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EXPLORING THE USE OF TEACHING STRATEGIES TO IMPACT THE ACADEMIC AND SOCIAL CHALLENGES FACED BY FIRST-GENERATION COLLEGE STUDENTS

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EXPLORING THE USE OF TEACHING STRATEGIES TO IMPACT THE ACADEMIC AND SOCIAL CHALLENGES FACED BY FIRST-GENERATION COLLEGE STUDENTS

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Abstract

Recent studies have shown that roughly one-third of the total students at four-year universities are the first in their families to attend college. These students are commonly referred to as first-generation college (FGC) students. The percent of total college students who are FGC students is expected to rise as the children of working-class, predominantly "blue collar" baby boomers, and the children of immigrants reach college age and enter the college arena. However, these students often enter college with unique academic and social challenges that result in an attrition rate of almost twice that of non-FGC students. While numerous studies have focused on *university-level* interventions and programs to help these students persist and succeed in college, a gap in the literature lies in the exploration *classroom-level* interventions that may help FGC students succeed academically. The purpose of this study was to explore student perceptions of the efficacy of various teaching strategies in promoting academic success and to investigate the connection that these perceptions may have in predicting the student learning strategies that prior studies have shown to have a positive effect on student scholastic success. The data for this study was gathered from a survey administered to students enrolled in undergraduate accounting courses at a private, four-year, Midwestern university. The survey included questions from the Motivated Strategies for Learning Questionnaire (MSLQ) and researcher-authored questions that focused on the perceived efficacy of various teaching techniques on student academic success. The results of the data analysis were partitioned by FGC status in order to isolate any differences between those students who were first in their families to attend college and those who were not

first in their families. Among the central findings, the use of the teaching techniques of instructor-prepared materials, and *required* class participation and personal interaction was positively associated with stronger self-regulation skills for FGC students. This finding was important because self-regulation skills have been shown in this and in prior studies to be positively associated with academic success. In addition, *required* class participation and personal interaction was positively associated with FGC students' propensity to work with their peers and to seek help when needed. This supports prior research that indicates that 'forced' classroom engagement may be needed for FGC students to derive the academic benefits of collaborative learning, which, in turn, can help them integrate into both the formal academic system and the informal social system of the university community. Taken together, these findings suggest that teaching strategies aimed at helping FGC students overcome their unique academic and social challenges may have a positive effect on the retention and scholastic achievement of these students. Since the current literature focuses primarily on *university-level* interventions and programs that are intended to help FGC students persist and succeed in college, the current study contributes to the literature in that it provides a better understanding of *classroom-level* interventions that may be contribute positively to the academic success of FGC students.

Table of Contents

List of Tables

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CHAPTER ONE: INTRODUCTION

Research Problem and Its Significance

According to the Organization for Economic Cooperation and Development (OECD) *Factbook*, the United States spends approximately twice as much per tertiary level student as Japan, Germany, or the United Kingdom, and about three times as much as most other industrialized countries in Asia and Europe. However, nationally, only about 60 percent of students graduate from United States four-year colleges and universities within six years. In particular, according to a 2010 analysis by American Institute for Research (AIR) vice president Mark Schneider, more than $9 billion was spent by state and federal governments over a five-year period to support students at four-year colleges and universities who left school before their sophomore year. This attrition also affects the national economic base since fewer college-educated students will enter the workforce. And given that the United States continues to move from an industrial nation to one that will continue to see an increased demand for *a highly skilled workforce* (Karoly & Panis, 2004), it is "essential for the United States to have the benefits of and educated citizenry" (Carroll, 2005, p. 1).

Before the end of World War II, the majority of students attending four-year colleges were white, affluent males (Davis, 2010). However, demographic changes in the student population of college campuses began to emerge primarily when the G.I. Bill[1] was enacted. Since then, although much work remains to be done, efforts have also been ade to make a college education more attainable for low-income students (Wilkins &

[1]Officially titled "The Servicemen's Readjustment Act of 1944" this was an omnibus bill that provided college or vocational education for returning World War II veterans, who were commonly referred to as G.I.s.

Doyle, 2002), female students (National Coalition for Women and Girls in Education, 2008), minority students (Ryu, 2008), and students with disabilities (Harbour, 2008). However, one category of underserved students which, in recent years, does not appear to have been given as much attention as other at-risk students is that of "first-generation" college (FGC) students. For this study, these students are defined as having come from a family in which neither parent holds a baccalaureate degree.

Davis (2010) speculates that the lack of attention to FGC students may be due in part to difficulty in verifying FGC status. Davis also posits that FGC students represent an underserved group of students vital to the lasting health of both the higher education system and the U.S. economy overall, and research indicates that these students have backgrounds and family experiences that are *uniquely different* from students who are not the first in their families to attend college (Ayala & Striplen, 2002; Gibbons & Shoffner, 2004; Ishitani, 2003). For example, FGC students generally enter college with a relatively limited grasp of what higher education requires and actually have a different undergraduate experience when compared to other students (Pascarella, Pierson, Wolniak, & Terenzini, 2004). In addition, in their pursuit of a degree, they often face unique challenges such as clashing obligations, false expectations, and lack of preparation and/or support (Hsiao, 1992). Studies also indicated that FGC students, on average, earn lower grades and are more likely to drop out of college altogether before the end of the first semester than their non-FGC student peers (Thayer, 2000). Therefore, it is not surprising that the research indicates that at four-year institutions, beginning FGC students are twice as likely as students whose parents have a bachelor's degree to leave

before their second year (Choy, 2001). In addition, Ishitani (2006) determined that FGC students might actually be more likely to drop out *during* their second year of study, which appears to indicate that FGC student attrition is an important concern beyond the freshman year. However, when they do persist and graduate, FGC students appear to have the same earnings potential as non-FGC graduates (Nunez & Cuccaro-Alamin, 1998).

For the 1995-1996 academic year, one-third of the total students at a four-year college or university were FGC students (Choy, 2001). This trend is expected to rise as the children of working-class; predominantly "blue collar" baby boomers and the children of immigrants reach college age and enter the college arena (Bailey, 2002). A more recent example can be seen at one Midwestern, private, four-year university. For the 2014-2015 academic-year, 34% of new freshmen were from families where neither parent had a college degree, up from 30% in 2008. However, despite the fact that a significant number of students fitting this category have attended four-year college since the GI bill was enacted over 65 years ago, the term, "first-generation college student" is considered by Davis (2010) to be an "oddly emergent term" that has only officially been in existence for about 25 years. As Pike and Kuh (2005) stated, "Although first-generation college students are less likely to persist and graduate, surprisingly little is known about their college experiences and the ways those experiences compare to the experiences of students who have college-educated parents" (p. 276). For example, many of the references to the FGC group were often simply an offshoot of discussions relating to the challenges and issues of the other aforementioned categories of student groups.

The vast majority of research that centered exclusively on FGC students discussed pre-college student characteristics and *access to* a college education (Bailey, 2002). The studies that focused on the *retention of* FGC students primarily explored retention strategies *at the university level* (e.g., Gullatt & Jan, 2003; Thayer, 2000; Tinto, 1993). And while there have been a few studies conducted on classroom-level retention strategies for FGC students (i.e., McMurray, 2009; Institution for Higher Education, 2012), a gap in the literature appears to be the study of *the efficacy of* classroom-level retention strategies designed to help FGC student learning and academic achievement.

Purpose of the Study

The purpose of this study is to explore the relationship among the characteristics of first-generation college (FGC) students, the challenges they face in their pursuit of a four-year college degree, and the *classroom-level* techniques and interventions that may assist and motivate these students in overcoming these challenges and successfully earn a baccalaureate degree. Research (Bui, 2002) has shown that FGC students are more likely to earn a bachelor's degree if they begin their post-secondary career at a four-year college. Thus, one demographic that was reviewed in the current study was the academic starting point for the FGC student participants. In addition, Thayer (2000) found that university-level student support strategies that work for FGC students and low-income students are likely to be successful for the general population as well. However, the reverse is not true. Thayer also found that the greatest gains in retention rates resulted from focusing *not only on the selection process*, but also the student-environment interaction *after college entry*.

To expand on prior research, the Student Survey (see Appendix A) was used to gather information from students at a four-year private university about their academic motivational learning strategies and the teaching techniques that they perceive to be contributing factors to their academic success thus far. The survey included 19 select questions from the Motivated Strategies for Learning Questionnaire (MSLQ), as well as 24 researcher-authored survey questions that were grouped into the categories of Course Resources, Course Policies, and Teaching Techniques (CRCPTT). The survey results were then analyzed in an attempt to discover whether *particular* classroom and/or pedagogical techniques are perceived by FGC students to be significant in helping explain their ability to overcome the challenges typically faced by FGC students, and thus contributing to their academic success. One limitation of the current study is that the results were based on a convenience sample. The survey was administered only to undergraduate accounting students during one academic quarter. However, there is no data, *a priori*, that suggests this selected sample is any different from the total FGC student population.

Definition of Key Terms

First-generation college (FGC) student. Davis (2010) speculated that the lack of a uniform definition might in part be to blame for the lack of attention paid to this group of students. For example, The National Center for Education Statistics (1998) defined FGC students as those whose parents have attained no more than a high school education. However, within the field of higher education, FGC students are defined in many ways. Terenzini, Springer, Yaeger, Pascarella, and Nora (1996) and Pascarella et al. (2004)

defined a FGC student as one who is the first in his or her family to attend an institution of higher education. Zhang and Chan (2007) chose to define a FGC student as having come from a family in which neither parent received a baccalaureate degree. For the purpose of this paper, the Zhang and Chan definition is used since it provides a *well-defined* parameter of the highest education level achieved by the student's parents.

Academic self-efficacy. The concept of self-efficacy is defined as an individual's perceived ability to complete needed tasks to achieve goals (Bandura, 1997). Research indicates that individuals are more likely to engage in tasks about which they feel proficient and confident and avoid those that they do not (Moore, 2013; Pajares & Schunk, 2001). Solberg, O'Brien, Villarreal, Kennel and Davis (1993) defined college self-efficacy as a student's degree of confidence in performing various college-related tasks to produce a desired outcome, such as passing an examination. Abundant research points to the fact that academic self-efficacy is positively related to persistence rates in college (Bong, 2001; Choi, 2005; Pajares & Schunk, 2001; Zimmerman, 2000) and empirical data indicates a link between academic self-efficacy and perceived college stress and *their combined effect* on academic success for FGC students (Solberg & Villarreal, 1997).

Scaffolding. The American Heritage College Dictionary (third edition) defines scaffolding as "to provide or support with a scaffold" (p. 1216). Within the context of student learning, "Vygotsky's scaffolding" is an expression used to depict a method of teaching that includes offering resources and support to students as they learn new concepts. Vygotsky and Cole (1978) used the term *zone of proximal development (ZPD)*

to describe the scaffolding theory. ZPD has been defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers" (p. 86). In an educational context this can be imagined as a "temporary framework to support learners when assistance is needed and is removed when no longer needed" (Lajoie, 2005, p. 542). The scaffolding paradigm actually goes beyond instruction and assessment in that instructors assess learners to establish the level of scaffold adequate to assist learners to reach their potential. Continuous assessments are necessary and may take place through conversation and social interactions. Technology may or may not be used (Lajoie, 2005).

The definition of scaffolding may also be placed in different contexts. For example, Merrill, Reiser, Merrill and Landes (1995) discussed the concept of "cognitive scaffolding," which included providing the student with hints in order to solve a problem on his or her own, and Lepper, Drake and O'Donnell-Johnson (1997) used giving feedback on student performance as "motivational scaffolding." Kolb and Kolb (2005) posited that experiential learning might be an effective form of scaffolding for learners.

MSLQ terminology. While the MSLQ includes six Motivation Scale components and nine Learning Strategies Scale components, only those Learning Strategies Scale resources management strategies components mentioned in the FGC student literature were used in this research study. Thus, the following terms were adopted in this study, as defined specifically by Pintrich, Smith, Garcia and McKeachie (1991).

Learning strategies scales – Resource management strategies.

Time/study environmental management. …involves scheduling, planning, and managing one's study time. This includes not only setting aside blocks of time to study, but the effective use of that study time, and setting realistic goals. Time management varies in level from an evening of studying to weekly and monthly scheduling. Study environment management refers to the setting where the student does her class work. Ideally, the learner's study environment should be organized, quiet, and relatively free of visual and auditory distractions. (Pintrich et al., 1991, p. 25)

Effort regulation. Self-regulation also includes students' ability to control their effort and attention in the face of distractions and uninteresting tasks. Effort regulation is self-management, and reflects a commitment to completing one's study goals, even when there are difficulties or distractions. Effort regulation is important to academic success because it not only signifies goal commitment, but also regulates the continued use of learning strategies. (p. 27)

Peer learning. Collaborating with one's peers has been found to have positive effects on achievement. Dialogue with peers can help a learner clarify course material and reach insights one may not have attained on one's own. (p. 28)

Help seeking. Another aspect of the environment that the student must learn to manage is the support of others. This includes both peers and instructors. Good students know when they don't know something and are able to identify someone to provide them with some assistance. There is a large body of research that

> indicates that peer help, peer tutoring, and individual teacher assistance facilitate student achievement. (p. 29)

Theoretical Framework

Retention theory. This theory relates to the issue of lower than average persistence rates for FGC students. Tinto (1993) identified three primary causes of student departure from college: academic difficulties, the inability of individuals to resolve their educational and occupational goals, and their failure to become or remain incorporated in the intellectual and social life of the institution. Tinto's "Model of Institutional Departure," states that, to persist, students need integration into both the "formal" (academic performance) and the "informal" (faculty/staff interactions) academic systems and formal (extracurricular activities) and informal (peer-group interactions) social systems. Effective retention strategies will be "multifaceted, and will assist students in developing a sense of social security accompanied by a sense of academic competence" (Thayer, 2000, p. 3) and should be applied *early* in the student's college experience studies since the greatest proportion of students who leave are likely to do so within the first four semesters of college (Thayer, 2000). Martinez, Sher, Krull and Wood (2009) found a relatively strong correlation between college GPA and FGC student attrition and suggested that an important contribution to FGC student persistence would be educational interventions which result in increasing the college GPA.

Gullatt and Jan (2003) found that effective retention programs affirm and help students understand that academic success is not attained through individual achievement alone, but through an alliance of support, while Thayer (2000) discovered that retention

strategies that are effective for increasing the persistence of FGC and low-income students are also successful for the general campus population.

Theory of involvement. This theory supports the notion that collaborative learning and frequent faculty-student interaction may improve the persistence rate and academic success of FGC students. Per Astin (1993, 1999), there is a relationship between the effectiveness of educational policies and practices and "student involvement." He defined an involved student as "one who ... devotes considerable energy to studying, spends much time on campus, participates actively in student organizations, and interacts frequently with faculty members and other students" (p. 518). Prospero and Vohra-Gupta (2007) suggested that the involvement of FGC students could lead to improved retention and academic success of this student population. This study provided information regarding both the on-campus and off-campus involvement of FGC students and its relationship to their overall academic success (i.e., GPA) in college. Tinto (1993) suggested that the reason why involvement is a key to retention is due to the types of meaningful relationships and positive experiences students have in the college environment. Per Tinto, the more meaningful relationships and positive experiences students have, the more likely they are to persist in the college environment.

Similar to involvement, literature regarding FGC students stated that *engagement* is important to the overall academic experience of this student population (Soria & Stebleton, 2012). Motivation appears to play a key role in engagement, and Cunningham (2013) found that motivational assessment might help predict the engagement of first-year, at-risk student. In addition, studies have shown that positive relationship exists

between FGC student's engagement in various educational practices (e.g., interacting with faculty and college peers) and cognitive and emotional growth in college (Wang, 2012; Wilkins & Doyle, 2002). The literature also showed that FGC students tended to reap significant benefits from practices that forced them to engage in the class, such as group presentations and other collaborative projects (Astin, 1993; Dennis, Phinney & Chuateco, 2005; Pike & Kuh, 2005; Wilkins & Doyle, 2002).

