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# The Role Of Academic Factors, Self-Efficacy, Mentoring Relationships, And Learning Communities In Persistance And Academic Success Of Freshmen College Students

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# THE ROLE OF ACADEMIC FACTORS, SELF-EFFICACY, MENTORING RELATIONSHIPS AND LEARNING COMMUNITIES IN PERSISTENCE AND ACADEMIC SUCCESS OF FRESHMAN COLLEGE STUDENTS

by

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## DEDICATION

This dissertation is dedicated to my former teacher, friend and mentor, Dr. Hans Krameritsch, who has shown me what it means to face and overcome life's greatest challenges. Your example, continuous support, wisdom, inspiration, and jokes have helped me persist and led to the completion of my dissertation. Thank you for believing in me!

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# CHAPTER 1

# INTRODUCTION

Student retention and delayed graduation have been a concern at universities for a long time. While in these economically challenging times, financial factors - picking a less expensive university over a more expensive university despite holding a high high school GPA - are important, other factors have to be considered also. David Leonhardt points out in a *New York Times* article that "more money isn't the whole answer. Higher education today also suffers from a deep cultural problem. Failure has become acceptable" (9 September, 2009).

The above statement encourages exploration of additional reasons for students dropping out of universities, or for taking more than four years to complete their undergraduate degrees, when money is not the only issue. Researchers have identified other contributing factors to students' leaving college; among those are low achievement, poor self-efficacy, and the amount of social support including social relationships with faculty, peers, and staff.

## Background

Students who are transitioning from high school to college are going through a host of changes and have to negotiate a completely new environment. College life requires higher levels of independence, initiative and self-regulation (Chemers, Hu, & Garcia, 2001) and students are dealing with a multitude of stressors, socially, emotionally, and academically (DeBerard, Spielmans, & Julka, 2004). Freshmen in college have to navigate through a new educational system; they have to understand the administrative processes, identify services available to them when needed, and develop coping skills that help them deal with the challenges of college student life. The inability to deal with these demands, frequently leads to freshmen dropping out.

It is estimated that 20-30% of students drop out during their first year in college (DeBerard, Spielmans & Julka, 2004).

A number of factors may influence students' decisions to drop out. Among those factors are student characteristics, institutional characteristics and the availability of programs to help freshmen adjust to the new environment (Davidson, Hall, & Milligan, 2009).

Student characteristics include first generation college student status (Davidson, Beck, & Milligan, 2009; Naretto, 1995), socioeconomic and minority status (Davidson, Beck, Milligan, 2009; Lotkowski, Robbins, & Noeth, 2004). Institutional characteristics include the size of the institution, the type of degree (two versus 4-year degrees), residential versus commuter status, public or private status of the university (Davidson, Beck, & Milligan, 2009) and more selective admission criteria such as high school GPA, ACT and SAT scores (DeBerard et al., 2004; Lotkowski et al. 2004). Furthermore, programs that offer social and academic integration of students have been identified as positively related to student retention (Bean & Eaton, 2001; Davidson et al. 2009; Lotkowski, et al. 2004; Tinto, 2001). According to Lotkowski and colleagues (2004) socioeconomic status (SES), high school GPA and ACT scores had a positive correlation with college persistence, with high school GPA having the strongest relationship with retention. When SES, high school GPA, and ACT scores were combined with institutional commitment, academic goals, social support, academic self-efficacy, and social involvement, retention was greatest. Because non-academic factors, such as academic self-confidence and motivation, had the strongest relationship to college GPA, there is a need to evaluate the impact of programs and current practices integrating both academic and non-academic factors leading to persistence in college (Lotkowski et al., 2004).

Many universities have implemented programs to increase retention; among those efforts is the establishment of Learning Communities. Learning Communities are usually small groups of freshmen who register for a class related to their studies and integrate a common theme (Jaffee, 2007). Learning Communities have been found to increase student retention and academic performance (Hotchkiss, Moore, & Pitts, 2003), student engagement (Zhao & Kuh, 2004) and motivation (Jaffee, 2007).

Given, that students who complete their university degrees have better chances for employment, it is critically important to identify factors that are associated with students' persistence to complete the education they aspire to achieve. While all institutions of higher education aim at retaining their students, every university differs in institutional and student population characteristics. For that reason, it is crucial to understand predictors for students' academic success and degree completion (Davidson, Beck, & Milligan, 2009; Tinto, 2006). The key to understand attrition appears to be the recognition of academic and non-academic, individual, institutional factors and social support, and how these influence one another. With this understanding university personnel may be able to help students pursue their educational goals and complete their degrees. It is the aim of this current study to investigate how academic and non-academic variables affect students' academic success and intent to persist in continuing their education beyond their freshman year.

## Rationale

There are several reasons why researching factors influencing student retention and degree completion are important. First, students who do not complete their degrees invest money into a few courses, but when they do not continue their education, there is no return economically such as higher wages (Ewert, 2010). Secondly, students who complete their

university degrees have better job opportunities. According to the Bureau of Labor Statistics (2010) on unemployment, people 25 and over with less than a high school diploma had the highest unemployment rate with 14.6%, followed by 9.7% of people with a high school diploma and 8.6% with some college. In comparison, only 5.2% with a Bachelor's degree were unemployed. Third, the median weekly earnings rise dramatically for those who have a university degree (US Census Bureau, 2010). Holding a degree appears to have lifelong benefits (Kuh, Cruce, Shoup, & Kinzie, 2008; Lotkowski et al., 2004) including full-time positions that grant health care and social security benefits (Lotkowski et al., 2004).

