam and have trouble controlling information, can you relax and concentrate well enough to remember it? (T)

_____32. When you are feeling depressed about a forthcoming test, can you find a way to motivate yourself to do well? (T)

_____33. When you are tired, but have not finished writing a paper, can you find a way to motivate yourself until it is completed? (W)

_____34. When you suddenly realize that you can't remember any material you have read during the last half hour, can you create self-questions to help you review the material successfully? (R)

_____35. When you find yourself putting off writing of an assigned paper, can you motivate yourself to begin the task immediately? (W)

_____36. When you have trouble recalling an abstract concept, can you think of a good example that will help you remember it on a test? (T)

_____37. When your friends want to see a movie when you need to study for a test, can you find a way to decline without offending them? (T)

_____38. When your last test results were poor, can you figure out potential questions before the next test that will improve your score greatly? (T)

_____39. When you are taking a course covering a huge amount of material, can you condense your notes down to just the essential facts? (N)

_____40. When you find yourself getting increasingly behind in a new course, can you increase your study time sufficiently to catch up? (S)

_____41. When you are struggling to remember technical details of a concept for a test, can you find a way to associate them together that will ensure recall? (T)

_____42. When your teacher lectures so rapidly you can't write everything down, can you record all the important points in your notes? (N)

_____43. When you are angry about a course because of a teacher's demanding requirements, can you find a way to channel your anger to help you succeed? (S)

_____44. When your concentration wanders while writing an important paper, can you refocus it sufficiently to finish the paper on time? (W)

_____45. When describing a complex principle in a written paper, can you create an analogy that a reader will understand? (W)

_____46. When you find that your first draft of a paper is wordy, ungrammatical, or confusing, can you revise it so that it is completely clear and grammatical? (W)

_____47. When you are asked to write a concise, well-organized paper over night, can you find a way to do it? (W)

_____48. When you are dissatisfied with an important paper you are writing, can you find another person who will show you how to remove all the problems? (W)

_____49. When you are asked to write a paper on an unfamiliar topic, can you find good enough information to please your teacher? (W)

_____50. When you learn that a paper you just finished writing is confusing and needs to be completely rewritten, can you delay your other plans for a day to revise it?
(W)

_____51. When you discover that your homework assignments for the semester are much longer than expected, can you change your other priorities to have enough time for studying? (S)

_____52. When you think you did poorly on a test you just finished, can you go back to your notes and locate all the information you had forgotten? (T)

_____53. When you are struggling to remember the details of a complex reading assignment, can you write summary notes that will greatly improve your recall? (R)

_____ 54. When you find that you had to "cram" at the last minute for a test, can you begin your test preparation much earlier so you won't need to cram the next time? (T)

_____55. When other students from your class emphasize parts of the teacher's lecture that you excluded from your notes, can you correct this omission before the next class meeting? (N)

_____56. When you are struggling to understand a body of information for a test, can you diagram it or chart it so you will remember it all two weeks later? (T)

_____57. When you have trouble studying your class notes because they are incomplete or confusing, can you revise and rewrite them clearly after every lecture? (N)

**** Homework Scale** (study habits) **(Zimmerman, B., & Kitsantas, A., 2007)**

1.) How much time do you spend on homework every day? _____ hours

2.) How much time do you spend studying for a chapter test? _____ hours

1.) Do you have a regular time to study? YES NO

2.) Do you have a regular place to study? YES NO

3.) Do you estimate the time needed to complete your assignments before you begin studying?