Ecological systems theory. This theory relates to the thought that students who are first in their family to attend college may share a common ecological trait, regardless of demographic differences, such as race or gender. According to this theory, development is the result of interactions between characteristics of the person and the environment over the course of one's life (Bronfenbrenner & Morris, 1998). With regards to college students, academic success is a function of both personal characteristics (i.e., intellectual ability, academic aptitudes, motivation, and aspirations) and the characteristics of the external environment, which can be thought of as a structure of layered interdependent structures. Although the environment includes many systems of influence, Bronfenbrenner (1989) focused on firsthand processes that impose patterns of interaction between the person and the immediate environment. Support from, and face-to-face interaction with, peers and family members are among the most frequent and important direct processes for adolescents and young adults, and they play an essential role in academic results. Thus, according to this theory, personal characteristics of students, specifically their motivations to attend college, and contextual factors, such as the availability of social support from family and peers, may influence college outcomes.

In short, this theory suggests that FGC students share a common ecological trait, regardless of other demographic differences.

Experiential learning theory. Experiential learning theory is based on the work of such scholars as John Dewey, Paulo Freire, Jean Piaget, Lev Vygotsky and others to develop a "holistic model of the experiential learning process and a multi-linear model of adult development" (Kolb & Kolb, 2005, p. 194). The theory is built on six propositions that are shared by these scholars. The first is that "learning is best conceived as a process, not in terms of outcomes" and that *frequent feedback* is essential to effective student learning. The second is that "all learning is *re*learning and that student beliefs and lived experiences should be the foundation for integrating new, more refined, ideas. The third is that "learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world" so that students can resolve differences in their minds. The fourth is that "learning is a holistic process of adaptation to the world" and should reach the "total person" (i.e., thoughts, feelings, perceptions and behaviors). The fifth is that "learning results from synergetic transactions between the person and the environment", which relates to Piaget's idea of "assimilating new experiences into existing concepts and accommodating existing concepts to new experience." The sixth and final proposition is that "learning is the process of creating knowledge" that is recreated in the personal knowledge of the learner (as opposed to the "transmission" model in which preexisting, preset ideas are conveyed to the learner) (p. 194).

CHAPTER TWO: REVIEW OF THE LITERATURE

To provide depth and context to this study of FGC students, in this chapter a review of the literature is provided. Two major areas are presented: the characteristics of and the academic and social challenges faced by FGC students, and support strategies that are intended to help FGC students overcome their challenges. Taken together, these two categories of research provide an understanding of FGC students, the types of experiences they undergo in college, the variables which contribute to their academic persistence or attrition, and steps that can be taken to make the college experiences of these students more meaningful and successful.

First-Generation College Student Characteristics and Challenges

FGC students often face unique academic, financial, and social challenges. For example, Chen (2005), Martinez et al. (2009), Riehl (1994), and Warburton, Bugarin and Nuñez (2001), found that FGC students often enter college academically underprepared. This would seem to indicate a genuine need for additional time needed to study in order to "catch up" academically. However, due to limited financial resources (Nunez & Cuccaro-Alamin, 1998), FGC students are more likely than non-FGC students to live and work off-campus and to attend part-time (Cushman, 2007; Hsiao, 1992; Inman & Mayes, 1999; NCES, 1998; Nunez & Cuccaro-Alamin, 1998; Riehl, 1994; Terenzini et al., 1996; Thomas, 2009), making it difficult for these students to find adequate time for studying and making it more difficult for FGC students to feel that they are part of the college community (Cushman, 2007; Lehnmann, 2007; Quinn, 2004). In addition, Kuh, Cruce, Shoup, Kinzie, and Gonyea (2008) found that working more than 20 hours per week had

a significant negative impact on college student grades, even after controlling for students' characteristics and their levels of engagement. Unfortunately, McConnell (2000) found that FGC students work an average of 35 hours per week**.** On the other hand, Thayer (2000) found that the post-secondary academic experience of FGC students improves as the students' financial situation improves, which draws attention to the importance of adequate financial aid for these students in order to help reduce their need to work so many hours and to allow them to better concentrate on their academic responsibilities.

In addition, FGC students are less likely than second-generation college students to achieve academic success *once enrolled* in college (NCES 1998). For example, Ishitani (2006) found that those students were 51% less likely to graduate within four years than students with college-educated parents. Pike and Kuh (2005) found that many of the differences could be attributed to dissimilar educational aspirations *and to where students lived when attending college*. Commuting and working off-campus were negatively correlated with academic success. In addition, Quinn (2004) found that FGC students are more likely to drop out of college before graduation *even if they are doing well academically*, often because they feel like "imposters" in the college community. Furthermore, they may experience intimidation from non-FGC students (Cushman, 2007) and may feel like they "don't fit in" (Quinn, 2004). Those who persist may "fake it to make it" and lose their old identity (Granfield, 1991). Finally, Cushman (2007) stated, "differences in income, social styles, and even speech patterns cause many first-generation students to feel like outsiders" (p. 45).

However, Newcomb (1962) posited " living on campus puts students in close physical proximity so they cannot avoid being confronted on an almost daily basis by others who look, talk, and hold values different from their own" (p. 470). Similarly, Astin (1993) concluded that, "The single most powerful source of influence on the undergraduate student's academic and personal development is the peer group; the amount of interaction among peers has far-reaching effects on nearly all areas of student learning and development" (p. 3), and Cushman (2007) identified that FGC students need to develop a social network in order to persist. Living on campus appears to help FGC students overcome the challenge of navigating between an old and a newly developing "habitus" (Lehmann, 2007), which may increase their chances of academic success. Finally, Blimling (1993) reported that living on campus had the greatest total effect (i.e., the combination of direct and indirect effects) on learning outcomes *of any student characteristic studied*, since living on campus appears to permit FGC students to "get ready," "get in," and "get through" college successfully.

Due in part to limited financial resources, families of FGC students, at times, discourage them from going to college (Striplin, 1999). This in turn creates a "cultural conflict" between home and college community (Riehl, 1994; Thayer, 2000). FGC students are more likely to feel alienation from family support (Striplin, 1999; Yarborough, 2012) and/or experience "survivor guilt" since they are pursuing economic opportunities not available to other family members (Piorkowski, 1983). As a result, these students may attempt to finish school in a shorter period of time, in order to minimize college expenses (Nunez & Cuccaro-Alamin, 1998) or drop out of college if

they are not doing well academically since they may, at that point, view college as a "waste of time and money" or as "a form of loyalty to working-class culture" (Quinn, 2004). In addition, many FGC students may experience "separation" anxiety from the familiar and non-threatening surroundings of their childhood (London, 1989).

Further, FGC students often enter college with low self-efficacy and low self-esteem and are more likely than non-FGC students to need "validation" from faculty and other students to confirm that they belong in the college environment (Hellman & Harbeck, 1997; Inman & Mayes 1999; Nuñez & Cuccaro-Alamin, 1999; Ramos-Sanchez & Nichols 2007; Rendon, 1993; Terenzini et al. 1994; Vuong, Brown-Welty & Tracz, 2010). Additional time spent on campus often results in increased student involvement and increased interaction with faculty and with other students. This increased involvement has been shown to have a positive effect on FGC student persistence and academic success (Nunez & Cuccaro-Alamin, 1998). For example, Astin (1993) determined that the student-faculty relationship was positively related to student development, and Chickering and Ehrmann (1996) found that frequent student-faculty contact, both in and out of class is a "most important factor in student motivation and involvement" (p. 30).

Finally, FGC students often lack the self-regulation skills that are needed to be successful learners (Dabbagh & Kitsantas, 2004; McMahon, Cowan & Oliver, 2001; Williams & Hellman, 2004) and are often underprepared for the freedoms and obligations that accompany college life (London, 1992). In particular, Rotenstein, Davis, and Tatum (2010) and Barnard-Brak, Patten and Lan (2010) found a significant negative correlation

between academic procrastination and academic performance, which may be a particularly common issue for FGC students. This would imply that these students might need to spend additional time on campus in a structured setting (e.g., a tutor lab) in order to improve their chances for academic success. And while some may argue that taking online *classes* could allow the FGC student to save on commuting costs, Parry (2010) reported that "the convenience of online classes can be a slacker's paradise," which would be particularly counterproductive to students who lack self-regulation skills (p.2).

Given the challenges outlined above, it is apparent that FGC students need additional support in order to help them persist and succeed in college. Thus, the next section includes a more in-depth analysis and discussion of possible classroom-level support strategies.

Support Strategies to Overcome the Challenges

The literature presents ample evidence that FGC students often face unique challenges that require attention and/or intervention. Three areas of intervention were explored in this study. They include: faculty-student interaction, student-student interaction, and supportive classroom strategies.

Faculty-student interaction. Rendon (1993) and Terenzini et al. (1994) reported that FGC students are more likely to have a need for "validation" of their abilities by faculty members to prove to themselves "that they can do college level work, that their ideas and opinions have value, that they are worthy of the attention and respect of faculty, staff, and peers alike" (Terenzini, p. 70). Astin (1993) and Kim and Sax (2009) determined that the student-faculty relationship was positively related to student

development, and Chickering and Ehrmann (1996) found that frequent student-faculty contact, both in and out of class is a "most important factor in student motivation and involvement" (p. 30) since it helps the student get through difficult academic times. In addition, Astin (1999) discovered that there is a direct relationship between the effectiveness of educational policies and practices and the frequent interaction between faculty and students. Email and other electronic means of communication may be especially important when working with FGC students who may be uncomfortable interacting with the faculty member face-to-face, or who may live off campus or have limited time on campus due to work and/or family obligations (Duggan, 2005). Electronic communication may help these students build the "social capital" that they lack when entering college in that it allows them to communicate with faculty and other students using a "safe" manner (i.e., not face-to-face communication and using a computer while in a comfortable physical setting, such as home or dorm room). McMurray and Sorrells (2009) suggested that faculty have an "open door policy" to encourage students to feel comfortable seeking out the faculty member for help, when necessary.

However, Inkelas, Daver, Vogt and Leonard (2007) found that faculty-mentoring relationships might actually be detrimental to the success of FGC students in that the student may come to depend primarily on the faculty member for social interaction, which may negatively influence the student's social transition with other students and the college community as a whole. A limitation of the Inkelas et al. study is that it was set in

a living/learning community environment and the results may not apply to the FGC population as a whole, particularly in urban commuter settings.

Student-student interaction. Astin (1993) concluded that "The single most powerful source of influence on the undergraduate student's academic and personal development is the peer group, for the amount of interaction among peers has far-reaching effects on nearly all areas of student learning and development" (p. 3). Similarly, Cushman (2007) identified that FGC students need to develop a social network in order to persist. Therefore, it is imperative that FGC students are encouraged to develop relationships with other students, and teaching methods that promote this interaction could be very beneficial. Collaborative work (discussed below) is considered to be one possible pedagogical instrument to facilitate student relationship development.

Classroom experiences.

General. The literature, including a 2012 study by the Institute for Higher Education, includes a vast discussion of classroom techniques that may help FGC students overcome some of the challenges that they confront. To help overcome the issue of low self-efficacy, McMurray and Sorrells (2009) proposed using illustrative examples, as well as using individuals who are known to be FGC students as the participants (e.g., the teacher, past students, public figures) so that the students can relate their lived experiences to the academic concepts discussed in class. Lang (2010) also supported this pedagogical technique, which he referred to as the "invisible curriculum." In addition, McMurray and Sorrells (2009) suggested the use of humor and connections to popular current events to "break the ice" and increase the comfort level of FGC students.

Providing "redemptive opportunities" is another method of increasing student self-efficacy mentioned in the study. McMurray and Sorrells also found that "many FGC students may find it easier to not try rather than to risk additional failures if they perceive that there is no chance to recoup after an early poor performance" (p. 212). Further, since research has indicated that all students gain when a sense of community is fostered into the classroom experience (McKinney, McKinney, Franiuk, & Schweitzer, 2006; Robinson & Kakela, 2006), McMurray and Sorrells (2009) emphasized that it is important for the faculty member to attempt to create a "sense of community" within the classroom, in order to encourage cooperation and collaboration among all of the students. In addition, Pascarella and Terenzini (2005) and Chickering and Ehrmann (1996) concluded that active learning produced greater gains in learning and cognitive skill development than did the more traditional, lecture-and-discussion approach. In particular, Chickering and Ehrmann mentioned that FGC students "….must talk about what they are learning, write reflectively about it, relate it to past experiences, and apply it to their daily lives. They must make what they learn part of themselves" (p. 5). This is also supported by Quinn (2004) when he reported that the decision by FGC student to drop out was "because they do not feel they fit in or because they discover their true vocational nature (i.e., "hands-on," applied learning), can thus be interpreted as reinforcing their habitus" (p. 70). Therefore, Quinn asserts that FGC students need to learn in a manner that relates their "old habitus" to their "new habitus" of the college environment. Finally, Chickering and Ehrmann (1996) advocated the use of prompt and frequent feedback to improve the

self-efficacy of FGC students, since "Knowing what you know and don't know focuses your learning" (p. 4).

Assessment scaffolding. As discussed previously, Experiential Learning Theory (ELT) stresses that: frequent feedback is essential for learning, all learning is relearning, and it is essential to assimilate new experiences into existing concepts in order to increase student academic confidence, thereby also increasing student self-efficacy. The general concept of scaffolding, discussed previously and also studied by Dabbagh and Kitsantas (2005), satisfies these three ELT principles. The idea of *scaffolding of learning* (i.e., assessment scaffolding) can be defined as acquiring more powerful ideas as one completes progressive assessments (Lee & Shemitt, 2003; Vygotsky & Cole, 1978). "Until we understand how students' prior conceptions relate to one another, we cannot indulge in simplistic syncretism and lump everything together" (Lee & Shemilt, 2003, p. 13). Additionally, Black (1993) wrote, "Anyone planning teaching has to have some way to decide in what order pupils' thinking should be encouraged to develop – it is inconceivable that a subject's teaching be planned without some model of progression as a basis" (p. 13).

Williams and Hellman (2004) discovered that FGC students report significantly lower levels of "self-regulation" (i.e., successful monitoring of one's activities, performance and outcomes) for online learning than their second-generation counterparts, which indicates that frequent progressive assessments may be particularly beneficial to the learning process of FGC students. Finally, Terenzini et al. (1994) found that FGC students required more validation of their experiences, or "confirming signals that they

can be successful in college and are worthy of a place there" (p. 66). Repeated support for their progress can assist these students in maintaining the self-confidence that they need to persist and succeed in college.

Collaborative learning. Collaborative learning is defined as "a learning process that emphasizes group or cooperative efforts among faculty and students. It stresses active participation and interaction on the part of both students and instructors" (Hiltz, 1997, p. 11). This is in line with the tenets of Experiential Learning Theory. In addition, Karoly and Panis (2004) reported that collaborative skills will become increasingly important due to expected shifts in the nature of business organizations and the growing importance of knowledge-based work. Therefore, it appears that collaborative learning can help these students learn while in school and the format of this learning method may also help prepare them for their future work environment.

Online assessment. The *Chronicle of Higher Education's* report, Attitudes and Characteristics of Freshmen at Four-Year Colleges, fall, 2009, indicates that 77% of the students reported that they had "frequently" used the Internet for research or homework in the year prior. Therefore, this would lead one to assume that online learning would be a natural event for these students. In addition, this mode of instruction may be particularly useful for FGC students who often face the frequent pressures of commuting, working, family obligations, etc. However, as previously mentioned, Parry (2010) cautioned that online *courses* could prove troublesome to students who lack self-regulation. Therefore, a face-to-face classroom setting that includes online *assessment* may be the best combination. In particular, use of the Internet for course information,

assignments, and feedback may be beneficial to allow students to log in at home at their convenience (Chickering & Ehrmann, 1996; Fogg, 2007). In addition, Bridge and Appleyard (2008) conducted a study that compared online assessments to paper assessments. The results indicated that 88 percent of students reported a time saving and many reported financial benefits (both of which may be particularly important to FGC students) using online assessment submission and 93% of students preferred having their feedback available online rather than printed and handed to them. Chickering and Ehrmann (1996) also reported that technologies could help students learn in ways they find most helpful and expand their "learning inventories." For example, academically talented students who may work quicker and struggling students who need more time could each move at their own pace. In addition, the struggling student can get more feedback when needed and may have better access to direct help from teachers and other students, and students have the capability to work in groups from remote locations, which saves time and money, both of which may be in short supply for many FGC students. Chickering and Ehrmann also reported that the use of online assessments could develop reciprocity and cooperation among students, which could assist in a successful social transition for FGC students. The online nature of the assessment could also increase opportunities for beneficial, yet non-intimidating student-faculty interaction.