## Problem Statement

Each year a large number of freshmen fail to continue their college education. Because 20-30% of college students leave institutions of higher education before the end of their freshman year (DeBerard, Spielmans, & Julka, 2004), it becomes important to identify factors that influence their decision. Much of the research has looked at a combination of demographic and academic factors leading to college student dropout. Several researchers have investigated college student attrition using a sociological approach to academic and social integration, emphasizing students' value congruence with the university they are attending and social support (Bean & Eaton, 2001 Tinto, 2006). Tinto (2006) posited that understanding the students' backgrounds, distinguishing among different institutional settings and characteristics as well as recognizing the complexity of student retention are crucial. He also maintained that student engagement matters most during the first year of college and recommended institutional practices that emphasize integration such as participation in Learning Communities. While all these factors are important in retention practices, previous academic mastery and individual psychological factors, such as self-efficacy cannot be neglected. Bean and Eaton (2001) suggest

that psychological processes need to be included when attempting to explain why college freshmen choose to abandon their studies.

A large body of research exists on college student retention including a journal dedicated to the matter, the *Journal for College Student Retention*. Research has acknowledged the impact of different university programs considering the above factors, but few have studied the influences of academic and non-academic factors, individual, institutional, social factors on college freshmen retention combined. Because multiple factors lead to freshmen attrition, the current study seeks to examine the extent to which these factors within a social-cognitive framework (physical/environmental, personal and behavioral influences) have an impact on students' intent to persist. Specifically, this study looks at First Time in Any College Students (FTIACS), and how variables such as academic performance (high school and first semester college GPA and ACT scores), self-efficacy, and perceptions of mentoring relationships impact their intent to persist both at the beginning and the end of their first semester in college. The study will also examine the impact of socioeconomic factors and participation in Learning Communities on students' intent to persist. In addition the effect of academic and social-cognitive variables on first semester GPA will be examined. Changes in persistence from the beginning to the end of the first semester will also be explored.

## Research Questions and Hypotheses

The current study uses the social cognitive model of reciprocal determinism (Bandura, 1986). It seeks to examine the extent to which the physical/social environment such as role models/mentors from family and university, personal factors such as self-efficacy beliefs and academic achievement (GPA and ACT scores) and behavioral factors, such as participation in Learning Communities affect college freshmen's intent to persist in pursuing and completing

their education beyond their first semester at a Midwestern University. Changes in intent to persist from the beginning to the end of their first semester will be investigated and between group differences FTIACS (First Time in Any College Students) versus FTIACS participating in Learning Communities) will also be analyzed.

The following main hypotheses (H1-H12 and sub-hypotheses (H1a – H1d, H2a-H2d, H10a – H10d) will be investigated. First wave data stems from the first data collection (beginning of the participants' first semester in college) and second wave from the second data collection (end of the first semester). Model 2 hypotheses use reenrollment rather than intent to persist as dependent variable.

Main hypotheses and sub-hypotheses from the first wave:

H1: High school GPA, ACT scores, college self-efficacy, and perceived mentoring support uniquely contribute to intent to persist at the onset of the first semester of college.

H1a: High school GPA predicts intent to persist among freshmen at the onset of their first semester of college.

H1b: ACT scores predict intent to persist among freshmen at the onset of their first semester of college.

H1c: College self-efficacy predicts intent to persist among freshmen at the onset of their first semester of college.

H1d: Perceptions of mentoring support predict intent to persist among freshmen at the onset of first semester of college.

Main hypotheses and sub-hypotheses from the second wave:

H2: College GPA, college self-efficacy, perceptions of mentoring support, and participation in Learning Communities predict intent to persist among first time in any college students at the end of their first semester in college.

H2a: College GPA predicts intent to persist among freshmen at the end of their first semester in college.

H2b: College self-efficacy predicts intent to persist among freshmen at the end of their first semester in college.

H2c: Perceptions of mentoring support predict intent to persist among freshmen at the end of their first semester in college.

H2d: Participation in Learning Communities predicts intent to persist among freshmen at the end of their first semester in college.

H3: College GPA, college self-efficacy, perceptions of mentoring support, and participation in Learning Communities predict PERSISTENCE (reenrollment) among college students at the end of their first semester in college. (Model 2)

Mediation Hypotheses:

H4: The relationship between college GPA and intent to persist among freshmen at the end of their first semester is mediated by college self-efficacy.

H5: The relationship between college GPA and PERSISTENCE among freshmen at the end of their first semester is mediated by college self-efficacy. (Model 2)

Moderation Hypotheses:

H6: The relationship between college GPA and intent to persist among freshmen at the end of their first semester is moderated by participation in Learning Communities.

H7: The relationship between college GPA and PERSISTENCE among freshmen is moderated by participation in Learning Communities.

H8: The relationship between ACT scores and college GPA among college freshmen is moderated by participation in Learning Communities.

Comparison between students in Learning Communities and students not in Learning Communities:

H9: There is a difference between freshmen participating in Learning Communities and freshmen not participating in Learning Communities in social-cognitive variables (college GPA, college self-efficacy, perceptions of mentorship and intent to persist) at the end of their first semester in college.