YES NO

4.) How often do you set task priorities when you do homework?
(1) Never (2) Seldom (3) Often (4) Usually (5) Always

5.) How often do you complete your daily assignments?
(1) Never (2) Seldom (3) Often (4) Usually (5) Always

**<u>ACTIVITIES</u> -From SUNY Albany Student Experience Study (Pascarella, E.T., & Terenzini, P.T., 1980)
<items in *italics* are items that the investigator added>

1.) This past academic year, approximately **how many hours per week, on the average,** did you spend in organized extra-curricular activities (e.g. clubs, organizations, athletics) _____ (hrs/wk)

Do you feel that the time spent in these activities took away from time spent in your studies?
_____ *Yes* _____ *No*

2.) During the past year, were you employed? _____ Yes _____ No
If yes, **how many hours per week, on the average,** did you work? _____ (hrs/wk)

Do you feel that the time spent in these activities took away time spent in your studies?
_____ *Yes* _____ *No*

*3.) This past academic year, approximately **how many hours per week, on the average,** did you spend socializing with friends, peers, etc.? _____ (hrs/wk)*

Do you feel that the time spent in these activities took away time spent in your studies?
_____ *Yes* _____ *No*

****Multidimensional Scale of Perceived Social Support (Zimet, G.D., Dahlem, N.W., Zimet, S.G., & Farley, G.K., 1988).**
Instructions: We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

Circle the "1" if you Very Strongly Disagree, Circle the "2" if you Strongly Disagree, Circle the "3" if you Mildly Disagree, Circle the "4" if you are Neutral, Circle the "5" if you Mildly Agree, Circle the "6" if you Strongly Agree, Circle the "7" if you Very Strongly Agree

	Very Strongly Disagree	**Strongly Disagree**	**Mildly Disagree**	**Neutral**	**Mildly Agree**	**Strongly Agree**	**Very Strongly Agree**
1. There is a special person who is around when I am in need.	1	2	3	4	5	6	7
2. There is a special person with whom I can share joys and sorrows	1	2	3	4	5	6	7
3. My family really tries to help me	1	2	3	4	5	6	7
4. I get the emotional help & support I need from my family	1	2	3	4	5	6	7
5. I have a special person who is a real source of comfort to me	1	2	3	4	5	6	7

6. My friends really try to help me	1	2	3	4	5	6	7
7. I can count on my friend when things go wrong	1	2	3	4	5	6	7
8. I can talk about my problems with my family	1	2	3	4	5	6	7
9. I have friends with whom I can share my joys and sorrows	1	2	3	4	5	6	7
10. There is a special person in my life who cares about my feelings	1	2	3	4	5	6	7
11. My family is willing to help me make decisions	1	2	3	4	5	6	7
12. I can talk about my problems with my friends	1	2	3	4	5	6	7

From SUNY Albany Student Experience Study (Pascarella, E.T, & Terenzini, P.T., 1980)
Please answer the questions according to the following scale:

1	2	3	4	5
Strongly Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Strongly Agree

1.) My non-classroom interactions with faculty have had a positive influence on my personal growth, values, and attitudes.

2.) My non-classroom interactions with faculty have had a positive influence on my intellectual growth and interest in ideas.

3.) My non-classroom interactions with faculty have had a positive influence on my career goals and aspirations.

4.) Since coming to this university, I have developed a close, personal relationship with at least one faculty member.

5.) I am satisfied with the opportunities to meet and interact informally with faculty members.

6.) Few of the faculty members I have had contact with are generally interested in students.

7.) Few of the faculty members I have had contact with are willing to spend time outside of class to discuss issues of interest and importance to the students.

8.) Most of the faculty I have had contact with are interested in helping students grow in more than just academic areas.

9.) Most faculty members I have had contact with are genuinely interested in teaching.

** **Perceived Organizational Support** (this is predominantly for the work place, so it has been adapted for the University setting) **(Eisenberg et al., 1986)**

Listed below are statements that represent possible opinions that YOU may have about attending school at Wayne State University. Please indicate the degree of your agreement or disagreement with each statement by filling in the circle on your answer sheet that best represents your point of view about Wayne State University. Please choose from the following answers:

0	1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Moderately Agree	Strongly Agree