On a related note, Rotenstein et al. (2010) found a significant negative correlation between academic procrastination and academic performance, which may be a particularly common issue for FGC students since these students have been found to have lower levels of self-regulation than non-FGC students. Chickering and Ehrmann (1996)

and Schunk and Zimmerman (1996) suggested that technologies can increase time on task by making studying more efficient, while Rotenstein et al. (2010) suggested that providing interim feedback to students and encouraging students to begin their assignments earlier may help improve academic performance. In addition, the results of a study by Williams and Hellman (2004) highlighted the idea that some sort of online learning may be necessary, particularly for FGC students in order to promote self-regulation. Hiltz (1997) stressed that educators need to not only make Asynchronous Learning Networks (ALN) available to students, but they also need to assign tasks for credit and on definite due dates.

A review of the literature indicated that FGC students need intervention and support not only at the university level, but also at a more personal level, both inside and outside of the classroom. This study, which focused on the learning strategies of individual students and their perception of how various teaching strategies may contribute to their academic success, may prove beneficial for *all students*, but may be especially beneficial for students with at-risk background factors, such as being the first in their families to attend college. Given the challenge of retaining FGC students beyond the first two years of college, an extension of previous research was considered warranted in order to examine the role that learning strategies and select teaching strategies may play in helping FGC students persist and succeed in college.

CHAPTER THREE: METHODOLOGY

Research Design

A quantitative methodology was employed in this study, using data obtained from a survey administered to students at a private, four-year Midwestern university. In this study, students enrolled in undergraduate accounting courses were administered the Student Survey, which included 19 questions from the Motivated Strategies for Learning Questionnaire (MSLQ), as well as 24 additional researcher-authored items within three question categories related to course resources, course policies and teaching techniques (CRCPTT) that, per the literature previously discussed, are perceived to be potential contributors to FGC student academic success. The original plan was to administer the survey during the sixth week winter, 2014 academic quarter. The sixth week was chosen because it was assumed that midterm exam results would have been reported and the students would therefore have a sense of their level of success of understanding the course material. Also, the final date to drop a course was at the end of week seven of the academic quarter, and the thought was that a greater number of students would have remained enrolled in the course and more data could be collected. However, unexpected issues occurred that delayed that data collection period. As such, data was not collected until the final week of the 10-week academic quarter. As a result, fewer data may have been collected since students who performed poorly on the midterm exam may have dropped the course by this time. In addition a number of the lower-level course instructors who initially agreed to allow their students to be surveyed for the study needed to withdraw due to time constraints related to the need to complete coverage of

final exam material. On the other hand, this later data collection date may have allowed the students who did participate in the study to have an even better sense of how they were mastering the course material and student responses may therefore have been more informed at this later date.

The data was analyzed in relation to demographic variables that have been shown in earlier studies (Cushman, 2007; Hsiao, 1992; Inman & Mayes, 1999; Kuh et al., 2008; Lehnmann, 2007; NCES, 1998; Nunez & Cuccaro-Alamin, 1998; Quinn, 2004; Riehl, 1994; Terenzini et al., 1996; Thomas, 2009) to contribute to the social and academic challenges of FGC students. These select variables were then analyzed to determine whether they, along with FGC status, could help predict the learning strategies of the students, as well as the students' perception of the efficacy of the various teaching strategies (i.e., course policies, course resources and teaching techniques). In turn, the learning strategies and perceived importance of the teaching strategies were analyzed to see whether these items were positively related to student academic success. For this study, 'academic success' was measured using overall GPA for all students. In addition, since prior research (Choy, 2001; Ishitani, 2006; Thayer, 2000) indicates that FGC students are more likely to drop out of college during their freshman or sophomore year, an additional measure of 'academic success' for the FGC students surveyed was their capacity to persist to upper-level college student status.

Population and Sample

The sample for this study was drawn from a population of undergraduate students at a large, private, four-year Midwestern university. These students were enrolled in

various undergraduate accounting courses during the winter, 2014 academic quarter. The sample included data from 14 different sections of accounting courses and included 11 day sections and three night sections.

As mentioned previously, the research indicates that FGC students are more likely than non-FGC students to drop out during their first or second year of college. As such, the original goal was to obtain data from an equal number of lower-level and upper-level accounting classes. However, an unexpected delay in data collection approval process resulted in a number of lower-level course instructors withdrawing from the study. As a result, of the 14 course sections that were included in this study, only five of the sections were lower-level courses and the remaining nine sections were upper-level courses. This was deemed to be an important consideration of the study, since prior research (Nunez & Cuccaro-Alamin, 1998) has shown that, once FGC students "catch up" to their non-FGC peers in terms of academic preparation, self-regulation and self-efficacy, they are just as likely to persist in college and to achieve the same academic and professional success as non-FGC students. It may then also be inferred that the learning strategies and the perceived efficacy of teaching strategies of the FGC and non-FGC groups of upper-level students may be similar in nature.

In terms of the *number of* students surveyed, the initial goal was to collect as much data as possible in order to achieve a target *N* of at least 200 students. The university reported that 34% of the students in the fall, 2014 freshman class are FGC students, a statistic that has risen in the last decade. Therefore, the goal was to obtain a minimum sample of 68 FGC students (34% of 200). The actual results included data

from 334 students. Of those 334 students, 129 were FGC students. Thus, the initial goal of obtaining a representative number of FGC students was more than met.

Instrumentation

The instrument that was used in this study was the Student Survey and it included three sections: student demographics, student learning strategies, and student-perceived efficacy of select teaching strategies. The learning strategies section included 19 items from the Learning Strategies section of the Motivated Strategies for Learning Questionnaire (MSLQ). The teaching strategies section contained 24 researcher-developed items that were grouped into the three question categories of Course Resources, Course Policies and Teaching Techniques (CRCPTT) (see Appendix A for the survey instrument).

The MSLQ is an 81-item questionnaire comprised of two sections, motivation and learning strategies. Given that this study focused on the relationship between learning strategies and the academic success of FGC students, only those questions that relate to the challenges faced by these students were chosen. Based on the findings in the literature review, nineteen of the learning strategies section's original fifty items were used to assess a student's learning strategies and study skills related to accounting courses. In particular, four of the MSLQ's nine subscales within the learning strategies section were chosen: Time/Study Environmental Management, Effort Regulation, Peer Learning, and Help Seeking (see Appendix B). The items were designed to assess student use of different cognitive and metacognitive strategies, as well as student management of different resources. All items used from this questionnaire were scored

on a 7-point Likert scale: 1 (not true of me) to 7 (very true of me). Pintrich et al. (1991) and Pintrich, Smith, Garcia, and McKeachie (1993) tested the reliability and predictive validity of the MSLQ questionnaire. Confirmatory factor analysis was utilized to test for internal consistency and reliability. The majority of the Cronbach's alpha coefficients for the motivational and learning strategies scales were above .70, which points to acceptable internal consistency.

Martinez et al. (2009) found a relatively strong correlation between college GPA and FGC student attrition and suggested that an important contribution to FGC student persistence would be educational interventions, which may result in increasing the college GPA. In addition, Gullatt and Jan (2003) found that effective retention programs affirm and help students understand that academic success is not attained through individual achievement alone, but through an alliance of support. Thus, the researcher-developed survey questions focused primarily on teaching strategies intended to help FGC students overcome their academic challenges and were based on support strategies present in the literature review. These questions were scored on a 5-point Likert scale: 1 (did not help at all) to 5 (helped a lot). The questions were grouped into three subcategories: Course Resources (CR), Course Policies (CP), and Teaching Techniques (TT). Together, they make up the CRCPTT category of questions. These 24 questions were intended to explore the classroom elements that the students perceived to be contributing factors to their academic success thus far. After the survey was conducted, it was discovered that questions CP Q2 and TT Q6 were asking for essentially the same information and TT Q6 was thus excluded from the data analysis. After that adjustment,

the Cronbach's alpha coefficient for this group of questions was .89, which indicates good internal consistency.

Data Collection

The Student Survey was administered during class time during the tenth week of the winter, 2014 academic quarter in coordination with the instructors of 14 sections of various accounting courses, and data was collected from 334 students. Upon entering each classroom of the sections, the researcher explained the informed consent form and answered any student questions regarding completion of the survey. The researcher explained to the students that the survey consisted of providing demographic information, as well as, answering questions relating to learning and teaching strategies. The students were informed that the survey would take approximately 10 minutes to complete. Students were not asked to sign the informed consent form, as no identifying information was to be collected. The surveys were then distributed to the students by the course instructor, who remained in the classroom as the surveys were completed. The researcher left the room and stood immediately outside of the classroom in the event that the students had any questions while completing the survey. The course instructor then directed the students to place the survey in a large manila envelope when they were finished completing it. The manila envelope was located on the table in the front of the room. Once the time limit of 10-15 minutes had expired, the course instructor asked the remaining students to place their surveys in the manila envelope, and the course instructor then walked just outside the classroom to deliver the sealed manila envelope of surveys to the researcher.

Analysis of the Data

The data was analyzed using a number of techniques: a Chi-square test of student demographics by FGC status, correlation analysis, item analysis, factor analysis, multiple regression analysis, and independent samples t-tests for mean differences. The data analysis focus was driven primarily by the findings in the literature on FGC students. For example, prior research has found that the FGC students may be more likely than their non-FGC peers to have lower family incomes, live off-campus, work more hours while in school, have a lower average ACT score, include a higher percentage of minority and older students, and be more likely to have started their postsecondary academic careers at a two-year college. These demographic factors were analyzed to determine whether or not they may have a statistically significant influence on a student's learning strategies, student-perceived efficacy of the CRCPTT teaching strategies, and 'academic success'. For this study, academic success was measured by two factors: student overall GPA and persisting to the status of an upper-level accounting student.

Chi-square test – Student demographics. The Chi-square statistic (χ^2) was conducted for certain student demographics, partitioned by FGC status. This test is generally used to compare observed data with data one would expect to obtain according to a particular theory. The Chi-square statistic is calculated as: [sum of the squares of (observed values - expected values)/the expected values] and is a measurement of how expectations compare to results. If the difference in the results and expectations may be due simply to chance, the p-value of χ^2 will be $> \alpha$. If the p-value of χ^2 is $< \alpha$, the difference is thought to be caused by something other than chance.

Correlation analysis. Correlation analysis was conducted to determine the strength of a relationship between the variables used in this study. A strong correlation implies that two or more variables have a strong relationship with one another while a weak correlation infers that the variables are barely related. Pearson's correlation coefficients (r) can span from -1.00 to +1.00. Assuming that the correlation is statistically significant, the value of -1.00 signifies a perfect negative correlation whereas a value of +1.00 signifies a perfect positive correlation, and value of .00 suggests that there is no relationship between the variables being examined. Franzblau (1958) believed the following: an "r" .00 to +.20 (or .00 to -.20) indicates *no or negligible* correlation; an "r" of +.21 to + .40 (or -.21 to -.40) indicates *a low degree of* correlation; an "r" of +.41 to +.60 (or -.41 to -.60) indicates *a moderate degree of* correlation; an "r" of +.61 to +.80 (or -.61 to -.80) indicates *a marked degree of* correlation, and an "r" of +.81 to +1.00 (or -.81 to -1.00) indicates *a high* correlation. The literature on FGC students implies that certain demographic variables (e.g., family income, commuter status, number of hours worked while in school) may be correlated with FGC status. These demographic variables, in turn, are thought to have an impact on the learning strategies of these students, as well as students' tendency to take advantage of supplemental course resources, such as on-campus tutor labs. For the 334 students included in the study, it was discovered that the correlations between FGC status and a number of the student demographic characteristics were statistically significant ($p < .05$). However, only three of the *statistically significant* correlations fell above the 'no' or 'negligible' correlation categories. Specifically, the correlation between FGC status and parental income was

-.37, the correlation between FGC status and commuter status was .30, and the correlation between FGC status and being of Hispanic ethnicity was .25.

Since multicollinearity can be an issue when using multivariate linear regression analysis, correlation analysis was used to detect strong relationships between any of the variables. Due to the multiple independent variables used in this study, an intercorrelation matrix was generated for all of the variables and is available in Appendix D. This matrix provided the correlations between each dependent variable and the independent variables, as well as the correlations between each independent variable. Any variables that exhibited a statistically significant Pearson correlation coefficient (r) > .50 were analyzed further to determine which variables to exclude. Specifically, the GPA multiple regressions were run again with the first variable retained and the second variable dropped, and then again with the first variable dropped and the second variable retained. The variable that produced the higher regression model R^2 was retained. For example, the Pearson correlation coefficient (r) between the average number of hours worked per week while in school and the current number of paid jobs during the school year was .55, indicating a moderate degree of positive correlation between the two variables, and the latter variable was dropped from further statistical analysis. In addition, the 'r' between the variable relating to whether the student began at the current university or transferred from another two-year college or four-year college (BEG) and the related native student versus transfer student dummy variable (NAT: native = 0, transfer = 1) was .90, indicating a high degree of positive correlation between the two variables, and the former variable was eliminated from further statistical analysis.

Further, the Pearson correlation coefficient (r) between where the student lived while in school (LIV: dormitory or other on-campus housing, an off-campus residence within walking distance, or a residence within driving distance) and the dummy variable, 'commuter' (COM: commuter = 1, non-commuter = 0) was .91, indicating a high degree of positive correlation between the two variables, and the former variable was dropped from further statistical analysis. Lastly, the 'r' between the number of accounting courses previously completed (CRS) and upper/lower student standing (LVL: determined by the course in which the student was enrolled) was .82, indicating a high degree of positive correlation between the two variables. As a result, the former variable was eliminated from further statistical analysis.

Finally, as is discussed later in this paper, correlation analysis was conducted on the factor loadings/scores produced by factor analysis and the author-calculated related mean response scores of survey questions grouped by factor analysis. As is also discussed later, this correlation analysis was performed because if a student failed to respond *to any one of* the MSLQ or CRCPTT survey questions, a factor loading/score would not be produced by SPSS. As a result, analyses run using the factor loadings/ scores had a sample number that was significantly lower than 334 (i.e., the total number of students surveyed). To increase the usable sample size, mean response scores of the survey questions (described below) grouped by factor analysis were calculated. However, before these mean response scores could be comfortably used to supplant the factor loadings/scores, a strong correlation between the two items needed to be verified. For *each of* the seven factor groupings, the mean response score of the survey questions

that were grouped by factor analysis was strongly correlated to its respective factor loading score, and the correlation was statistically significant. The correlations ranged from .99 to .79 and the *p-value* for of the seven correlations was < .01. The correlation results are discussed in detail later in the paper, and the related intercorrelation matrices can be found in Appendix D.

Item analysis – Cronbach's alpha. Item analysis reveals how well a set of questions (i.e., 'items') measure a single scale (or group concept) and helps to identify questions that are problematic. Cronbach's alpha, a measure of item analysis, is the most common measure of internal consistency ("reliability"). It is most commonly used when multiple Likert questions are used in a survey/questionnaire that form a scale and is employed to help determine if the scale is reliable. It is expressed as a single number and indicates how well a set of items measures a single concept. While an alpha of .80 is considered to be a reasonable goal, values greater than .70 are generally considered to be acceptable (Carmines & Zeller, 1979). However, a high value for Cronbach's alpha does not necessarily indicate that the scale/group is one-dimensional. As such, a method such as factor analysis should be employed to determine the possible components of the group/scale.