Socioeconomic Status

H10: SES, number of hours worked, number of hours enrolled and first generation student status uniquely contribute to intent to persist among freshmen in their first semester of college.

H10a: Socioeconomic status (SES) predicts intent to persist among freshmen in their first semester of college.

H10b: The number of hours worked predicts intent to persist among freshmen in their first semester of college.

H10c: The number of hours enrolled predicts intent to persist among freshmen in their first semester of college.

H10d: First generation college student status predicts intent to persist among freshmen in their first semester of college.

H11: SES, number of hours worked, number of hours enrolled uniquely and first generation student status contribute to PERSISTENCE (reenrollment) among freshmen in their first semester of college. (Model 2)

Hypothesis using college GPA as outcome:

H12: High school GPA, ACT scores, college self-efficacy (end of semester), mentoring perceptions (end of semester), and participation in Learning Communities predict College GPA.

**Definition of Variables**

Hypotheses H1a –H1d and H2a – H 2d are stated as bivariate correlations which lead up to the multivariate hypotheses H1 and H2. The independent variables in the main hypothesis H1 and associated sub-hypotheses are high school GPA, ACT scores, college self-efficacy, mentoring relationships with peers, family, staff and faculty at the beginning of the first semester in college. The independent variables for H2 and associated sub-hypotheses are college GPA, college self-efficacy, mentoring relationships with peers, family, staff and faculty, and participation in Learning Communities at the end of the first semester). For the sub-hypotheses, H1a-H1d and H2a-H2d each of the above variables are used individually as independent variables for correlations. The dependent variable for the sub-hypotheses (H1a-H1d) leading up to the main hypothesis H1 is intent to persist at the beginning of the students' first semester in college, while the dependent variable for the sub-hypotheses (H2a-H2d) leading up to main hypothesis H2 is intent to persist at the end of the participants' first semester in college. H3 utilizes the same independent variables as H1 and H2 with persistence (reenrollment) as dependent variable.

The independent variable for H4 and H5 is college GPA, the dependent variable for H4 is intent to persist, for H5 persistence (reenrollment). The mediating variable is college self-efficacy. The independent variable for H6 and H7 is college GPA, with intent to persist and persistence as dependent variable, respectively. The moderating variable is participation in Learning Communities. The independent variable for Hypothesis 8 is ACT scores, the dependent variable college GPA, and participation in Learning Communities serves as the moderating variable.

The independent variable for H9 is participation in Learning Communities; the dependent variables are first semester college GPA, college self-efficacy, perceptions of mentorship and intent to persist (at the end of the first semester). The independent variables for main hypothesis H10 is socioeconomic status, number of hours enrolled, number of hours worked, and first generation college student status. For the sub-hypotheses, H10a-H10d, each of the above variables is used individually as independent variable for correlations. The dependent variable for sub-hypotheses H10a-H10d and main hypothesis 10 is intent to persist, for main hypothesis H11 the independent variables from H10 are used, and the dependent variable is persistence (reenrollment). The independent variables for H12 are high school GPA, ACT score, college self-efficacy (end of semester), mentoring perceptions (end of semester) and participation in Learning Communities; the dependent variable is College GPA.

## Operational Definitions

Several concepts are frequently referred to in the current study. In order to get a clear understanding of the study's intent, design and methodology, it is necessary to define these up front.

The researcher inquired about background characteristics. International students, students who have previously attended community college or other institutions of higher education will be excluded from the sample. Independent variables are high school GPA, first semester college GPA and ACT scores, mentoring relationships (peers, family members, staff, and faculty) at the beginning and end of their first freshman semester, self-efficacy beliefs at the beginning of their first semester and the end of their first semester as well as participation in Learning Communities. Differences in intentions to persist scores will be used as dependent variable for one set of hypotheses. Persistence defined as reenrollment in the second semester will be used in a second model.

Socio-economic status consists of the following factors: occupation and level of schooling completed by father, mother, spouse/partner of the student and the student participating in the study. In addition, questions regarding students' financial situation will be included in the demographics survey. Those questions will ask about students' resources for paying for college, whether the students are holding a scholarship or receive financial aid, whether parents or other sponsors are paying for tuition or if they are using personal funds. Freshmen's employment status is defined as the number of hours students are employed on or off campus. One of the student characteristics, enrollment status, describes how many credit hours students have signed up for during their first semester in college. The importance of including these factors in context of student retention has been shown in previous research. According to Hoyt and Winn (2004), 50% of the students who did not return to college did so because of financial constraints and full-time work. These students typically only attended part-time (Hoyt & Winn, 2004). Full-time enrollment has also been found to be linked to higher rates of persistence and attainment

and financial assistance helps aided students graduate at the same rate as non-aided students (NCES, 2002).