1.) Wayne State University values my contribution to its well-being.
2.) Wayne State University strongly considers my goals and values.
3.) Wayne State University would ignore any complaint from me. (R)
4.) Help is available from Wayne State University when I have a problem.
5.) Wayne State University really cares about my well-being.
6.) Wayne State University is willing to extend itself in order to help me perform my academic responsibilities to the best of my ability.
7.) Even if I did the best job possible, Wayne State University would fail to notice. (R)
8.) Wayne State University would grant a reasonable request for a change in campus conditions.
9.) Wayne State University cares about my general satisfaction at school.
10.) Wayne State University shows very little concern for me. (R)
11.) Wayne State University cares about my opinions.
12.) Wayne State University cares more about making a profit than about me. (R)

APPENDIX B

Letters to Professors (Internet Survey and Live Survey)

Title: Examination of College Student Achievement within an Ecological Framework

Study Investigator: Lauren Mangus

To Whom It May Concern:

My name is Lauren Mangus and I am presently a doctoral candidate in the Educational Psychology Program at Wayne State University. I am conducting my dissertation and am asking for your help in communicating my survey website to you students. Using an ecological perspective, I am examining students' perceptions about various factors that affect them in college. A focus is on college student achievement. I am studying both items internal to the individual, such as self-efficacy, motivation, and study habits, as well as items external to the individual, such as social support, support from WSU, etc.

I would immensely appreciate any participation from your current students. Participation is completely voluntary, although they must be at least 18 years of age to participate. Essentially, the students would fill out an internet-based survey which takes approximately 15 minutes. The survey can be found at the following link: https://collegestudentachievement.wufoo.com/forms/m7x3w7/

If you should have any questions or concerns, please do not hesitate to contact me at any time. I have also attached the information sheet regarding the study to this email. The information sheet provides all of the necessary information for the students, which will be available at the onset of the online survey completion. If you or students should have any questions, please do not hesitate to contact me at: lauren.mangus@wayne.edu. Thank you so much for your time and consideration. It is greatly appreciated.

Sincerely,

Lauren Mangus, M.A.
Doctoral Candidate
345 Education, COE
Wayne State University
Detroit, MI 48202

Title: Examination of College Student Achievement within an Ecological Framework

Study Investigator: Lauren Mangus

Hello,

My name is Lauren Mangus and I am presently a doctoral candidate in the Educational Psychology Program at Wayne State University. I am conducting my dissertation and was hoping to ask for your help in communicating my survey to your abnormal psychology students. Using an ecological perspective, I am examining students' perceptions about various factors that affect them in college. A focus is on college student achievement. I am studying both items internal to the individual, such as self-efficacy, motivation, and study habits, as well as items external to the individual, such as social support, support from WSU, etc.

In an effort to collect undergraduate data, I am emailing college professors to see if I would be able to come to their class to see if students would like to participate. The survey takes approximately 15 minutes to complete. I have IRB approval and would be happy to furnish the informed consent, the actual survey, approval form, and any other documents you would like to view in advance. I have also attached the information sheet regarding the study to this email. The information sheet provides all of the necessary information for the students, which will be available at the onset of the survey completion.

I would really consider it an honor to be able to come to your class; but, I also know that class time is incredibly valuable and understand if it is not feasible. (I would be available most any Tuesday or Thursday and at any time that works best for you.) In any case, I sincerely appreciate your time and consideration. If you should have any questions, please do not hesitate to contact me. Thank you so much for your time and consideration; it is greatly appreciated.

Sincerely,

Lauren Mangus, M.A.
Doctoral Candidate
345 Education, COE
Wayne State University
Detroit, MI 48202

APPENDIX C

Research Information Sheet

Title of Study: Ecological Factors Implicated with College Student Achievement

Principal Investigator (PI): Lauren Mangus, M.A.
Educational Psychology, Theoretical and Behavioral Foundations
(313) 577-1614

Purpose:
You are being asked to be in a research study regarding your perceptions of various factors in your life as a college student. This study is being conducted at Wayne State University throughout select undergraduate courses. The estimated number of study participants to be enrolled at WSU is about 356 students. **Please read this form and ask any questions you may have before agreeing to be in the study.**

In this research study, you will be asked questions regarding your experiences and thoughts as a student. Questions asked will pertain to a variety of items, such as your study habits, activity involvement, social support, motivation, and perceptions as a student. The purpose of this study is to obtain information regarding student achievement and items that may or may not influence achievement.