Factor analysis. Factor analysis was run on both the MSLQ learning strategies survey questions and the CRCPTT teaching strategies survey questions. Factor analysis is a technique of data reduction in which the observed variables or measured variables are "linear combinations of some underlying source variables" (Kim & Mueller, 1978, p. 8). In the current study, exploratory factor was used to reduce the nineteen MSLQ learning

strategies questions and 20 of the 24 CRCPTT teaching strategies questions into smaller groups/components as determined by the factor analysis statistical procedure. The other four CRCPTT teaching strategies questions were eliminated due to the high number of 'N/A' student responses.

The factor analysis results included two MSLQ Learning Strategy groups/ components and five CRCPTT groups/components. Once the internal consistency of the groupings was confirmed using the Cronbach's Alpha measure of internal consistency (discussed later), these factor groupings of survey questions were then used in the various other statistical tests that were performed, including correlation analysis, multiple linear regression analysis, and the independent samples *t*-test for mean differences.

Regression analysis. Given the gap in the literature regarding empirical testing of FGC students' perceived efficacy of teaching strategies designed to help student learning and academic success, regression analyses were conducted to investigate whether or not, and to what degree (if any), student demographics are associated with student perception of the efficacy of the available course resources, course policies and teaching techniques (CRCPTT) that (per the literature) may have a positive effect on FGC student academic success. Regression analyses were conducted on the mean of the student responses *for each of* two MSLQ Learning Strategies components/groups that were determined by the factor analysis. The mean of the student responses *for each of* the five CRCPTT components/groups (determined by factor analysis) were also regressed on student demographics. Since FGC students often enter college academically underprepared, prior research (Chen, 2005; Riehl, 1994) suggests that the mean scores of each of the two

MSLQ components and each of the five CRCPTT components and may be lower for FGC students than for other students. This may be explained, in part, by the fact that FGC students are more likely to be lower income students who commute to school and work many hours during the school year (Cushman, 2007; Lehnmann, 2007; Nunez & Cuccaro-Alamin, 1998; Quinn, 2004).

However, a major problem associated with multivariate regression analysis is inclusion of too many predictor variables for the number of subjects included in the study. There were 22 possible predictor variables planned for this study. And while standard multivariate regression analysis (i.e., all possible predictor variables are entered into the regression equation at once) helps to answer questions related to how each predictor variable uniquely contributes to the model, the focus of the current study was to attempt to determine the best combination of predictor variables (with an emphasis placed on FGC status) to predict student learning strategies and perception of the efficacy of select teaching strategies such as course resources, course policies and teaching techniques. Thus, the stepwise method option in SPSS of statistical regression analysis was used for all multivariate regression analyses conducted in this study in order to identify the most parsimonious linear combination of predictor variables that maximally correlated with the target (dependent) variable, as evidenced by a 'high' R^2. SPSS stepwise regression is a combination of the forward and backward statistical regression methods in that it begins with no predictor variables in the model and then builds the model by adding/deleting predictors as the R^2 of the subsequent models rises/falls. Since the current study attempts to predict human behavior, a 'high' R^2 may be indicated even

though it is below 50% (Simon, 1992) in that low R^2 models can still be relied upon in that the statistically significant predictor variables can nonetheless help draw important conclusions about how changes in predictor variable values are associated with the change in the target variable value.

While a strong correlation between two variables in itself can be considered a positive finding in that it may uncover hidden relationships, it may also be considered an undesirable finding when using regression analysis in that it indicates the possibility of multicollinearity. Multicollinearity is problematic since it can make some variables statistically insignificant while they would be otherwise significant. In short, inclusion of the two strongly correlated variables as possible predictors will often result in them offsetting each other. A common way to detect multicollinearity is to produce variance inflation factors (VIF) for each predictor variable. If no two predictor variables are correlated, then all the VIFs will be 1.00. VIF scores approaching 5.00 are considered problematic, since they indicate collinearity of one variable with another variable. Thus, if there are two or more variables that have a VIF around or greater than 5.00, one of these variables should be deleted from the regression model. To ascertain the best one to remove, each variable is removed individually, and the variable whose inclusion results in the higher R^2 is retained. VIF scores were generated for each of the regression analyses conducted in this study to look for multicollinearity.

GPA. Martinez, Sher, Krull and Wood (2009) found a relatively strong correlation between college GPA and FGC student attrition and suggested that an important contribution to FGC student persistence would be educational interventions

that result in increasing the college GPA. Thus, GPA was used as one measure of student academic success, and regression analyses were run setting GPA as the dependent variable. The potential predictor variables included student demographics and the mean responses of two MSLQ learning strategies groups: Self-Regulation and Peer Learning & Help Seeking. The regression tests were conducted first for all students surveyed and then again with the data partitioned by FGC status.

MSLQ question set. Separate regression analyses were run *for each of* the two MSLQ learning strategies groups (*Self-Regulation* and *Peer Learning & Help Seeking*), setting the mean responses of the group as the dependent variable. The potential predictor variables included demographic characteristics, as well as the mean scores of the CPCRTT teaching strategies groups (as determined by factor analysis). The potential independent (predictor) variables that were used are shown below:

> upper v. lower-level course, day v. night course, FGC status, gender, race, age, family income, native v. transfer student, commuter v. non-commuter student, overall current GPA, number of accounting classes currently taking, average number of hours worked per week while in school, university-sponsored group member, student athlete, mean of the *CRCPTT Required Participation & Personal Interaction* questions, mean of the *CRCPTT Feedback* questions, mean of the *CRCPTT Online Assessment* questions, mean of the *CRCPTT Instructor-Prepared Help* questions, mean of the *CRCPTT Required Non-Exam Assessment* questions.

CRCPTT question set. Separate regression analyses were also conducted for *each of* the five CRCPTT teaching strategies groups to determine whether certain demographic characteristics, such as FGC status, play a significant role in predicting students' 'perception' that various course resources, course policies and teaching techniques (CRCPTT) improve their success in a course, as indicated by responses to the CRCPTT teaching techniques questions. As it relates to FGC status, student perception of classroom 'interventions' to help improve learning has not been formally tested in the literature and, as noted previously in this paper, prior research suggests that these teaching strategies may improve the success for any student, but may have a greater impact on the success of FGC students. The question was, however, do FCG students *perceive* that these teaching techniques help? For example, the list of course policies used in this study includes items such as required attendance, required homework, and required quizzes. For some students, these items may not be very important since they may already have intrinsic motivation to attend class and complete homework and quizzes, but to students who have lower self-regulation tendencies, these course policies may be perceived as helping with time on task issues.

A separate regression analysis was run *for each of* the five CRCPTT groups (*Online Assessment, Instructor-Prepared Help, Required Non-Exam Assessment, Required Participation & Personal Interaction,* and *Feedback*), setting the mean responses of the group as the dependent variable and demographic characteristics as independent variables. The potential independent (predictor) variables that were used are shown below:

upper v. lower-level course, day v. night course, FGC status, gender, race, age, family income, native v. transfer student, commuter v. non-commuter student, overall current GPA, number of accounting classes currently taking, average number of hours worked per week while in school, university-sponsored group member, student athlete.

Independent samples t-test. An independent samples *t*-test entails comparison of mean scores between two groups to determine whether the mean scores are statistically significantly different. The difference between two means is said to be statistically significant if it is discovered that a difference between two groups' means is unlikely to have occurred because of random chance in sample selection. A number of independent samples *t*-tests were conducted to determine if mean scores of student demographic variables, MSLQ learning strategies, and the perceived efficacy of the CRCPTT teaching strategies CRCPTT were significantly different by FGC status.

CHAPTER FOUR: RESULTS

Chi-Square Test

Chi-square tests were performed on the differences in student demographics, partitioned by FGC status. If the difference in the observed results and expectations may be due simply to chance, the *p*-value of χ^2 will be > α. If the *p*-value of χ^2 is < α, the difference is thought to be caused by something other than chance. Since 38.6% (129 of 334) of the students surveyed were FGC students, the mathematical expectation was that this percentage would apply to any of the demographic variables used in the study. Instead, the Chi-square test results indicated that a number of the demographics were dependent on FGC status. In particular, the Chi-square results (χ^2 (1) = 4.49, $p < .05$) for day versus night classes indicates that the difference in the observed percentage students enrolled in night courses who were FGC students (50.0) and the expected percentage (38.6) was statistically significant. Also statistically significant was the difference in the observed percentage (44.2) and the expected percentage (38.6) of upper-level standing students who were FGC students (χ^2 (1) = 6.99, $p < .01$). Further, the Chi-square results (χ^2 (1) = 13.78, $p < .001$) for low income status (i.e., a total family income of less than $30,000) indicated that the difference in the observed percentage low income families which included non-college-educated parents (64.4) and the expected percentage (38.6) was statistically significant. Commuter status was another variable that was dependent on FGC status (χ^2 (1) = 30.26, $p < .001$). The difference in the observed percentage of commuter students who were first in their families to attend college (51.9) and the expected percentage (38.6) was statistically significant.

Additionally, the Chi-square results (χ^2 (1) = 6.39, $p < .05$) for students working greater than 25 hours per week while in school indicated that the difference in the observed percentage of FGC students (50.0) and the expected percentage (38.6) was statistically significant. This is significant since prior research (Kuh et al., 2008) found that working more than 20 hours per week had a considerable negative impact on college student grades, even after controlling for students' characteristics and their levels of engagement. Also statistically significant was the difference in the observed percentage (26.5) and the expected percentage (38.6) of members of a university-sponsored group who were FGC students (χ^2 (1) = 10.71, $p < .01$). Prior research (Cushman, 2007; Lehnmann, 2007; Quinn, 2004) suggests that this lower than expected result may be associated with the fact that many of these students commuted to school and worked many hours during the academic year, thus leaving limited time to participate in on-campus activities such as student groups and making it more difficult for them to feel that they are part of the college community. Astin's (1985) Theory of Involvement and the results of a study by Kuh and Pike (2005) suggest that involvement in co-curricular activities such as student organizations has a positive connection with student retention and academic success. Thus, teaching strategies that encourage participation with others both within and outside the classroom may be beneficial to all students, but may be even more helpful to FGC students, in particular. Finally, the Chi-square results (χ^2 (1) = 7.38, $p < .01$) for minority students indicated that the difference in the observed percentage of FGC students (50.0) and the expected percentage (38.6) was statistically significant. Within minority groups, the Chi-square results (χ^2 (1) = 20.71, $p < .001$) for Hispanic

students indicated that the difference in the observed percentage of FGC students (73.0) and the expected percentage (38.6) was statistically significant.

The results of the Chi-square test analysis related to the demographic data of the FGC students surveyed support the prior research in a number of areas. In particular, the FGC students had a higher than average tendency to: take night classes, come from low income families, commute to school, work greater than 25 hours per week during the school year, *not* be involved in university-sponsored student groups, and belong to a minority group.

In addition, the Chi-square test results indicated that a greater than expected percentage of upper-level students were FGC students. Since the FGC students were also more likely to come from lower income families, an additional Chi-square test was conducted for the type of institution at which these students began their post-secondary education, with the expectation being that these students might be more likely to have started their post-secondary education at a 2-year college. If this were true, these FGC students would fall into the category of upper-level transfer students. The Chi-square test results indicated that the difference in the observed percentage (38.76) and the expected percentage (30.84) of *upper-level transfer students* who were FGC students was statistically significant (χ^2 (4) = 10.82, $p < .05$). This result indicated that transferring in to the university was dependent on FGC status and could help explain the lower percentage of FGC students that were enrolled in the lower-level accounting courses.

Factor Analysis

MSLQ question set. A principle component analysis (PCA) was conducted on the 19 MSLQ Learning Strategy items with orthogonal rotation (varimax). The Kaiser-Meyer-Olkin measure verified the sampling adequacy of the analysis, KMO = .81 ('great' per Field, 2009). Bartlett's test of sphericity $\chi^2(171) = 1767.03$, $p < .001$, indicating that correlations between items were sufficiently large for PCA. An initial analysis was run to obtain eigenvalues for each component in the data. Five components had eigenvalues over Kaiser's criterion of 1.0 and in combination explained 56.18% of the variance. Per Table 1 presented below, the items that cluster on the same components/groups indicate that two main components are present. Component (Group) 1 items represent the overall concept of *Self-Regulation* as indicated by the Time & Study Environment and Effort Regulation Strategies questions that were included in this group. Component (Group) 2 items represent *Help Seeking and Peer Learning*. It is worth mentioning that a number of the questions were reverse-coded, as indicated by the designation, (R), at the end of the question.

CRCPTT question set. A principle component analysis (PCA) was conducted on 20 of the 24 Course Resources, Course Policies and Teaching Techniques (CRCPTT) question items with orthogonal rotation (varimax). As mentioned previously, four of the 24 questions were eliminated from the analysis due to high rate of 'N/A' responses for those questions. The Kaiser-Meyer-Olkin measure verified the sampling adequacy of the analysis, KMO=.78 ('good' per Field, 2009). Bartlett's test of sphericity $\chi^2(190) = 1614.69$, $p < .001$, indicating that correlations between items were sufficiently large for

Table 1

MSLQ Questions: Survey Items and Measurement Scales

Indicators	Mean	*SD*	Self-Regulation (SREG)	Peer Learning & Help Seeking (PLHS)
I work hard to do well in this class even if I don't like what we are doing.	5.64	1.39	0.75	
I made good use of my study time for this course.	4.64	1.50	0.75	
Even when course materials are dull and uninteresting, I manage to keep working until I finish.	5.69	1.31	0.74	
I often feel so lazy or bored when I study for this class that I quit before I finish what I planned to do (R)	4.85	1.64	0.60	
I make sure I keep up with the weekly readings and assignments for this course.	4.50	1.83	0.58	
I usually study in a place where I can concentrate on my coursework.	5.90	1.42	0.58	
When course work is difficult, I give up or only study the easy parts. (R)	5.66	1.39	0.57	
I find it hard to stick to a study schedule. (R)	3.95	1.84	0.54	
I have a regular place set aside for studying.	4.62	1.92	0.49	
I rarely find time to review my notes or readings before an exam. (R)	5.59	1.57	0.40	
I attend this class regularly	5.59	1.57	0.36	
I ask the instructor to clarify concepts I don't understand well.	4.26	1.90	0.30	
I often find that I don't spend very much time on this course because of other activities. (R)	4.45	1.72	0.24	
When I can't understand the material in this course, I ask another student in this class for help.	4.10	2.05		0.83
When studying for this course, I often set aside time to discuss the course material with a group	2.83	1.79		0.79
I try to work with other students from this class to complete the course assignments.	3.86	2.08		0.78
I try to identify students in this class whom I can ask for help if necessary.	4.30	2.03		0.74
Even if I have trouble learning the material in this class, I try to do the work on my own, without help from anyone. (R)	3.00	1.65		0.55
When studying I often try to explain the material to a classmate or friend.	3.51	1.79		0.53
Cronbach's Alpha			0.79	0.81
Variance explained (PC, ML): 38.2%, 33.4%				
KMO measure of sampling adequacy: 0.81				
Bartlett's text of sphericity: 0.000				

PCA. An initial analysis was run to obtain eigenvalues for each component in the data. Six components had eigenvalues over Kaiser's criterion of 1.00 and in combination explained 66.94% of the variance.

Per the SPSS Rotated Component Matrix presented below, the items that cluster on the same components/groups suggest that five main components are present. Component (Group) 1 items represent *Required Participation and Personal Interaction*, Component (Group) 2 items represent *Feedback*, Component (Group) 3 items represent *Online Assessment*, Component (Group) 4 items represent *Instructor-Prepared Help*, and Component (Group) 5 items represent *Required Non-Exam Assessment*.