Other variables used are defined as follows: High school GPA comprises of the average performance of students during high school. Because universities which require higher high school GPAs for admission have lower attrition rates (DeBerard et al., 2004), this variable is included in the study. First semester college GPA includes the average grades for all classes taken during the first semester of their freshmen year. According to Hoyt and Winn (2004), first semester college students named a low college GPA as a reason to leave college. The American College Test is a standardized test for high school achievement and college admissions used in the U.S. For the current study a composite ACT score (Verbal and Math) will be used. Different universities require different minimum scores. The university at which the current research is conducted requires an ACT composite score of 21, however, students with lower scores have been given special permission for enrollment (Admission requirements – Undergraduate Admissions – University; Cobbs, 2010). Mentoring relationships are defined as the support provided to college students including help in succeeding academically, assistance in exploring degree and career options and emotional and psychological guidance, support, and help succeeding in academic coursework, assistance examining and selecting degree and career options, and the presence of a role model (Crisp, 2009). These mentoring relationships include family, peers, faculty and staff. Mentorship perceptions will be measured both at the beginning and end of the students' freshman semester to determine changes as an outcome of their experiences during their first semester. Self-efficacy beliefs are defined as the belief in one's capability to execute the courses of action required to manage prospective situations and to achieve goals (Bandura, 1994). In the current study college self-efficacy beliefs will be examined

which attempt to show the participants' beliefs about their capability to master college specific challenges. These will be measured both at the beginning and the end of participants' first semester of college studies to determine changes as a result of first semester college experiences, participation in Learning Communities and first semester GPA. Participation in Learning communities is defined as the students' self-reported enrollment in one of the Learning communities offered at the university. Intent to persist is defined as a student's determination to continue their studies to complete their degree. Persistence is defined as the students' reenrollment in the second semester.

## Assumptions

In order for this study to be carried out several assumptions are made. A number of factors need to be considered for the research to yield results of practical significance. It is assumed that students have access to computers and will complete the online questionnaire to the best of their abilities and in all honesty both at the beginning and the end of the semester. The researcher also expects that only students from the Midwestern University, as recruited at the student orientation and through the university website, as well as advertisements posted on the main campus will access and complete the online survey.

With respect to Learning Communities, facilitators are assumed to show fidelity with the objectives of their Learning Communities. The students are expected to enter the university with the intent to obtain a degree and those who are choosing to participate in Learning Communities are assumed to attend on a regular basis.

## Limitations

The current study uses students from a Midwestern university. As suggested by DeBerard et al. (2004), caution needs to be exercised when generalizing study findings from one university

to another, because of institution specific and student population specific characteristics. It is important to note also, that maturation effects as well as history effects (events throughout the first semester) may influence potential results. The study is measuring self-efficacy, however, does not address attribution which is closely tied to self-efficacy beliefs. Because the format of Learning Communities varies and the focus of each may be specific to the program in which the students are enrolled with purposeful goals with sin which the students are enrolled, the impact may also vary; however, all Learning communities have shared goals as well, which will meet the requirements as specified by the vice president of student services.

# CHAPTER 2

# REVIEW OF LITERATURE

## Students not Returning to College

One of the biggest challenges universities are facing is the attrition rate of their students. According to DeBerard, Spielmans, and Julka (2004) 40% of college students will leave higher education without getting a degree. The attrition rate for freshmen is as high as 20-30% (DeBerard, Spielmans, & Julka, 2004). While students who do not complete their degrees will often face lower income throughout life they also cost the university in terms of tuition, fees and alumni contributions (DeBerard, Spielmans, & Julka, 2004). Therefore, it is of importance to universities to identify the factors that influence students' especially freshmen's decision to leave college.

Particular demographics have consistently been linked to college drop-out rates. Naretto (1995) researched four 4-year degree-granting institutions and found that 85% of non-persisting students were first generation college students. Full-time enrollment has been associated with higher rates of persistence and attainment, and financial assistance helps students graduate at the same rate as non-aided students (NCES, 2002). Disrupted college pathways have negative effects such as an increase in college costs and reduction of economic returns such as wages (Ewert, 2010). In Naretto's study 74% of non-persisting students were part-time students and 87% worked more than 20 hours per week (Naretto, 1995).

Davidson, Beck, and Milligan (2009) also addressed institutional characteristics and considered them as important when it comes to retention. Size of the university, whether the student population consists of a large number of commuters, the type of degrees offered (two versus four-year degrees), whether the university is public or private and the percentage of

minority students attending all have an impact. In addition to these factors, Cabrera, Nora and Castañeda (1993) identify college GPA and institutional commitment as crucial factors.

**Distinction between Stop-Outs, Opt-Outs, Transfer-Outs**

In order to identify factors influencing college attrition rates, it is important to distinguish among several categories of college drop-outs. According to Hoyt and Winn (2004) "Drop-outs are defined as students who enroll in college but do not reenroll or do not complete their intended degree program or set of courses" (p. 397). Most research treats all students who are not completing college as drop-outs; however, according to Hoyt &Winn (2004) a distinction has to be made among stop-outs, opt-outs and transfer-outs. Stop-outs are those students who do not complete their studies within a normal time schedule because they have skipped one or more terms and return to college at a later time. Opt-outs are those who leave college because they accomplished what they set out to, even though they have not completed their studies or acquired a certificate. Transfer-outs are students who start taking classes toward a degree but eventually transfer to another institution (Hoyt & Winn, 2004). With these distinctions in mind, Hoyt and Winn (2004) conducted a study at Utah Valley State College (22,609 students) to determine students' reasons for leaving the university. The researchers contacted 400 (27%) first-time freshmen who did not return from one to the next fall to see how the identified groups of students differed in their characteristics. Using *t*-tests the researchers found that drop-outs and stop-outs were significantly more likely to be older and have children. They also worked more than 30 hours per week and had conflicts with jobs and college (with statistical significance for stop-outs only). According to the study, transfer-outs were usually younger without family responsibilities, they were more likely to receive parental support and they did not usually earn grades C and lower. They made up about 30% of the non-returning student population.