Study Procedures:
If you take part in the study, you will be asked to fill out a short on-line survey/questionnaire. The questions that will be asked pertain to your own personal perspectives about school, time you spend on certain tasks, and your perceived support from individuals and Wayne State University. Although it is most beneficial to answer all of the statements, you may wish to omit questions and still participate. This survey/questionnaire will take approximately 15 minutes to fill out and will not require any additional information or participation.

Benefits:
As a participant in this research study, there may be no direct benefit for you; however, information from this study may benefit other people now or in the future.

Risks:
There are no known risks at this time to participation in this study.

Costs:

There will be no costs to you for participation in this research study.

Compensation:
There will be no compensation for your participation in this study.

Confidentiality:
All information collected about you during the course of this study will be anonymous. There will be no identifying information on you survey and, thus, your name and survey responses will never be paired.

Voluntary Participation/Withdrawal:
Taking part in this study is voluntary. You are free to not answer any questions or withdraw at any time. Your decision will not change any present or future relationships with Wayne State University or its affiliates.

Questions:
If you have any questions about this study now or in the future, you may contact Lauren Mangus at the following phone number: (313) 577-1614. If you have questions or concerns about your rights as a research participant, the Chair of the Human Investigation Committee can be contacted at (313) 577-1628. If you are unable to contact the research staff, or if you want to talk to someone other than the research staff, you may also call (313) 577-1628 to ask questions or voice concerns or complaints.

Participation:
By completing the questionnaire you are agreeing to participate in this study. Thank you so much for your time and consideration.

APPENDIX D

IRB Approval

WAYNE STATE UNIVERSITY

IRB Administration Office
87 East Canfield, Second Floor
Detroit, Michigan 48201
Phone: (313) 577-1628
FAX: (313) 993-7122
http://irb.wayne.edu

NOTICE OF EXPEDITED CONTINUATION APPROVAL

To: Lauren Mangus
Theoretical & Behavior Foundations
4190 Royal

From: Dr. Scott Millis
Chairperson, Behavioral Institutional Review Board (B3)

Date: September 18, 2012

RE: IRB #: 082611B3E
Protocol Title: College Student Ratings of the Ecological Factors in Their Lives
Funding Source:
Protocol #: 1108010007

Expiration Date: September 17, 2013

Risk Level / Category: Research not involving greater than minimal risk

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Continuation for the above-referenced protocol and items listed below (if applicable) were APPROVED following Expedited Review by the Chairperson/designee of the Wayne State University Institutional Review Board (B3) for the period of **09/18/2012 through 09/17/2013**. This approval does not replace any departmental or other approvals that may be required.

- NOTE: Data for this protocol collected between September 7, 2012 and September 18, 2012 is unapproved research, cannot be included with data collected during an approved period, and can never be reported or published as research data.
- Actively accruing participants
- Research Information Sheet (dated 8/13/11)
- Waiver of documentation of consent continued and approved
- Study Announcement Email for Course Instructors

- Federal regulations require that all research be reviewed at least annually. You *may* receive a "*Continuation Renewal Reminder*" approximately two months prior to the expiration date; however, it is the Principal Investigator's responsibility to obtain review and continued approval **before** the expiration date. Data collected during a period of lapsed approval is unapproved research and can never be reported or published as research data.
- All changes or amendments to the above-referenced protocol require review and approval by the IRB **BEFORE** implementation.
- Adverse Reactions/Unexpected Events (AR/UE) must be submitted on the appropriate form within the timeframe specified in the IRB Administration Office Policy (http://www.irb.wayne.edu/policies-human-research.php).

NOTE:

1. Upon notification of an impending regulatory site visit, hold notification, and/or external audit the IRB Administration Office must be contacted immediately.
2. Forms should be downloaded from the IRB website at **each** use.