Table 2

CRCPTT Questions: Survey Items and Measurement Scales

Indicators	Mean	*SD*	Required Participation & Personal Interaction (RPPI)	Feedback (FB)	Online Assessment (ONL)	Instructor-Prepared Help (HELP)	Required Non-Exam Assessment (REQA)
Class participation as part of the course grade	3.04	1.52	0.84				
Instructor encouragement of class participation	3.71	1.15	0.73				
The instructor making a point to get to know me personally	3.79	1.19	0.57				
Working in groups during class	3.11	1.27	0.47				
Required attendance	3.85	1.39	0.44				
Assignments that build on previous concepts	4.36	0.78		0.66			
Immediate use of learning through the use of class examples	4.49	0.81		0.65			
Frequent feedback on quizzes and homework	4.41	1.00		0.64			
Take-home quizzes (open book, open note)	4.06	1.09		0.58			
The instructor encouraging me to come directly to him/her for help	3.89	1.16		0.51			
Multiple-attempt online homework with instant feedback	4.23	1.07			0.93		
Multiple-attempt online quizzes with instant feedback	4.25	1.05			0.92		
Online homework	3.79	1.09			0.54		
Course lectures	4.34	0.81				0.79	
Class examples	4.63	0.70				0.74	
Prepared class notes	4.61	0.78				0.64	
Required quizzes	4.09	1.08					0.75
Required homework	4.29	1.00					0.70
Reading the textbook on my own	3.33	1.21					0.52
Cronbach's Alpha			0.71	0.76	0.78	0.72	0.83
Variance explained (PC, ML): 61.81%, 51.80% KMO measure of sampling adequacy: 0.78 Bartlett's text of sphericity: 0.000							

Factor scores. While use of individual factor analysis scores in data analysis is the preferred method, the high number of nonresponses to various survey questions resulted in a relatively low number of factor analysis scores, since factor scores for each survey question are calculated by summing up the individual *z*-score multiplied by the SPSS-generated factor analysis coefficient. If a student failed to answer just one of the 19 MSLQ questions and/or if a student failed to answer just one of the 20 CRCPTT questions that were retained, factor scores would not be generated for either of the two MSLQ groups or any of the five CRCPTT groups. As a result, mean responses of the question groupings (as determined by factor analysis) were calculated by summing up the student response for each of the items comprising the scale and then dividing that sum by the number of scale items. For example, the mean response for Required Participation and Personal Interaction = [(CP Q2+TT Q5+ TT Q7+CP Q3+CP Q1)/5]. Correlations were then conducted between the mean responses and the factor scores to ensure that these means were reliable proxies for the factor scores. For the two MSLQ groupings, the mean responses were highly correlated with the related factor scores of (i.e., 'r' of .98 and .99). In addition, for *each of* the five CRCPTT groupings, the mean responses were also highly correlated with the related factor scores. The 'r' ranged from .79 to .94, indicating that the overall strong correlations between the mean responses and the factor scores were strong. In addition, use of the mean responses resulted in a significantly higher *N* for data analysis, adding strength to the results. Therefore, the mean responses were used in the data analyses.

Regression Analysis

The Ecological Systems Theory **(**Bronfenbrenner, 1989) relates to the thought that students who are first in their family to attend college may share a common ecological trait, regardless of demographic differences, such as race or gender. According to this theory, development is the result of interactions between characteristics of the person and the environment over the course of one's life. With regards to college students, academic success is a function of both personal characteristics (i.e., intellectual ability, academic aptitudes, motivation, and aspirations) and the characteristics of the external environment, which can be thought of as a configuration of layered interdependent structures. According to this theory, personal characteristics of students, specifically their motivations to attend college, and background factors, such as the availability of social support from family and peers, may influence college outcomes. Working with this theory, regression analyses were first run using for all students and again after partitioning the data by FGC status. Thus, the tables presented include results for all students, FGC students, and non-FGC students.

Since GPA is one measure of student academic success, the first category of regressions were run setting GPA as the dependent variable and the students demographics, MSLQ learning strategies, and CRCPTT teaching strategies as the potential predictor variables. These regressions were run to help determine which combination (if any) of these three categories of variables might be statistically significant in helping to predict GPA.

The second set of analyses were run for *each of* the two MSLQ groupings, setting the grouping mean as the dependent variable and the student demographic characteristics mentioned previously as potential predictor variables, as well as the means of all five CRCPTT grouping means as potential predictor variables. The purpose of running these regressions was to help determine the combination of demographics and perceptions about the CRCPTT strategies that could statistically significantly influence the students' learning strategies.

The third group of regression analyses was run *for each of* the five CRCPTT groupings, setting the grouping mean as the dependent variable, and the student demographic characteristics as the potential predictor variables. These regressions were run to help determine which (if any) demographic characteristics might be statistically significant in determining whether a student perceives that the various CRCPTT strategies are helpful in his/her academic success in a course.

The following variable names apply to the results:

ACT = ACT Score

AFR = Black/African-American (1), Non-Black, African-American (0)

AGE = Age of student

ASN = Asian (1) Non-Asian (0)

ATH = Are you a DePaul student athlete? (No=0, Yes=1)

CAU = Caucasian (1) Non-Caucasian (0)

CLS = Number of classes taken this term

COM = Commuter (1), Non-commuter (0)

ND = Night class (1), Day class (0),

FB = Mean of CRCPTT *Feedback* Questions

FGC = FGC Student (1), non-FGC Student (0)

GEN = Female (1), Male (0)

GPA = Current overall GPA (range; see the Student Survey in Appendix A)

GRP = Member of a university-sponsored student group (1), Non-member (0)

HISP = Hispanic (1), Non-Hispanic (0)

HELP = Mean of CRCPTT *Instructor-Prepared Help* Questions

HRS = Number of hours worked while in school (range; see the Student Survey in Appendix A)

INC = Parents' total income (range; see the Student Survey in Appendix A)

LVL = Upper (1) level or Lower (0) level course

TRFR = Transfer student (1), Native student (0)

ONL = Mean of CRCPTT *Online Assessment* Questions

PLHS = Mean of MSLQ *Peer Learning & Help Seeking* Questions

REQA = Mean of CRCPTT *Required Non-Exam Assessment* Questions

RPPI = Mean of CRCPTT *Required Participation & Personal Interaction* Questions

SREG = Mean of MSLQ *Self-Regulation* Questions

GPA. The first set of regressions were run setting GPA as the dependent variable and student demographic variables and the two MSLQ learning strategies grouping as the potential predictor variables. The results (see Table 3 below) suggest that for the 334 students surveyed, higher ACT scores, upper-level class standing, stronger MSLQ *Self-Regulation* tendencies, being a native student, taking a greater number of classes during the current academic session, having a lesser tendency to employ peer learning and to seek help, and being of the female gender were all statistically significant factors

associated with a higher GPA. For FGC students alone, stronger MSLQ *Self-Regulation* tendencies and a higher ACT score were the only statistically significant factors in predicting a higher GPA. For non-FGC students, a number of factors were statistically significantly associated with a higher GPA. These factors include: reporting a higher ACT score, upper-level standing, taking a greater number of classes during the current academic session, being of the female gender, being a native (non-transfer) student, possessing stronger MSLQ *Self-Regulation* tendencies, commuting to campus, and being of the Caucasian race.

These results suggest that FGC students who have stronger self-regulation skills may be more likely to achieve academic success, as indicated by a higher GPA. Thus, it was important to explore whether student demographic characteristics and the teaching strategies included in the Student Survey could help predict student learning strategies.

Table 3

Regression Results (Dependent Variable = GPA)

All Students				**FGC Students**				**Non-FGC Students**			
Variable	**B**	***SE* B**	**β**	**Variable**	**B**	***SE* B**	**β**	**Variable**	**B**	***SE* B**	**β**
ACT	0.07	0.02	.30***	ACT	0.07	0.03	.31*	ACT	0.09	0.02	.38***
LVL	0.50	0.12	.29***					LVL	0.49	0.13	.32***
CLS	0.16	0.07	.16*					CLS	0.29	0.08	.29**
GEN	0.29	.011	.18*					GEN	0.35	0.12	.24**
TRFR	-0.40	0.12	-.25**					TRFR	-0.41	0.13	-.27**
SREG	0.24	0.06	.26***	SREG	0.43	0.12	.45**	SREG	0.20	0.07	.24**
COM								COM	0.38	0.13	.26**
CAU								CAU	0.26	0.13	.17*
PLHS	-0.09	0.04	-.15*								
Constant	0.56	0.62		Constant	-0.11	1.00		Constant	-0.96	0.74	
N = 129 F = 14.70 Sig F = .00 R^2 = .46				N = 47 F = 9.29 Sig F = .00 R^2 = .29				N = 81 F = 10.55 Sig F = .00 R^2 = .54			

* $p < .05$, ** $p < .01$, *** $p < .001$

MSLQ learning strategies. The regressions were run *for each of* the two learning strategies: *Self-Regulation*, and *Peer Learning & Help Seeking*, setting the learning strategy as the dependent variable, and student demographic variables and the five CRCPTT teaching strategies groupings as the potential predictor variables.

***Self-regulation*.** The results (see Table 4 below) suggest that for the 334 students surveyed, perceiving *Instructor-Prepared Help* (HELP) and *Required Participation & Personal Interaction* (RPPI) as more helpful, reporting a higher GPA, living within walking distance of campus and taking day classes were the statistically significant factors in predicting students with stronger self-regulation tendencies. For FGC students alone, higher *Self-Regulation* tendencies were associated with perceiving *Instructor-Prepared Help* (HELP), and *Required Participation & Personal Interaction* (RPPI) as more helpful, and earning a higher GPA. The fact that two of the five teaching strategies were statistically significant in predicting student self-regulation practices is important in that, as previously discussed, higher levels of student self-regulation practices were statistically significantly associated with a higher student GPA. This supports previous research (Nota, Soresi & Zimmerman, 2004) that self-regulatory practices are positively associated with academic achievement. For non-FGC students, perceiving *Feedback* (FB) as more helpful, reporting a higher GPA, and living within walking distance of campus were the statistically significant predictors of higher levels of *Self-Regulation* tendencies.

Table 4

Regression Results (Dependent Variable = MSLQ Self-Regulation)

All Students				**FGC Students**				**Non-FGC Students**			
Variable	**B**	***SE* B**	**β**	**Variable**	**B**	***SE* B**	**β**	**Variable**	**B**	***SE* B**	**β**
HELP	0.30	0.11	.22**	HELP	0.37	0.15	.30*				
GPA	0.28	0.08	.25**	GPA	0.37	0.12	.35**	GPA	0.29	0.12	.25*
RPPI	0.21	0.08	.21**	RPPI	0.26	0.11	.28*				
COM	-0.31	0.13	-.18*					COM	-0.41	0.17	-.24*
ND	-0.33	0.16	-.16*								
FB								FB	0.36	0.13	.28**
Constant	2.11	0.60		Constant	1.04	0.75		Constant	2.57	0.75	
N = 131 F = 9.83 Sig F = .00 R^2 = .28				N = 49 F = 10.17 Sig F = .00 R^2 = .40				N = 81 F = 6.26 Sig F = .01 R^2 = .19			

* $p < .05$, ** $p < .01$, *** $p < .001$

Peer learning and help seeking. Pintrich et al. (1991) posited that peer help, peer tutoring, and individual teacher assistance promote student academic success. With reference to the MSLQ learning strategies grouping of *Peer Learning & Help Seeking* learning strategies, the results (see Table 5 below) suggest that for the 334 students surveyed, perceiving *Required Participation & Personal Interaction* (RPPI) as more helpful, and living within walking distance of campus were the statistically significant factors in predicting students with stronger *Peer Learning & Help Seeking* tendencies. For FGC students alone, stronger *Peer Learning & Help Seeking* tendencies were associated with perceiving *Required Participation & Personal Interaction* (RPPI) as more helpful and being of upper-level standing. This would suggest that requiring participation and/or collaborative learning may help FGC students feel more comfortable interacting with others on the college campus. This is important in that the research

(Gullatt & Jan, 2003; Thayer, 2000) indicates that is it essential for FGC students to integrate into both the formal academic system and the informal social system of the university community. This integration helps these students build social capital which, in turn, can help improve their self-efficacy and thus their chances of persistence and academic success (O'Keefe & Djeukeng, 2010). For the non-FGC students, perceiving *Online Assessment* (ONL) as more helpful and being of a younger age were associated with stronger *Peer Learning & Help Seeking* tendencies. This implies that younger non-FGC students may be comfortable interacting with their college peers and may collaborate while completing online assessments. These differences by FGC status suggest that age and student standing (i.e., upper versus lower-level standing) may influence the perceived efficacy of various teaching strategies. FGC students appear to appreciate the required, face-to-face collaboration while the non-FGC students may be content using informal, voluntary collaboration with other students. These findings support the theory (Astin, 1993; Dennis, Phinney & Chauteco, 2005; Pike & Kuh, 2005; Wilkins & Doyle, 2002) that 'forced' classroom engagement may be needed for FGC students to derive the academic benefits of collaborative learning.

Table 5

Regression Results (Dependent Variable = MSLQ Peer Learning & Help Seeking)

All Students				**FGC Students**				**Non-FGC Students**			
Variable	**B**	***SE* B**	**β**	**Variable**	**B**	***SE* B**	**β**	**Variable**	**B**	***SE* B**	**β**
RPPI	0.47	0.13	.31***	RPPI	0.70	0.19	.47**				
COM	-0.49	0.23	-.18*								
LVL				LVL	0.86	0.41	.26*				
ONL								ONL	0.49	0.14	.35**
AGE								AGE	-0.19	0.07	-.30**
Constant	2.38	0.46		Constant	0.53	0.76		Constant	5.81	1.45	
N = 130 F = 9.48 Sig F = .00 R^2 = .13				N = 48 F = 8.55 Sig F = .01 R^2 = .27				N = 81 F = 9.72 Sig F = .00 R^2 = .20			

* $p < .05$, ** $p < .01$, *** $p < .001$

CRCPTT teaching strategies. The teaching strategies included in the Student Survey were chosen based on FGC students challenges discussed in the literature. For example, multiple-attempt online assessments may serve an effective method of helping FGC students overcome low academic-self-efficacy since the students are able to learn at their own pace, in their own home (an important consideration for commuter students) and are able to build on their previous work. Since the teaching strategies of *Instructor-Prepared Help* (HELP) and *Required Participation & Personal Interaction* (RPPI) were statistically significant predictors of the MSLQ learning strategies for FGC students, the data was partitioned by FGC status, and a third set of stepwise regression analyses were run *for each of* the five groupings of CRCPTT teaching strategies.

Required participation and personal interaction. Abundant research has indicated that FGC students tended to reap significant benefits from practices that forced them to engage in the class, such as group presentations and other collaborative projects

(Astin, 1993; Dennis, Phinney & Chauteco., 2005; Pike & Kuh, 2005; Wilkins & Doyle, 2002). Further, Chickering and Ehrmann (1996) concluded that active learning produced greater gains in learning and cognitive skill development for FGC students, in particular, than did the more traditional, lecture-and-discussion approach. Astin (1993, 1999) reported that there is a relationship between the effectiveness of educational policies and practices and "student involvement." He defined an involved student as "one who ... devotes considerable energy to studying, spends much time on campus, participates actively in student organizations, and interacts frequently with faculty members and other students" (p. 518). Prospero and Vohra-Gupta (2007) suggested that the involvement of FGC students could lead to improved retention and academic success of this student population. Similar to involvement, literature regarding FGC students stated that *engagement* is important to the overall academic experience of this student population (Soria & Stebleton, 2012). In addition, studies have shown that positive relationship exists between FGC student's engagement in various educational practices (e.g., interacting with faculty and college peers) and cognitive and emotional growth in college (Wang, 2012; Wilkins & Doyle, 2002).

The results shown below in Table 6 indicate that, for FGC students alone, a lower ACT score and belonging to a university-sponsored student group were statistically significant factors in predicting the student perception that *Required Participation & Personal Interaction* was more helpful. For non-FGC students, Table 6 reveals that a lower ACT score was the sole statistically significant variable associated with *Required Participation & Personal Interaction* being perceived as more helpful. These results

suggest that students who, as indicated by a lower ACT score, began their college experience less prepared academically tend to perceive 'forced' participation and collaboration as helpful to their academic success. This is especially important for FGC students, since past research indicates that these students are more likely than their non-FGC peers to enter college underprepared for the rigors of post-secondary coursework. Thus, these findings support the theory (Astin, 1993; Dennis, Phinney & Chauteco, 2005; Pike & Kuh, 2005; Wilkins & Doyle, 2002) that 'forced' classroom engagement may be needed for FGC students to derive the academic benefits of collaborative learning.