Drop-outs also mentioned poor academic performance as reason for leaving college, and they had the lowest GPA during their first semester of college. The percentage of drop-outs earning a C grade or lower was significant. This low performance group consisted of two subgroups: married students with family responsibilities (average GPA of 2.34), and single students with academic difficulties (GPA of 1.63) (Hoyt & Winn, 2004).

Over 50% of the stop-outs did not return because of financial constraints and full-time work. These students typically only attended part-time. Stop-outs were usually satisfied with instruction but would have liked to be contacted to get back to college (35%). Stop-outs also listed health problems or death in the family as their third most common reason for leaving. Their GPA for their first semester on average was 1.63. Of the transfer-outs 81% were single and their reasons for leaving college were the lack of desired programs or courses at the university (Hoyt & Winn, 2004).

## GPA and Attrition

Academic performance has been identified as a predictor for college persistence (Ewert, 2010; Kahn & Nauta, 2001; Kuh et al. 2008). According to Attewell, Heil and Reisel (2011) approximately one third of undergraduates enter college with low high school performance and are at risk for failing and dropping out of college. Also, 39% of freshmen in four-year degree programs and 68% of students who started out at two-year colleges had not completed their degrees in six years (Attewell, Heil, & Reisel, 2011). High school grades are an indication of students' academic preparedness for college and their capability to manage academic challenges at college (Ewert, 2010). In that respect, it is important to both look at academic performance in high school and college, because those factors may lead to students' discontinuing college attendance (Ewert, 2010).

Kahn and Nauta (2001) studied 400 freshmen in a large public Midwestern university and found that first-semester GPA was a primary predictor for these students to persist into their sophomore year. The odds ratio indicated that an increase of one point in GPA during their first semester was associated with a fourfold increase for persisting. DeBerard, Spielmans and Julka (2004) examined demographics, prior academic record and psychosocial predictors (smoking, drinking, health-related quality of life, social support, and maladaptive coping strategies) on freshman academic achievement and retention. They surveyed 204 undergraduates in introductory psychology and sociology classes during the first week of fall semester and again in the beginning of the following year. Ten variables were used in a multiple linear regression equation to predict GPA, and logistic regression was used to predict retention rate. Results showed that high school GPA and retention were significantly correlated, while freshman GPA was only moderately related to retention (DeBerard, Spielmans and Julka, 2004). This finding attempts to explain why universities which are requiring higher GPAs for admission have higher retention rates. Health and psycho-social variables were not directly related to retention. Coping was a significant predictor of achievement indicating that those students with higher expectations work harder, persist longer and perform better. Level of social support was a significant independent predictor of academic achievement. Smoking was found to be a significant predictor of poor achievement, while drinking was not. The authors pointed out that a generalization of the results should be exercised with caution because of university-specific characteristics (DeBerard et al., 2004).

While high GPA is associated with high retention among non-minority students, this may not be the case for African American students (Bean 1990) as cited in *Retention and Persistence in Postsecondary Education* (1999, March). Edman and Brazil (2007) found that the GPA was

highest for Caucasian students, followed by Asian, Latinos and African American students in their sample of community college students. In their study they also looked at differences in self-efficacy scores between different ethnic groups. While they found differences in academic self-efficacy scores, with Caucasians holding higher scores than Asians or Hispanics, there were no mean differences between Caucasians and African American students (Edman &, 2007). This seems to indicate that non-academic factors may be more important for African American students than other minorities when it comes to student retention.

## Self-Efficacy and Persistence

While several studies have shown positive correlations between self-efficacy and academic success, few have explored the impact of self-efficacy on persistence in College. Bandura (1994) defined self-efficacy as the belief in one's capability to execute the courses of action required to manage prospective situations and to achieve a particular goal. Self-efficacy appears to play an important role in both adjustment to college life, and achievement and persistence in college. Jerusalem and Mittag (1995) state:

> A history of failures, lack of supportive feedback, and an unfavorable attributional style of one's successes and failures by parents, teachers, and peers may lead to the development of a tendency to scan the environment for potential dangers, to appraise demands as threatening, and to cope with problems in dysfunctional ways (p.179).

Research has shown that there are correlations between self-efficacy and achievement outcomes. If students who doubt their capabilities for learning are compared to those who feel efficacious for learning or performing tasks, efficacious students "participate more readily, work harder, persist longer when they encounter difficulties and achieve at a higher level" (Bandura,

1994, no page). Whether they perceive a new learning situation as challenging or threatening depends on the individual's perception of and experience with situational demands and coping resources (Chemers, et al. 2001). Similarly, Dixon Rayle and colleagues (2005) examined educational self-efficacy of 545 college women with a mean age of 18.27 years. Their research findings indicated that educational self-efficacy related positively to self-esteem, personal valuing of education, family valuing of education, but negatively related to academic stress. They also found that socio-economic factors such as mothers' education, fathers' education, family income, and high school GPAs were positively related to educational self-efficacy (Dixon Rayle, Arredondo, & Robinson Krupius (2005). These findings may point to the importance of previous experience in building self-efficacy, a crucial construct for coping with academic challenges and academic stress. Schunk (1999) demonstrated the pathways to achievement. He stated that there is a direct effect of instructional treatment on achievement and an indirect effect of instructional treatment on persistence through self-efficacy.