"Based on the Expedited Review List, revised November 1998

APPENDIX E

Correspondences

Print Close

RE: SELF scale

From: **Barry Zimmerman** (bzimmerman@gc.cuny.edu)
Sent: Mon 9/27/10 1:52 AM
To: 'Lauren Mangus' (msmodular13@hotmail.com)

Hi Lauren:

You have my permission to use the SELF and homework survey items

in your dissertation research.

Barry J. Zimmerman

Distinguished Professor

CUNY

From: Lauren Mangus [mailto:msmodular13@hotmail.com]
Sent: Sunday, September 26, 2010 4:59 PM
To: Zimmerman, Barry
Subject: SELF scale

Hello Dr. Zimmerman,

My name is Lauren Mangus and I am a doctoral student in the area of Educational Psychology at Wayne State University. I am presently working on my dissertation, examining predictors of college student achievement within an ecological framework. I was hoping to gain permission to utilize the Self-Efficacy for Learning Form (SELF), as well as the homework survey items included in your 2007 reliability/validity article with Dr. Kitsantas.

Thank you so much for your time and consideration. I look forward to hearing from you.

Best regards,

Lauren Mangus, M.A.

Print Close

RE: SPN Profile Message: Academic Motivation Scale

From: **St-Louis, Ariane** (st-louis.ariane@uqam.ca)
Sent: **Thu 9/23/10 1:56 PM**
To: **msmodular13@hotmail.com**

Hi,

You can use the scales. They are available for download on our website:
http://www.er.uqam.ca/nobel/r26710/LRCS/echelles_en.htm

Good luck in your research!

-----Message d'origine-----
De : Robert J. Vallerand [mailto:vallerand.robert_j@uqam.ca]
Envoyé : 23 septembre 2010 08:00
À : St-Louis, Ariane
Objet : FW: SPN Profile Message: Academic Motivation Scale

------ Forwarded Message
From: Lauren Mangus <msmodular13@hotmail.com>
Reply-To: <msmodular13@hotmail.com>
Date: Sun, 19 Sep 2010 18:09:32 -0400 (EDT)
To: <vallerand.robert_j@uqam.ca>
Subject: SPN Profile Message: Academic Motivation Scale

Hello Dr. Vallerand,

My name is Lauren Mangus and I am a doctoral student in the area of Educational Psychology at Wayne State University. I am presently working on my dissertation, examining predictors of college student achievement within an ecological framework. I was hoping to gain permission to utilize, as well as obtain a copy of, the Academic Motivation Scale.

Thank you so much for your time and consideration. I look forward to hearing from you.

Print Close

RE: MSPSS

From: **Zimet, Gregory D** (gzimet@iupui.edu)
Sent: **Sun 10/03/10 11:20 PM**
To: **Lauren Mangus (msmodular13@hotmail.com)**
2 attachments
MSPSS.doc (33.9 KB) , MSPSS refs.doc (40.5 KB)

Hello Lauren,

You have my permission to use the MSPSS in your dissertation research. I have attached a copy of the scale and a document listing several articles that report on the psychometric characteristics of the MSPSS. Please let me know if you have any additional questions.

I hope your dissertation research goes well.

Best regards,
Greg Zimet

==========

Gregory D. Zimet, PhD
Professor of Pediatrics & Clinical Psychology
Section of Adolescent Medicine
Indiana University School of Medicine
Health Information & Translational Sciences
410 W. 10th Street, HS 1001
Indianapolis, IN 46202
USA

Phone: +1-317-274-8812
Fax: +1-317-274-0133
e-mail: gzimet@iupui.edu

From: Lauren Mangus [msmodular13@hotmail.com]
Sent: Sunday, October 03, 2010 5:56 PM
To: Zimet, Gregory D
Subject: MSPSS

Hello Dr. Zimet,

My name is Lauren Mangus and I am a doctoral student in the area of Educational Psychology at Wayne State University. I am presently working on my dissertation, examining predictors of college student achievement within an ecological framework. I was hoping to gain permission to utilize the Multidimensional Scale of Perceived Social Support (MSPSS) to examine the role perceived social support may play on academic achievement at the collegiate level.