Table 6

Regression Results (Dependent Variable = Required Participation & Personal Interaction)

All Students				**FGC Students**				**Non-FGC Students**			
Variable	**B**	***SE* B**	**β**	**Variable**	**B**	***SE* B**	**β**	**Variable**	**B**	***SE* B**	**β**
ACT	-0.60	0.02	-.24***	ACT	-0.07	0.03	-.25*	ACT	-0.05	0.02	-.19*
GRP	0.33	0.12	.18**	GRP	0.55	0.23	.25*				
Constant	4.91	0.43		Constant	4.96	0.69		Constant	4.78	0.59	
N = 218 *F* = 9.09 Sig *F* = .00 R^2 = .08				N = 83 *F* = 5.68 Sig *F* = .01 R^2 = .12				N = 134 *F* = 5.07 Sig *F* = .05 R^2 = .04			

* $p < .05$, ** $p < .01$, *** $p < .001$

Feedback. Chickering and Ehrmann (1996) advocated the use of prompt and frequent feedback to improve the self-efficacy of FGC students, since "Knowing what you know and don't know focuses your learning" (p. 4), and abundant research points to the fact that academic self-efficacy is positively related to persistence rates in college (Bong, 2001; Choi, 2005; Pajares & Schunk, 2001; Zimmerman, 2000). Research also

indicates that individuals are more likely to engage in tasks about which they feel proficient and confident, and avoid those that they do not (Moore, 2013; Pajares & Schunk, 2001). Further, Solberg and Villarreal (1997) reported a link between academic self-efficacy and perceived college stress and *their combined effect* on academic success for FGC students.

The regression results presented in Table 7 below indicate that, for FGC students alone, a higher family income and being of minority status (i.e., non-Caucasian) were associated with students perceiving that *Feedback* is more helpful to academic success. This suggests that *Feedback* may be particularly helpful to minority FGC students. For non-FGC students, a younger age, belonging to the female gender, and reporting a lower ACT score were the statistically significant variables associated with the perception that *Feedback* is more helpful to academic success.

Table 7

Regression Results (Dependent Variable = Feedback)

All Students				**FGC Students**				**Non-FGC Students**			
Variable	**B**	***SE* B**	**β**	**Variable**	**B**	***SE* B**	**β**	**Variable**	**B**	***SE* B**	**β**
AGE	-0.07	0.03	-.20*					AGE	-0.11	0.03	-.36***
GEN	0.26	0.12	.17*					GEN	0.27	0.12	.20*
ACT								ACT	-0.04	0.02	-.19*
INC				INC	0.13	0.04	.37**				
CAU				CAU	-0.54	0.21	-.32*				
Constant	5.63	0.60		Constant	3.93	0.18		Constant	7.50	0.85	
N = 163 F = 6.87 Sig F = .01 R^2 = .08				N = 60 F = 5.81 Sig F = .01 R^2 = .17				N = 102 F = 8.24 Sig F = .00 R^2 = .20			

* $p < .05$, ** $p < .01$, *** $p < .001$

Online assessment. Online assessments may help students learn in ways they find most helpful and may also expand their "learning inventories" (Chickering & Ehrmann, 1996). In addition, the struggling student can get more feedback when needed and may have better access to direct help from teachers and other students, as students have the capability to work in groups from remote locations. Online assessments may also save time and money, both of which may be in short supply for many FGC students. Chickering and Ehrmann also reported that the use of online assessments could develop reciprocity and cooperation among students, which could assist in a successful social transition for FGC students. Others (Williams & Hellman, 2004) found a significant negative correlation between academic procrastination and academic performance, which may be a particularly common issue for FGC students, who (as previously discussed) have been found to have lower levels of self-regulation than non-FGC students. Chickering and Ehrmann (1996) and Schunk and Zimmerman (1996) suggested that technologies can increase time on task by making studying more efficient, while Rotenstein, Davis and Tatum (2010) suggested that providing interim feedback to students and encouraging students to begin their assignments earlier may help improve academic performance.

The results displayed in Table 8 below suggest that FGC students reporting a higher ACT scores perceive *Online Assessment* as more helpful. For the non-FGC students, being of the female gender, reporting a higher GPA, reporting a lower ACT score, being of upper-level student standing, and living on campus were associated with the perception that *Online Assessment* was more helpful.

Table 8

Regression Results (Dependent Variable = Online Assessment)

All Students				**FGC Students**				**Non-FGC Students**			
Variable	**B**	***SE* B**	**β**	**Variable**	**B**	***SE* B**	**B**	**Variable**	**B**	***SE* B**	**β**
GEN	0.32	0.14	.17*					GEN	0.42	0.16	.23*
GPA	0.16	0.08	.15*					GPA	0.32	0.12	.27**
ACT				ACT	0.08	0.03	.31**	ACT	-0.09	0.03	-.33**
LVL								LVL	0.46	0.17	.24**
COM								COM	-0.44	0.16	-.25**
Constant	3.32	0.35		Constant	2.24	0.73		Constant	4.81	0.66	
N = 180 F = 5.50 Sig F = .01 R^2 = .06				N = 73 F = 7.48 Sig F = .01 R^2 = .10				N = 106 F = 8.20 Sig F = .00 R^2 = .29			

* $p < .05$, ** $p < .01$, *** $p < .001$

Since *Online Assessment* was a statistically significant predictor for the *Peer Learning & Help Seeking* learning strategies group, further investigation was conducted for *Online Assessment.* Specifically, additional regression analyses were run with the data partitioned by various demographic variables, and statistically significant results emerged in two of the analyses. In particular, when the data was partitioned by student class standing, FGC status emerged as a statistically significant predictor variable of the perceived efficacy of *Online Assessment*. As shown in Table 9 below, for students of *lower-level* standing, the perception that *Online Assessment* was more helpful to academic success was associated with: belonging to the female gender, being the first in the family to attend college, reporting a higher GPA, taking fewer classes, and living within walking distance of campus. This suggests that instructors in *lower-level* courses may want to employ the use of online assessments as a support strategy for all students, but for FGC students and female students, in particular. The results shown in Table 9

also imply that *upper-level* Hispanic students perceive *Online Assessment* as helpful. Since 85% of the *upper-level* Hispanic students surveyed for this study were FGC students, these findings support the theory that asynchronous learning, which repeatedly validates student incremental learning, may have a positive effect on FGC student academic success.

When the data was partitioned by gender, FGC status emerged as a statistically significant predictor variable for the perceived efficacy of *Online Assessment*. However, this was true only for male students. As shown in Table 10 below, upper-level student standing and being a FGC student were associated with the male students' perception that *Online Assessment* was more helpful to academic success. This suggests that FGC male students see asynchronous learning as helpful.

Table 9

Regression Results by Class Level Standing (Dependent Variable = Online Assessment)

All Students				**Lower-level Students**				**Upper-level Students**			
Variable	**B**	***SE* B**	**β**	**Variable**	**B**	***SE* B**	**β**	**Variable**	**B**	***SE* B**	**β**
FGC				FGC	1.08	.28	.51***				
GEN	0.32	0.14	.17*	GEN	.69	.25	.33**				
GPA	0.16	0.08	.15*	GPA	.36	.14	.32*				
CLS				CLS	-.34	.16	-.26*				
COM				COM	-.86	.26	-.42**				
HISP								HISP	.51	.21	.21*
Constant	3.32	0.35		Constant	3.63	0.80		Constant	4.11	0.08	
N = 180 F = 5.50 Sig F = .01 R^2 = .06				N = 54 F = 6.76 Sig F = .00 R^2 = .41				N = 125 F = 5.95 Sig F = .02 R^2 = .05			

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 10

Regression Results by Gender (Dependent Variable = Online Assessment)

All Students				**Female Students**				**Male Students**			
Variable	**B**	***SE* B**	**β**	**Variable**	**B**	***SE* B**	**B**	**Variable**	**B**	***SE* B**	**β**
FGC								FGC	.36	.18	.18*
GEN	0.32	0.14	.17*								
GPA	0.16	0.08	.15*								
LVL								LVL	.45	.20	.21*
Constant	3.32	0.35						Constant	3.51	.18	
				NO							
N = 180				VARIABLES				N = 111			
F = 5.50				WERE				F = 4.42			
Sig F = .01				STATISTICALLY				Sig F = .01			
R^2 = .06				SIGNIFICANT				R^2 = .08			

* $p < .05$, ** $p < .01$, *** $p < .001$

Instructor-prepared help. Gullatt and Jan (2003) reported that low-income and FGC students need *an alliance of* support to help them persist and succeed in college. It is with this support that the students sense that others in the university community care about their ability to learn and to succeed academically. Support strategies adopted by instructors that indicate such concern and care (i.e., prepared class notes, class examples, and prepared course lectures) have been found to help FGC students to overcome the issue of low self-efficacy (McMurray & Sorrells, 2009).

As shown by Table 11 below, for FGC students alone, Hispanic heritage was associated with the perception that *Instructor-Prepared Help* was more beneficial to academic success. In addition, since the family income category of the Hispanic students who participated in the current study was statistically significantly lower (M = 3.90, SD = 2.36) than non-Hispanic student participants (M = 5.06, SD = 2.68), $t(287) = 2.27$, p =

0.02, the regression results suggest that low-income and FGC students may recognize and appreciate instructors' efforts to help them learn course material.

Table 11

Regression Results (Dependent Variable = Instructor-Prepared Help)

All Students				**FGC Students**				**Non-FGC Students**			
Variable	**B**	***SE* B**	**β**	**Variable**	**B**	***SE* B**	**β**	**Variable**	**B**	***SE* B**	**β**
ND	-0.28	0.11	-.16*								
AGE	-0.06	0.02	-.17*					AGE	-0.08	0.02	-.27**
HISP	0.33	0.14	.16*	HISP	0.46	0.19	.25*				
CLS	-0.11	0.05	-.14*								
Constant	6.25	0.58		Constant	4.36	0.09		Constant	6.20	0.50	
N = 231 F = 5.55 Sig F = .00 R^2 = .09				N = 91 F = 5.80 Sig F = .05 R^2 = .06				N = 139 F = 10.62 Sig F = .01 R^2 = .07			

* $p < .05$, ** $p < .01$, *** $p < .001$

Required non-exam assessment. As indicated by Table 12 below, FGC students with a higher family income found *Required Non-Exam Assessment* more helpful to their academic success. This finding supports the theory that lower income students, many of whom are FGC students, may come to college unfamiliar with post-secondary education practices that are designed to help student learning. Related to non-FGC students, lower-level student standing, being of Hispanic heritage, reporting a lower ACT score, and enrolling in day classes were associated with a higher perception of the benefits of *Required Non-Exam Assessment* on academic success.

Table 12

Regression Results (Dependent Variable = Required Non-Exam Assessment)

All Students				**FGC Students**				**Non-FGC Students**			
Variable	**B**	***SE* B**	**β**	**Variable**	**B**	***SE* B**	**β**	**Variable**	**B**	***SE* B**	**β**
ND	-0.42	0.14	-.19**					ND	-0.66	0.17	-.31***
INC	0.07	0.02	.19**								
GEN	0.28	0.11	.15*								
INC				INC	0.12	0.04	.31**				
HISP								HISP	0.89	0.34	.21**
ACT								ACT	-0.05	0.02	-.19*
LVL								LVL	-0.30	0.13	-.19*
Constant	3.92	0.13		Constant	3.69	0.18		Constant	5.88	0.53	
N = 233 F = 8.99 Sig F = .00 R^2 = .11				N = 92 F = 9.91 Sig F = .01 R^2 = .10				N = 140 F = 7.82 Sig F = .00 R^2 = .19			

* $p < .05$, ** $p < .01$, *** $p < .001$

Independent Samples T-tests for Mean Differences

Independent samples T-tests by FGC status were performed for demographics, the mean response scores of *each of* the two MSLQ learning strategies groupings, and the mean response scores of *each of* the five CRCPTT teaching strategies groupings. The T-tests were conducted to expose any statistically significant differences in the means of FGC students and their non-FGC peers.

Demographics. Related to demographics, according to what has been found in the previously discussed prior research, we would expect to find statistically significant mean differences between some FGC and non-FGC student demographic characteristics. Thus, it was not surprising to discover that the FGC student participants in the current study were statistically significantly more likely to have demographics that (per the literature) might make persisting in college more of a challenge as compared to their non-

FGC peers. For example FGC students were more likely (M = 0.71, SD = .05) than their non-FGC peers (M = 0.56, SD = 0.50) to take night courses, $t(332) = -2.66$, $p = 0.01$. In addition the FGC students had lower family income levels (M = 3.71, SD = 2.52) than the non-FGC students (M = 5.75, SD = 2.45), $t(287) = 6.83$, $p = 0.00$. FGC students were also more likely to commute to college (M = 0.74, SD = 0.44) than non-FGC students (M = 0.43, SD = 0.50), $t(329) = -5.75$, $p = 0.00$. Also, FGC students were more likely to report a lower average ACT score (M = 25.15, SD = 3.86), than non-FGC students (M = 26.33, SD = 3.18), $t(262) = 2.71$, $p = 0.01$. FGC students also reported a lower overall GPA range (M = 4.02, SD = 0.99), than non-FGC students (M = 4.24, SD = 0.82), $t(328) = 2.21$, $p = 0.03$. Furthermore, FGC students worked more hours while in school (M = 2.05, SD = 1.19) than non-FGC students (M = 1.75, SD = 1.16), $t(331) = -2.35$, $p = 0.02$. Moreover, FGC students were less likely to be a involved in campus student groups (M =0.23, SD = .042) than non-FGC students (M = 0.41, SD = 0.49), $t(331) = 3.32$, $p = 0.00$. Finally, FGC students were more likely to be Non-Caucasian (i.e., a member of a minority group (M = 0.49, SD = 0.50) than the non-FGC students (M = 0.64, SD = 0.48), $t(332) = -2.74$, $p = 0.01$. Of the minority groups included, FGC students (M = 0.21, SD = 0.41) were more likely than non-FGC students (M = 0.05, SD = 0.22) to be of Hispanic heritage, $t(332) = -4.69$, p =.00.

MSLQ learning strategies. The aforementioned literature on FGC students suggests that statistically significant mean differences between FGC students and non-FGC students may be present for such variables as *Self-Regulation* learning strategies, as well as the *Peer Learning & Help Seeking* learning strategies. In particular, theory

suggests that FGC students may lack self-regulation skills and may be less likely to interact with and seek help from others.

Self-regulation. Although the mean for the self-regulation learning strategies grouping was higher for the FGC students (M = 5.20, SD = 0. 89) than the non-FGC students (M = 5.14, SD = 0.86), the difference was *not* statistically significantly different $t(328) = -0.60$, $p = 0.55$. The data was then partitioned by class level standing (i.e., upper-level and lower-level). Theory would suggest that the lower-level FGC students may report a lower self-regulation score, but this was not the case here. For both the upper-level students and lower-level students, the mean was higher for the FGC students than for the non-FGC students, but the differences were *not* statistically significant. Specifically, for the upper-level students, the mean of the FGC students was (M = 5.17, SD = 0.83) was *not* statistically significantly different from the non-FGC students (M = 5.04, SD = 0.95), $t(203) = -1.06$, $p = .29$. Similarly, the lower-level FGC students mean (M = 5.27, SD = 1.03) was *not* statistically significantly different from lower-level non-FGC students mean (M = 5.26, SD = .87), $t(123) = -0.06$, $p = .95$. However, this may be due to the fact that these students are more likely to commute to school and work more hours while in school. The necessity to balance these different commitments may, in turn, require a high level of self-regulation. Results may thus be different in a university in which the majority of students live on campus.