Retention researchers, who have included self-efficacy as predictor for persistence, have pointed out the challenge of measuring college self-efficacy, because self-efficacy appears to be task specific. Becker and Gable (2009) investigated the relationship of self-efficacy and GPA, attendance, and college student retention in low-income first-term students at an urban career college. They used a general self-efficacy measure consisting of nine questions and a seven items questionnaire more specifically related to school self-efficacy. They found that neither general self-efficacy nor specific self-efficacy accounted for significant variance in attendance or retention, but they found that both were positively related to GPA. Zajacova, Lynch, and Espenshade (2005) posit that while general self-efficacy measures do not predict college outcomes, specific academic self-efficacy measures have been found to predict academic

performance and persistence in college. Recognizing the issue of measuring self-efficacy of college students, Solberg, O'Brian, Villareal, Kennel and Davis (1993) developed a 19-item college self-efficacy instrument (College Self-Efficacy Inventory - CSI) that specifically addresses components of college courses, social self-efficacy and room mate self-efficacy. They validated their instrument with 164 Mexican American and Latino students and confirmed that their instrument was not sensitive to differences in acculturation, gender, or class level, which makes it useful for a diverse student body as well. Brady-Amoon and Fuertes (2011) studied the relationship between self-efficacy and self-rated abilities and their influence on academic performance with a diverse sample of 271 undergraduate liberal arts college students. To determine the students' self-efficacy they used Solberg and colleagues' (1993) College Self-efficacy Inventory. Using multiple regression analyses, Brady-Amoon and Fuertes (2011) found that self-efficacy and self-rated abilities together were responsible for 25% of the variance in college students adjustment, where self-efficacy was found as a significant predictor ($r = .38$), but not so self-rated abilities. In their analyses they also found that both self-efficacy and self-rated abilities positively contributed to academic performance, but individually neither significantly predicted academic performance for the sample at hand. The connections between self-efficacy and college adjustment are of importance because college adjustment includes a student's integration within the academic and social environment of the college they are attending. Feeling a sense of community has been found to improve academic performance (Harris, 2006; Hotchkiss, Moore, & Pitts, 2006; Tinto, 2006; Zhao & Kuh, 2004) which in turn may lead to students' persistence.

Reynolds and Weigand (2010) examined resilience, academic motivation, self-efficacy, and attitudes toward the college environment, and their influence on 164 first-year students'

responses to demands and challenges. The researchers found that college self-efficacy as measured with Solberg and colleagues (1993) College Self-Efficacy Inventory, was significantly related to resilience as measured by academic and social engagement at the university. Their findings also showed that intrinsic motivation was significantly related to self-efficacy and that those who were more intrinsically motivated had a greater ability to cope with stressful and adverse experiences (Reynolds & Weigand, 2010). Academic and social engagement both rely on feedback from others.

A person's perception of self-efficacy is very much dependent on attributions which "influence performance primarily through their intervening effects on efficacy expectations" (Schunk, 1983, p. 1). Future expectations of success or failure are dependent upon individuals' attributions (Schunk, 1983); therefore, studying self-efficacy without the influence of attributions may limit the understanding of the impact on self-efficacy in different contexts.

## Role of Mentoring for Retention

Mentoring has been recognized as important for retention and enrichment of undergraduate students (Jacobi, 1991), however, mentoring has not been uniformly defined in earlier literature. Crisp (2009) defined mentoring as

> Support provided to college students that entails emotional and psychological guidance and support, help succeeding in academic coursework, assistance examining and selecting degree and career options, and the presence of a role model by which the student can learn from and copy their behaviors relative to college going (Crisp, 2009, p. 189).

In a study by Erkut and Mokros (1984) 723 liberal arts students from six different colleges were surveyed. The respondents all identified a professor who had an impact on them by

demonstrating commitments, skills, and qualities that they saw as important for themselves. Differences in student outcomes were associated with the gender of the student in relation to the mentor. The authors suggest that mentor relationships are by-products rather than causes of high achievement. Issues were pointed out regarding the mentoring definition.

Mentoring relationships may also positively influence student self-efficacy, which as discussed above, is important for student success. Teacher feedback and encouragement may be important factors in boosting students' self-efficacy to succeed. Bandura (1986) suggested four sources of self-efficacy, among which are mastery experiences, vicarious experiences, social persuasion and emotional arousal. The source of self-efficacy which could be influenced by the teachers the most may be social persuasion, which could be understood as the teacher's encouraging words, feedback and mentorship. Morris (2004) proposes that the educator's interest in self-efficacy comes from the

> … desire to improve student performance (and faculty performance for that matter) in observable ways; and by better understanding self-efficacy vis-à-vis specific tasks we may create learning environments that positively affect performance and outcomes (p. 161).