Print Close

FW: Persistence Theory

From: **Pascarella, Ernest T (ernest-pascarella@uiowa.edu)**
Sent: **Mon 9/20/10 4:37 PM**
To: **msmodular13@hotmail.com (msmodular13@hotmail.com)**
Cc: **Pat Terenzini (Terenzini@psu.edu)**
1 attachment
Integration Scales Instrument.pdf (1408.3 KB)

Lauren: You certainly have my permission to use the scales. I've attached a copy of the questionnaire instrument we used, but you might also want to get a copy of our paper in the 1980 (Jan/Feb) Journal of Higher Education – which has all the scales and psychometric properties. Best of luck with your research. Best, ernie

Print Close

RE: SPN Profile Message: Survey of Perceived Organizational Support

From: **Eisenberger, Robert W (reisenbe@Central.UH.EDU)**
Sent: **Mon 9/20/10 1:27 PM**
To: **msmodular13@hotmail.com (msmodular13@hotmail.com)**

Lauren,
I am happy to give permission. Please see the POS website for more infformation about the scale.
http://www.psychology.uh.edu/pos/
I would be interesting in hearing about your findings once you have them.
Cordially,
Bob
Robert Eisenberger
Professor of Psychology
College of Liberal Arts & Soc. Sciences
Professor of Management
C. T. Bauer College of Business
University of Houston
reisenberger2@uh.edu
(302)353-8151

From: Lauren Mangus [msmodular13@hotmail.com]
Sent: Sunday, September 19, 2010 6:08 PM
To: reisenberger2@uh.edu
Subject: SPN Profile Message: Survey of Perceived Organizational Support

Hello Dr. Eisenberger

My name is Lauren Mangus and I am a doctoral student in the area of Educational Psychology at Wayne State University. I am presently working on my dissertation, examining predictors of college student achievement within an ecological framework. I was hoping to gain permission to utilize, as well as obtain a copy of, the Survey of Perceived Organizational Support.

Thank you so much for your time and consideration. I look forward to hearing from you.

Best regards,

REFERENCES

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ABSTRACT

EXAMINATION OF COLLEGE STUDENT ACHIEVEMENT WITHIN AN ECOLOGICAL FRAMEWORK

by

LAUREN MANGUS

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Advisor: Dr. Cheryl Somers

Major: Educational Psychology

Degree: Doctor of Philosophy

This study examined the extent to which variance in college student achievement was explained by self-efficacy, motivation, study habits, extracurricular activity involvement, perceptions of social support, and perceptions of support from faculty and the university as a whole. Participants were 195 college students (54 males, 141 females; mean age 20.84) from a large, urban Midwestern university, primarily a first-generation, commuter campus. Several themes surfaced, including the importance of self-efficacy and organizing study habits in predicting student achievement. Implications with respect to prevention and intervention in order to optimize college student achievement are discussed.

AUTOBIOGRAPHICAL STATEMENT

Lauren Mangus

Education	2015	Doctor of Philosophy, Wayne State University Major: Educational Psychology Dissertation Title: Examination of College Student Achievement within an Ecological Framework Advisor: Cheryl Somers, Ph.D.
	2011	Graduate Certificate: Infant Mental Health, Wayne State University
	2007	Master of Arts, Wayne State University Major: School and Community Psychology
	2004	Bachelor of Science, Wayne State University Major: Psychology
Professional Experience	2012-present	School Psychologist Bloomfield Hills Schools, Bloomfield Hills, MI
	2011-2013	Psychology Intern American Indian Health and Family Services, Detroit, MI
	2008-2012	School Psychologist Fitzgerald Public Schools, Warren, MI
	2007-2008	School Psychologist Port Huron Area Schools, Port Huron, MI
Certification/ Licensure		Certified School Psychologist – State of Michigan Nationally Certified School Psychologist – NASP
Awards		Graduate Professional Scholarship (2006-2011)
Professional Affiliations		National Association of School Psychologists American Psychological Association Michigan Association of School Psychologists