Peer learning and help seeking. When looking at all 334 of the students surveyed, the mean was higher for the non-FGC students (M = 3.63, SD = 1.34) than the FGC students (M = 3.53, SD = 1.42), but this difference was *not* statistically significant,

$t(328) = 0.66$, $p = 0.51$. The data was then partitioned by class level (i.e., upper-level and lower-level). For the upper-level students, the mean was higher for the FGC students ($M = 3.82$, $SD = 1.42$) than for the non-FGC students ($M = 3.74$, $SD = 1.27$) but this difference was *not* statistically significant, $t(200) = -0.47$, $p = 0.64$. However, for lower-level students, the mean for the *non-FGC* students ($M = 3.50$, $SD = 1.42$) *was* statistically significantly higher than that of the FGC students ($M = 2.85$, $SD = 1.17$), $t(126) = 2.39$, $p = 0.01$. This appears to indicate that the lower-level *non*-FGC students may be more comfortable seeking help from others than are their FGC student peers. This agrees with the theory that lower-level FGC students may need time develop their social skills as they acclimate to college life and the university community.

CRCPTT teaching strategies. While the literature suggests that the various teaching strategies may help FGC students more than students in general, the question of the current study related to the students' *perceived* efficacy of these teaching strategies. The literature does not appear to address the perception issue that was included in this study. However, the results indicate that the means of only two of the five groupings of teaching strategies were statistically significant as they relate to FGC status. *Non*-FGC students ($M = 4.59$, $SD = 0.55$) found *Instructor-Prepared Help* more valuable than the FGC students ($M = 4.42$, $SD = 0.74$), $t(323) = 2.13$, $p = 0.04$. In addition, *non*-FGC students ($M = 4.29$, $SD = 0.62$) found *Feedback* more valuable than the FGC students ($M = 4.10$, $SD = 0.81$), $t(231) = 1.98$, $p = 0.05$. Thus, the teaching strategies that are believed most likely to help FGC students were perceived as more helpful by the non-FGC students. While this finding appears contrary to the FGC student theory, it may simply

indicate that the non-FGC students are more cognizant of the benefits of these teaching strategies than their FGC student classmates.

The data was then partitioned by student-level standing (i.e., upper-level versus lower-level). For the upper-level students, there were no statistically significant differences by FGC status for the perceived efficacy of any of the five teaching strategies groupings. This supports prior research that indicates that, once FGC students overcome their unique academic and social challenges and persist to upper-level student standing, they appear to 'catch up' to their non-FGC peers and assimilate into the college community. On the other hand, lower-level FGC students ($M = 4.33$, $SD = 0.79$) perceived *Online Assessment* to be statistically significantly more helpful than lower-level, non-FGC students ($M = 3.88$, $SD = 0.96$), $t(78) = -2.10$, $p = 0.04$. This finding supports the theory FGC students who have not yet persisted beyond the crucial first two years of college may recognize and appreciate the chance to complete academic assessments at their own pace, in their own learning environment, via the student-centered teaching method of asynchronous learning.

CHAPTER FIVE: DISCUSSION

Interpretation of the Results

Approximately one-third of today's college students are first in their families to attend college. These 'first-generation' college (FGC) students often enter college with unique academic and social challenges that must be overcome in order to persist and succeed in college, and the attrition rate for FGC students is almost twice that of non-FGC students. However, when they do persist and graduate, these students appear to have the same success rate and earnings potential as non-FGC graduates (Nunez & Cuccaro-Alamin, 1998).

Tinto's (1993) "Model of Institutional Departure" states that, to persist, students need integration into both the "formal" (academic performance) and the "informal" (faculty/staff interactions) academic systems and formal (extracurricular activities) and informal (peer-group interactions) social systems. While numerous studies have focused on *university-level* interventions and programs to help FGC students persist and succeed in college, very few studies have looked at *classroom-level* interventions that may help FGC students succeed academically. The purpose of this study was to explore student perceptions of the efficacy of various teaching strategies in promoting the learning strategies that have been shown in previous research to be positively related to FGC student academic success. The results of the data analysis were partitioned by FGC status, and based on the literature. The expectation was that statistically significant differences would be present between the FGC students and the non-FGC students.

The results indicated that the demographic characteristics of the FGC students surveyed for this study were comparable to those of prior studies. Thus, the expectation was that the data analysis results would support prior theory in that these demographics 'risk factors' (e.g., low income, living off-campus, and working many hours while in school) would be associated with lower self-regulation skills and a lower GPA.

Perhaps the most central finding was related to student GPA, which was one of the two measures of academic success that was used in this study. The results indicated that higher self-regulation was positively associated with a higher GPA for both FGC students and non-FGC students. As a result, further analyses were conducted to determine whether the perceived efficacy of the teaching strategies included in the Student Survey and/or student demographics were positively associated with stronger self-regulation skills for FGC students. The results of those analyses indicated that perceiving instructor-prepared help (i.e., course lectures, class examples, and prepared class notes) as more beneficial to academic success was positively associated with higher self-regulation (coefficient 0.37, β .30, $p = .045$). In addition, perceiving *required* class participation and personal interaction (e.g., class participation as part of the course grade, required attendance, and working in groups during class) as beneficial to academic success was positively associated with higher self-regulation (coefficient 0.26, β .28, $p = .025$). These results suggest that the use of instructor-prepared materials and 'forcing' FGC students to participate in class may help these students develop the stronger self-regulation skills that have been shown in this and prior studies to be positively associated with academic success.

Another notable finding was related to FGC students' tendency to learn from peers and seek help when needed. The results indicated that *required* class participation and personal interaction was positively associated with peer-learning and help-seeking (coefficient 0.70, β .47, $p = .01$). This result supports prior research that indicates that 'forced' classroom engagement may be needed for FGC students to derive the academic benefits of collaborative learning, which, in turn, can help them integrate into both the formal academic system and the informal social system of the university community. This acclimatization has been shown in prior research to help FGC students improve their self-efficacy and thus their chances of persistence and academic success

The other measure of academic success used in this study was persistence to upper-level student standing. Thus, additional data analysis was conducted after partitioning the data by upper-level versus lower-level student standing. The stepwise regression results for *lower-level* students indicated that FGC status (FGC=1, non-FGC =0) was a statistically significant predictor of the perceived efficacy of multiple-attempt, online assessments which included instant feedback (coefficient 1.08, β .51, $p = .00$). Similarly, *lower-level* FGC students ($M = 4.33$, $SD = 0.79$) perceived online assessments to be statistically significantly more helpful than *lower-level*, non-FGC students ($M = 3.88$, $SD = 0.96$), $t(78) = -2.10$, $p = 0.04$. These findings support the theory that FGC students who have not yet persisted beyond the crucial first two years of college may recognize and appreciate the chance to complete academic assessments at their own pace, in their own learning environment, via the student-centered teaching method of asynchronous learning. However, the results for upper-level students revealed that there

were *no* statistically significant differences by FGC status in the means of any of the five teaching strategies groupings. This supports prior research that indicates that, once FGC students overcome their unique academic and social challenges and persist to upper-level student standing, they appear to 'catch up' to their non-FGC peers and assimilate into the college community.

Further, a number of demographic characteristics of the FGC students were found to be statistically significant in predicting student-perceived efficacy of the teaching strategies used in this study. In particular, Hispanic heritage was associated with the perception that instructor-prepared help (i.e., course lectures, class examples, and prepared class notes) was more beneficial to academic success (coefficient 0.46, β .25, p = .03). In addition, a higher family income (coefficient 0.13, β .37, p = .004) and being of minority status (Caucasian=1, non-Caucasian=0) (coefficient -.54, β .32, p = .02) were positively associated FGC students' perceptions of the helpfulness of feedback (i.e., assignments that build on previous concepts, immediate use of learning through the use of class examples, frequent feedback on quizzes and homework, take-home quizzes, instructor encouragement to come directly to him/her for help). Collectively, these findings suggest that a number of the teaching strategies included in this study may be particularly helpful to the learning process of minority FGC students.

To conclude, the current study expanded on prior research by examining the influence that particular teaching strategies may have on FGC student persistence and academic success. The results of this study add to the previous literature in that they provide a better insight related to *classroom-level* interventions that may help FGC

students overcome their unique social and academic challenges and attain their goal of being the first in their families to earn a college degree.

Limitations

The sample was one of convenience and may not have included a fair representation of all accounting students. For example, due to unexpected delays in research approval process, the data was not collected until the final week of the academic quarter. As such, a number of the lower-level course instructors who initially agreed to allow their students to participate in the study needed to withdraw due to time constraints related to the need to complete coverage of course material for the final exam. Thus, the sample included fewer students overall and resulted in a larger than anticipated sampling of upper-level accounting students. Since many of the challenges of FGC students are most problematic in the first two years of college, the underrepresentation of lower-level course students in the survey sample resulted in a less than ideal sample of FGC students.

Implications for Future Research

Since FGC students are more likely to drop out during their first two years of college, future research might include more data on lower-level standing FGC students. In addition, a longitudinal study that follows these lower-level FGC students past the first two years of college could be beneficial. Future research could observe and study the development of the *self-regulation* and *peer learning and help seeking* skills necessary to overcome FGC student challenges. Ishitani (2003) investigated longitudinal effects of being a FGC student on attrition rates, but this study did not include the effect of various learning and teaching strategies on attrition rates. Further, a data collection method which

allows students more time to complete the Student Survey might be used to allow the students to more carefully develop their answers to the survey questions. In addition, as mentioned previously in this study, the results of the Chi-square test indicated that the institution at which the student participants began their post-secondary education was dependent on FGC status. In particular the results indicated that FGC students were more likely to transfer in from a two-year college. Thus, replicating the current study at two-year colleges may expand the knowledge base related to FGC student attrition since these students are more likely to drop out of college during the first two years of study. Finally, a mixed-methods research methodology might be employed in a future study of FGC student-learning strategies to attempt to learn the 'why' behind the quantitative results obtained from a student survey and to gain a deeper insight into the strategies that were used by upper-level FGC students to persist beyond the first two years of college.

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APPENDIX A: SURVEY INSTRUMENT

INFORMATION SHEET FOR PARTICIPATION IN RESEARCH STUDY

Principal Investigator: Susan M. Lueders, graduate student in the Ed.D. Educational Leadership Program

Institution: DePaul University, USA

Faculty Advisor: Dr. Gayle Mindes, Ed.D., College of Education

I am conducting a research study because I am trying to learn more about the challenges faced by college students in their pursuit of a four-year college degree, and an exploration of classroom-level techniques and interventions that may assist and motivate these students in overcoming these challenges and successfully earn a baccalaureate degree. I am asking you to be in the research because my focus is on commerce students who attend a four-year university. If you agree to be in this study, you will be asked to fill out a survey. The survey includes questions about your learning strategies and study skills, as well as course resources, policies and teaching techniques that you perceive to be contributors to your academic success thus far. I will also collect some personal information about you such as gender, age, race and family income. If there is a question you do not want to answer, you may skip it.
This study will take approximately 10 minutes of your time. Your information will be anonymous. Please do not place your name on survey.

Your participation is voluntary, which means you can choose not to participate. There will be no negative consequences if you decide not to participate or change your mind later after you begin the study. You can withdraw your participation at any time prior to turning in your survey. If you choose to complete the survey, please place it in the large envelope at the front of the classroom. If you change your mind later while answering the survey, you may simply stop completing the survey and place the survey in the trash container in the classroom. Once you place the survey in the large envelope, we will be unable to remove your data later from the study because all data is anonymous and we will not know which data belongs to you. Your decision whether or not to be in the research will not affect your grade in this course.

You must be age 18 or older to be in this study. This study is not approved for the enrollment of people under the age of 18.

If you have questions, concerns, or complaints about this study or you want to get additional information or provide input about this research, please contact me at 312-362-5600 or at slueders@depaul.edu. In addition, you may contact Dr. Gayle Mindes at gmindes@depaul.edu.

If you have questions about your rights as a research subject you may contact Susan Loess-Perez, DePaul University's Director of Research Compliance, Office of Research Protections in the Office of Research Services at 312-362-7593 or by email at sloesspe@depaul.edu. You may also contact DePaul's Office of Research Protections if:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.

You may keep this information for your records.

DEMOGRAPHIC INFORMATION	
Gender	☐ Male ☐ Female
Age:	☐
Racial or ethnic identification:	☐ American Indian or Alaskan Native ☐ Asian ☐ Black or African American ☐ Hispanic or Latino ☐ Native Hawaiian/Other Pacific Islander ☐ White/Caucasian ☐ Multi-racial ☐ Prefer not to answer
Your best estimate of your parents' total income last year (before taxes):	☐ Less than $15,000 ☐ $15,000 - $29,999 ☐ $30,000 - $44,999 ☐ $45,000 - $59,999 ☐ $60,000 - $74,999 ☐ $75,000 - $89,999 ☐ $90,000 – $104,999 ☐ $105,000 - $119,999 ☐ $120,000 or greater ☐ Prefer not to answer ☐ Do not know
Number of accounting courses you have *completed prior to this academic quarter*:	☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ >9
Highest education level attained *by your mother*:	☐ High school diploma ☐ Some college ☐ Undergraduate college degree ☐ Graduate college degree
Highest education level attained *by your father*:	☐ High school diploma ☐ Some college ☐ Undergraduate college degree ☐ Graduate college degree
Highest education level attained *by any of your brothers*:	☐ Lower than high school diploma ☐ High school diploma ☐ Some college ☐ Undergraduate college degree ☐ Graduate college degree ☐ N/A
Highest education level attained *by any of your sisters*:	☐ Lower than high school diploma ☐ High school diploma ☐ Some college ☐ Undergraduate college degree ☐ Graduate college degree ☐ N/A
Your college *major*(s):	☐ Accountancy ☐ Business Administration ☐ E-business ☐ Economics ☐ Finance ☐ Hospitality Leadership ☐ Management ☐ Marketing ☐ Management Information Systems ☐ Real Estate ☐ Non-business
Did you begin your college education here or did you transfer from another institution?	☐ Began here ☐ Transferred from a community college ☐ Transferred from another 4-year university
Where do you live during the school year while attending this institution?	☐ Dormitory or other on-campus housing ☐ Residence within driving distance ☐ Off-campus housing within walking distance to campus
What was your ACT or SAT composite score?	**ACT**_____ **SAT**_____
What is your current overall GPA?	☐ Below 2.0 ☐ 2.00 to 2.49 ☐ 2.50 to 2.99 ☐ 3.00 to 3.49 ☐ 3.50 to 4.00
How many classes are you taking this term?	☐ 1 class ☐ 2 classes ☐ 3 classes ☐ 4 classes ☐ 5 classes ☐ 6 or more classes
On average, how many hours per week do you work outside of school during the school year?	☐ 0 hours ☐ < 10 hours per week ☐ 10 to 25 hours per week ☐ 26 to 36 hours per week ☐ > 36 hours per week
***At this time*, how many paid jobs do you have during the school year?**	☐ 0 ☐ 1 ☐ 2 ☐ 3 or more
Are you a student athlete?	☐ No ☐ Yes
Do you belong to any university-sponsored student group(s)?	☐ No ☐ Yes If yes, please list_____

PART A. LEARNING STRATEGIES

The following questions ask about your *learning strategies and study skills* <u>for this class</u>. Again, there are no right or wrong answers. Answer the questions about how you study in this class as accurately as possible. Use the same scale to answer the remaining questions.

If you think the statement is very true of you, circle 7; if a statement is not at all true of you, circle 1. If the statement is more or less true of you, find the number between 1 and 7 that best describes you.