Social persuasion and encouraging feedback may have an effect on student achievement. In a study done by Jackson (2002), the verbal persuasion component was examined. In his research, 123 college students were randomly assigned to receive an efficacy belief enhancing or a neutral e-mail message. Three grade groups with below average students, average students and above average students were identified and given a self-efficacy measure to determine their level of self-efficacy before and after a psychology exam. Jackson (2002) found that self-efficacy was significantly related to performance on the given exams. It was also found that the self-efficacy

enhancing instructor-to-student e-mail message affected learning performance whereas the neutral note did not show a declining effect on self-efficacy. Group differences in self-efficacy scores were also reported, revealing that the above average students scored highest, followed by the average and below-average students. A significant self-efficacy score difference was found between the above-average and below-average students only. The mediating effect of self-efficacy between e-mail manipulation and performance was noted suggesting that enhancing self-efficacy beliefs by systematic interventions may increase students' performance (Jackson, 2002).

From an educational psychology viewpoint, mentorship models have been inspired by Lave and Wenger's (1991) work on situated learning and apprenticeship, and legitimate peripheral participation. Legitimate peripheral participation entails a novice working alongside a more experienced master and gradually taking more responsibility (Hager, 2003; Lave & Wenger, 1991). Involvement of experienced and competent learners and faculty in students' learning may be especially helpful to college freshmen.

Many studies have provided evidence that academic and social integration are crucial for college students (Mangold, Bean, Adams, Schwab, & Lynch, 2002/2003; Pascarella, Pierson, Wolniak, & Terenzini, 2004; Tinto, 2006). Pascarella and colleagues (2004) suggested that especially first generation students have lower levels of cultural and social capital which may translate into lower levels of growth in the cognitive, psychosocial, and status attainment-oriented results for this group of students.

To show the impact of mentoring, Mangold et al. (2002/2003) compared freshmen who were enrolled as cohort and received mentoring to freshmen who did not participate in this program. They were followed for four years. Students who participated had lower than average

high school GPAs, and it was suspected that they self-selected into the program because they may have felt lower efficacy to do well in college. A discrete-time logistic regression model was used to track the impact of the program. The researchers found that students in the program were more likely to graduate and less likely to drop out. The self-selection bias was pointed out as a limitation to the study. Mentorship for undergraduate students is often embedded in a program that aims to give students a sense of community. Learning Communities implemented at universities across the U.S.A. appear to combine both academic and social integration utilizing the expertise of faculty members and peer mentors.

**The Impact of Learning Communities on Retention**

For several decades student attrition was seen as a result of individual skills, motivation and attributes and students were blamed for their failures, not institutions. Vincent Tinto (2006-2007) challenged this perception and developed a model that emphasizes the involvement of the individual within the academic and social environment of an institution. Tinto's model inspired the idea of building Learning Communities as an attempt to increase retention rates at universities (Shapiro & Levine, 1999). The current form of Learning Communities appeared in the 1980s based on the understanding that engagement in a community of learners facilitates personal and academic development (Harris, 2006; Zhao & Kuh, 2004). This approach to learning also facilitates openness to diversity, interpersonal development, and social tolerance (Zhao & Kuh, 2004).

Learning Communities take on different forms but are characterized by common academic and social features which are meant to support the growth of intellectual capabilities and strengthen the social connections among students using cooperative learning techniques (Zhao & Kuh, 2004). While there is no single definition of Learning Communities, most

Learning Community research is in agreement with Bean and Eaton's (2001) conceptualization: "Learning communities are a way of combining academic and social aspects of the institution in order to promote better academic performance and retention" (Bean & Eaton, 2001, p. 80). Astin (1985, 1999) used a more detailed definition which includes the organization of Learning Communities in a variety of settings and a broad description of common features and goals:

> Such communities can be organized along curricular lines, common career interests, vocational interests, residential living areas, and so on. These can be used to build a sense of group identity, cohesiveness, and uniqueness; to encourage continuity and the integration of diverse curricular and co-curricular experiences; and to counteract the isolation that many students feel (Astin, 1985, p. 161).

Shapiro and Levine (1999) described eight specific characteristics of learning communities. First, Learning Communities are organizing students and faculty into smaller groups, for example by co-enrolling students in a set of classes together in a cohort fashion. Second, they encourage integration of the curriculum using interdisciplinary skills in inquiry, acquire knowledge and civil values. Third, Learning Communities help students establish academic and social support networks. Fourth, students become socialized to meet expectations of college in a smaller setting and they recognize the value of peers in the learning process. Furthermore, faculty members are brought together and exchange methods of teaching and may become more versatile in their knowledge transmission process. Sixth, Learning Communities help both students and faculty to better focus on their learning outcomes which allows for better facilitation of the learning process. Also, the smaller setting enables support services such as academic advising, career and tutoring services to be promptly delivered when questions arise.

Lastly, the smaller environment permits faculty and facilitators to critically examine existing policy and practices and specific needs of students to target freshmen retention efforts (Shapiro & Levine, 1999). Learning Communities promote active involvement of students and collaboration in and outside of the classroom. Several researchers emphasize the importance of students' feeling a sense of community on university campuses to improve academic performance (Harris, 2006; Hotchkiss, Moore & Pitts, 2006; Tinto, 2006; Zhao & Kuh, 2004).