	Not at all true of me						*Very true of me*
LEARNING STRATEGIES AND STUDY SKILLS:							
1. When studying for this course, I often try to explain the material to a classmate or friend.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
2. I usually study in a place where I can concentrate on my course work.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
3. I often feel so lazy or bored when I study for this class that I quit before I finish what I planned to do.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
4. Even if I have trouble learning the material in this class, I try to do the work on my own, without help from anyone.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
5. I make good use of my study time for this course.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
6. I try to work with other students from this class to complete the course assignments	**1**	**2**	**3**	**4**	**5**	**6**	**7**
7. I work hard to do well in this class even if I don't like what we are doing.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
8. When studying for this course I often set aside time to discuss course material with a group of students from the class.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
9. I find it hard to stick to a study schedule.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
10. I ask the instructor to clarify concepts I don't understand well.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
11. When course work is difficult, I either give up or only study the easy parts.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
12. I have a regular place set aside for studying	**1**	**2**	**3**	**4**	**5**	**6**	**7**
13. When I can't understand the material in this course, I ask another student in this class for help.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
14. I make sure that I keep up with the weekly readings and assignments for this course.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
15. I attend this class regularly.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
16. Even when course materials are dull and uninteresting, I manage to keep working until I finish.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
17. I try to identify students in this class whom I can ask for help if necessary.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
18. I often find that I don't spend very much time on this course because of other activities.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
19. I rarely find time to review my notes or readings before an exam.	**1**	**2**	**3**	**4**	**5**	**6**	**7**

PART B. PERCEIVED CONTRIBUTORS TO SUCCESS: Think of all of the accounting classes you have taken thus far (including this one).

20. What *course resources* do you feel have best helped you to succeed in your accounting classes?

	Did not help at all				*Helped a lot*	
COURSE RESOURCES:						
Reading the textbook on my own	1	2	3	4	5	N/A
Meeting with my instructor	1	2	3	4	5	N/A
Course lectures	1	2	3	4	5	N/A
Class examples	1	2	3	4	5	N/A
On campus tutor lab	1	2	3	4	5	N/A
In-class quizzes	1	2	3	4	5	N/A
Online quizzes	1	2	3	4	5	N/A
Online homework	1	2	3	4	5	N/A
Other (please specify):_____						

21. Which *course policies* do you feel have helped you succeed in your accounting courses?

	Did not help at all				*Helped a lot*	
COURSE POLICIES:						
Required attendance	1	2	3	4	5	N/A
Class participation as part of the course grade	1	2	3	4	5	N/A
Working in groups during class	1	2	3	4	5	N/A
Required homework	1	2	3	4	5	N/A
Required quizzes	1	2	3	4	5	N/A
Frequent feedback on quizzes and homework	1	2	3	4	5	N/A
Other (please specify):_____						

22. Which *teaching techniques used by your professors* do you feel have helped you succeed in your accounting courses?

	Did not help at all				*Helped a lot*	
TEACHING TECHNIQUES:						
Prepared class notes	1	2	3	4	5	N/A
Multiple-attempt online homework with instant feedback	1	2	3	4	5	N/A
Multiple-attempt online quizzes with instant feedback	1	2	3	4	5	N/A
Assignments that build on previous concepts	1	2	3	4	5	N/A
Instructor encouragement of class participation	1	2	3	4	5	N/A
Class participation as a component of the course grade	1	2	3	4	5	N/A
The instructor making a point to get to know me personally	1	2	3	4	5	N/A
Immediate use of learning through the use of class examples	1	2	3	4	5	N/A
Take-home quizzes (open book, open note)	1	2	3	4	5	N/A
The instructor encouraging me to come directly to him/her for help	1	2	3	4	5	N/A
Other (please specify):_____						

Thank you for your participation!

APPENDIX B: SURVEY QUESTION EQUIVALENCES

	MSLQ	Student Survey
Time/Study Environmental Management	35, 43, 52r, 65, 70, 73, 77r, 80r	2, 5, 9r, 12,14, 15, 18r, 19r
Effort Regulation	37r, 48, 60r, 74	3r, 7, 11r,16
Peer Learning	34, 45, 50	1, 6, 8
Help Seeking	40r, 58, 68,75	4r,10,13,17

Motivated Strategies for Learning Questionnaire (Pintrich et al., 1991)

Time/Study Environmental Management:

35. I usually study in a place where I can concentrate on my coursework.
43. I make good use of my study time for this course.
52. I find it hard to stick to a study schedule. (REVERSED)
65. I have a regular place set aside for studying.
70. I make sure I keep up with the weekly readings and assignments for this course.
73. I attend class regularly.
77. I often find that I don't spend very much time on this course because of other activities. (REVERSED)
80. I rarely find time to review my notes or readings before an exam. (REVERSED)

Effort Regulation:

37. I often feel so lazy or bored when I study for this class that I quit before I finish what I planned to do. (REVERSED)
48. I work hard to do well in this class even if I don't like what we are doing.
60. When course work is difficult, I give up or only study the easy parts. (REVERSED)
74. Even when course materials are dull and uninteresting, I manage to keep working until I finish.

Peer Learning:

34. When studying for this course, I often try to explain the material to a classmate or a friend.
45. I try to work with other students from this class to complete the course assignments.
50. When studying for this course, I often set aside time to discuss the course material with a group of students from the class.

Help Seeking:

40. Even if I have trouble learning the material in this class, I try to do the work on my own, without help from anyone.(REVERSED)
58. I ask the instructor to clarify concepts I don't understand well.
68. When I can't understand the material in this course, I ask another student in this class for help.
75. I try to identify students in this class whom I can ask for help if necessary.

APPENDIX C: STUDENT DEMOGRAPHIC PERCENTAGES – BY FGC STATUS

	N = 334 ALL STUDENTS		N = 129 FGC STUDENTS		N = 205 NON-FGC STUDENTS	
	N	%	N	%	N	%
Upper Level or Lower Level Course						
Lower	128	38.3	38	29.5	90	43.9
Upper	206	61.7	91	70.5	115	56.1
Day or Night Course						
Day course	268	80.2	96	74.4	172	83.9
Night course	66	19.8	33	25.6	33	16.1
Student Gender						
Male	193	57.8	77	59.7	116	56.6
Female	140	41.9	52	40.3	88	42.9
No response	1	0.3	0	0.0	1	0.5
Student Age						
18 to 22	243	72.8	87	68.5	156	76.0
23 and above	85	25.4	40	29.9	45	22.0
No response	6	1.796	2	1.6	4	2.0
Race or Ethnic Identification						
White/Caucasian	194	58.1	63	48.8	131	63.9
Asian	62	18.6	25	19.4	37	18.0
Hispanic or Latino	37	11.1	27	20.9	10	4.9
Black or African American	16	4.8	7	5.4	9	4.4
Multi-racial	7	2.1	2	1.6	5	2.4
American Indian or Alaskan Native	2	0.6	2	1.6	0	0.0
Native Hawaiian/Other Pacific Islander	2	0.6	0	0.0	2	1.0
Prefer not to answer	8	2.4	1	0.8	7	3.4
No response	6	1.8	2	1.6	4	2.0
Family Income						
Under $30,000	45	13.5	29	22.5	16	7.8
$30,000 - $59,999	43	12.9	26	20.2	17	8.3
$60,000 - $89,999	61	18.3	28	21.8	33	16.1
$90,000 - $119,999	68	20.3	22	17.1	46	22.5
$120,000 or above	71	21.3	9	7.0	62	30.2
Prefer not to answer	1	0.3	1	0.8	0	0.0
No response	45	13.5	14	10.9	31	15.1
Average ACT Score	264	25.9	102	25.1	162	26.3
College Education Starting Point						
Began here	177	53.0	64	49.6	113	55.1
Transferred from a community college	95	28.4	50	38.8	45	22.0
Transferred from a 4-year university	59	17.7	15	11.6	44	21.5
No response	3	0.9	0	0.0	3	1.5
Residential Situation						
Dormitory or other on-campus housing	36	10.8	6	4.7	30	14.6
Walking distance off-campus	112	33.5	27	20.9	85	41.5
Residence within driving distance	183	54.8	95	73.6	88	42.9
No response	3	0.9	1	0.8	2	1.0
Number of Classes Taken in the Current Term						
3 or fewer	48	14.5	19	14.7	29	14.2
4	203	60.8	79	61.2	124	60.4
5	70	21.0	25	19.4	45	22.0
6 or more	11	3.3	6	4.7	5	2.4
No response	2	0.4	0	0.00	2	1.0
Current Overall GPA						
Below 2.00	2	0.6	1	0.8	1	0.5
2.00 to 2.49	16	4.8	10	7.8	6	2.9
2.50 to 2.99	50	15.0	25	19.4	25	12.2
3.00 to 3.49	124	37.1	42	32.6	82	40.0
3.50 to 4.00	138	41.3	50	38.8	88	42.9
No response	4	1.2	1	0.8	3	1.5
Average Number of Hours Worked per Week While in School						
0 hours	58	17.4	18	14.0	40	19.5
< 10 hours	49	14.7	17	13.2	32	15.6
10 to 25 hours per week	138	41.3	50	38.8	88	42.9
26 to 36 hours per week	56	16.8	28	21.7	28	13.7
> 36 hours per week	32	9.6	16	12.4	16	7.8
No response	1	0.3	0	0.0	1	0.5
Member of a University-sponsored Group	113	33.8	30	23.3	83	40.5

APPENDIX D: INTERCORRELATION MATRICES

Intercorrelations between Variables

	LVL	CRS	**ND**	**FGC**	**GEN**	**AGE**	**INC**	BEG	**TRFR**	LIVE
LVL	-	**.82****	.10	.15**	-.05	.27**	-.27**	-.02	.07	.29**
CRS		-	.09	.11	.03	.22**	-.23**	-.12*	-.05	.19**
ND			-	.12*	-.03	.30**	-.08	.20**	.24**	.06
FGC				-	-.03	.10	**-.37****	-.03	.06	.29**
GEN					-	-.01	-.01	-.08	-.11*	.04
AGE						-	-.13*	.28**	.42**	.25**
INC							-	-.01	-.09	-.29**
BEG								-	**.90****	.13*
TRFR									-	.21**
LIVE										-
COM										
ACT										
GPA										
CLS										
HRS										
NJOB										
ATH										
GRP										
AFR										
CAU										
HISP										
ASN										
ONL										
HELP										
FB										
REQA										
RPPI										
SREG										
PLHS										

* $p < .05$, ** $p < .01$, *** $p < .001$

Intercorrelations between Variables (continued)

	COM	**ACT**	**GPA**	**CLS**	**HRS**	NJOB	**ATH**	**GRP**	**AFR**	**CAU**
LVL	.21**	-.08	.13*	.12*	.18**	.09	-.03	-.07	-.05	-.11*
CRS	.10	-.02	.17**	.12*	.17**	.08	-.04	.04	-.11	-.04
ND	.04	-.15*	-.14*	-.18**	.26**	.02	.04	-.09	.14*	-.07
FGC	**.30****	-.17**	-.12*	-.01	.13*	.14*	.03	-.18**	.02	-.15**
GEN	.01	.00	.12*	-.03	.01	.02	-.09	.15**	.18**	-.08
AGE	.21**	-.14*	-.19**	-.26**	.26**	.03	-.02	-.26**	.05	-.11*
INC	-.32**	.22**	.12*	.04	-.13*	-.12	.01	.15**	-.11	.28**
BEG	.11*	-.19**	-.26**	-.11*	.12*	.01	-.05	-.20**	-.04	.04
TRFR	.18**	-.29**	-.28**	-.11*	.14**	.01	-.04	-.25**	-.07	-.03
LIVE	**.91****	-.15*	-.06	-.03	.28**	.19**	-.12*	-.16**	.09	-.19**
COM	-	-.17**	-.06	-.05	.27**	.19**	-.10	-.20**	.11*	-.18**
ACT		-	.29**	-.05	-.10	-.13*	.06	.14*	-.09	.07
GPA			-	.24**	-.11*	-.09	-.08	.13*	-.24**	.08
CLS				-	-.16**	-.04	-.06	.14*	-.17**	.01
HRS					-	**.55****	-.08	-.07	-.01	.03
NJOB						-	-.14*	-.07	.02	.06
ATH							-	-.03	.12*	.05
GRP								-	.02	.08
AFR									-	-.26**
CAU										-
HISP										
ASN										
ONL										
HELP										
FB										
REQA										
RPPI										
SREG										
PLHS										

* $p < .05$, ** $p < .01$, *** $p < .001$

Intercorrelations between Variables (continued)

	HISP	ASN	ONL	HELP	FB	REQA	RPPI	SREG	PLHS
LVL	.08	.08	.11	-.14*	-.22**	-.13*	-.06	-.09	.17**
CRS	.06	.07	.12	-.17**	-.15*	-.04	-.07	-.04	.22**
ND	.09	-.02	-.01	-.22**	-.10	-.17**	.01	-.10	.03
FGC	**.25****	.02	.06	-.13*	-.13*	-.05	-.01	.03	-.04
GEN	.09	-.02	.17**	.03	.21**	.19**	.05	.15**	.06
AGE	.04	.03	.04	-.11	-.14*	-.06	.06	.03	-.03
INC	-.13*	-.17**	-.02	.05	.07	.16**	-.13*	.03	-.07
BEG	.01	-.04	-.04	-.02	-.07	.05	.08	.01	-.12*
TRFR	.05	.02	-.03	-.02	-.09	.02	.09	-.01	-.10
LIVE	.12*	.12*	-.02	-.06	-.13*	-.05	-.02	-.05	-.10
COM	.15**	.12*	-.04	-.01	-.11	-.05	.02	-.056	-.09
ACT	-.08	-.01	-.03	.05	-.01	-.04	-.20**	-.01	-.08
GPA	.07	.02	.16*	.12*	.09	-.01	-.10	.22**	.03
CLS	.08	.01	.08	-.07	-.06	-.03	-.04	.02	.12*
HRS	.12*	-.09	-.09	-.02	-.12	-.14*	.014	-.05	-.01
NJOB	.05	-.08	-.05	-.04	.01	-.07	.04	.02	.07
ATH	-.07	-.09	-.04	-.07	-.05	.06	-.01	-.05	.01
GRP	-.01	-.07	-.09	.06	.13*	.02	.08	.03	.19**
AFR	-.08	-.11	.08	.01	.07	.01	.04	-.01	-.08
CAU	-.42**	-.56**	-.11	-.01	-.05	-.01	-.12*	-.01	-.05
HISP	-	-.17**	.10	.08	.08	-.01	.05	.15**	.10
ASN		-	-.02	-.02	-.01	.01	.04	-.05	.01
ONL			-	.21**	.34**	.30**	.27**	.23**	.18**
HELP				-	.56**	.32**	.29**	.29**	.03
FB					-	.46**	.41**	.29**	.18**
REQA						-	.30**	.23**	.05
RPPI							-	.23**	.29**
SREG								-	.18**
PLHS									-

* $p < .05$, ** $p < .01$, *** $p < .001$

Intercorrelations between MSLQ <u>Factor Analysis Loading Scores</u> and MSLQ <u>Mean Response Score</u> of Questions Grouped by Factor Analysis

	SREG FAC	PLHS FAC	MEAN SREG	MEAN PLHS
SREG FAC	-	.00	**.98****	.07
PLHS FAC		-	.12*	**.99****
MEAN SREG			-	.18**
MEAN PLHS				-

* $p < .05$, ** $p < .01$, *** $p < .001$

Intercorrelations between CRCPTT <u>Factor Analysis Loading Scores</u> and CRCPTT <u>Mean Response Score</u> of Questions Grouped by Factor Analysis

	RPPI FAC	FB FAC	ONL FAC	HELP FAC	REQA FAC	MEAN RPPI	MEAN FB	MEAN ONL	MEAN HELP	MEAN REQA
RPPI FAC	-	.00	.00	.00	.00	**.89****	.22**	.10	.09	.01
FB FAC		-	.00	.00	.00	.15*	**.84****	.14	.26**	.40**
ONL FAC			-	.00	.00	.16*	.19**	**.94****	.14	.09
HELP FAC				-	.00	.22**	.35**	.11	**.89****	.26**
REQA FAC					-	.18*	.12	.16*	.09	**.79****
MEAN RPPI						-	.41**	.27**	.29**	.30**
MEAN FB							-	.34**	.56**	.46**
MEAN ONL								-	.21**	.30**
MEAN HELP									-	.32**
MEAN REQA										-

* $p < .05$, ** $p < .01$, *** $p < .001$