Hotchkiss and colleagues (2006) studied the impact of participation of students in Freshman Learning Communities (FLC) on academic performance and retention. They researched 7249 incoming freshmen enrolled in up to 32 FLCs in the Fall of 1999, 2000, 2001 and 2002 of which 18-20% yielded complete data. Only black students (28% of the sample) and white students (47% of the sample) where used for the analysis. Utilizing a standard treatment effects model the researchers determined the impact of participating in a FLC and controlled for selection bias. Variables used for the regression analysis were high school GPA, SAT percentage ranking, hours earned, age, race, college of students' major, and gender. Only recent high school graduates were recruited for the study. Among the findings were that students who performed worse than average and those who felt alienated on the large campus were more likely to join FLCs. Using first semester GPA as the dependent variable the researchers also found that belonging to a FLC increased a student's GPA by .78 on average. Black male students had the highest gain from participating in FLCs with an improvement of a full letter grade while white female students showed a near zero insignificant gain. Results indicated that academic performance decreased after the first semester but was still positively impacted by participation in FLCs and significant with .34 to students' cumulative GPA one year after joining FLCs. Furthermore the researcher looked at retention (if students where enrolled one year later) and

found that participation in FLCs positively impacted the retention among black males by 31% and black females by 19% while it did not positively affect retention of white males (Hotchkiss, Moore & Pitts, 2006).

Zhao and Kuh (2004) studied the relationships between participation in Learning Communities and student engagement in a range of educationally purposeful activities of first-year and senior students from 365 4-year universities. College freshmen and seniors who participated in a Learning Community reported higher levels of academic effort, academic integration, active and collaborative learning. Participants also reported more frequent contact with faculty (effect sizes larger than .50), engagement with diversity projects and they pointed out that their classes emphasized higher order thinking skills. The students perceived their university as supportive when it came to academic and social needs. Stronger effects of learning communities were found with first-year students (Zhao & Kuh, 2004).

Cobbs and colleagues (2010) in their report about student success at a Midwestern university stated that the university's one-year retention ranges in the middle when compared to universities with similar institutional characteristics, with 77% of students returning for their second year. Learning Communities designed to help students build learning skills, basic competencies, reading, writing, speaking, mathematics have been recommended for students who were admitted under the special admission program (low ACT and low HSGPA). Cobbs and colleagues (2010) examined the impact of Learning Communities on students with varying ACT scores and high school grade point average (HSGPA) on retention. In their report they show that in fall 2009 students whose ACT scores were lower than 13 and whose HSGPA was below 2.2 did not benefit from Learning Communities. Students with ACT scores between 13 and 18 and HSGPAs between 2.2 and 2.75 benefited the most from Learning Communities as

evidenced in higher first semester college GPAs compared to students not participating in the program. These findings have caused the university to raise admission requirements for incoming freshmen in the fall of 2012 (Cobbs et al., 2010). Determining the impact of Learning Communities at the University where the current study was done remains a challenge. Each Learning Community has different objectives, some have course designations and freshmen have to sign up for it while others self-select into Learning Communities; other students self-select into Learning communities that focus less on academics but have a social agenda. This heterogeneity makes it difficult to draw conclusions about the benefit of Learning Communities to student retention.

## Additional Factors in Student Retention

Several models have been employed for analyzing student attrition. Among those are Bean's Attrition Model which emphasizes students' beliefs and attitudes toward the institution, friends, and faculty as well as Tinto's Student Integration theory which analyzes background of students and interactions with the university (Kahn & Nauta, 2001). Tinto (2006) suggests that predictors for attrition vary at the individual student level – their cultural, social, economic backgrounds but also the students' involvement and connectedness to the university the students are attending. In this context, Tinto (2006) points out the complexity of student retention and the importance to identify effective practices through research. He states that the impact of learning communities on student retention has been studied while faculty actions in the classroom and institutional efforts have not been explored sufficiently. Secondly, Tinto (2006) maintains that student retention needs to be addressed by common efforts of student affairs professionals and faculty to develop and implement successful retention programs. Third, Tinto (2006)

recommends considering the impact of students' economic diversity and its impact on their degree completion (Tinto, 2006).

**Socioeconomic Status**. Students of low socioeconomic status have always been studying at institutions of higher education, but they have been underrepresented especially at four-year institutions (Walpole, 2003). While 56% of high-income students earn a Bachelor's degree within six years, only 25% of low-income students do (Tinto, 2006).

**Institutional Factors.** Students with low SES have been found to enroll in lower positioned institutions instead of higher ranked institutions which have been considered to positively influence students' academic aspirations and retention. They have also been found to have lower cultural and social capital, which may diminish their aspirations and upward mobility (Pascarella, et al., 2004; Walpole, 2003).

Attewell and colleagues (2011) report on inconsistent findings regarding the impact of financial aid on students' graduation rates. While some researchers found that Pell grants increase first-year student retention other studies find that financial aid is inconsequential or even negatively impacts graduation and retention. In their study, Attewell and colleagues (2011) used data from the Beginning Postsecondary Students Longitudinal Study and analyzed a sample of first-time freshmen who entered a degree program in 1996 and were followed until 2001. They used logistic regression models to predict degree completion using sheaf coefficients, latent variables that consist of a parametrically weighted sum of its components. They found that family SES predicts graduation while academic preparation was not a significant predictor for students entering two-year degree programs. The amount of financial aid was surprisingly the largest predictor for these students. Attewell et al. (2011) also found that at least selective four-year colleges, race, gender, and parental SES are significantly related with graduation. However,

academic preparation in high school and nontraditional student status had the largest sheath coefficient. For highly selective four-year colleges parental SES, nontraditional status, integration and remediation programs were not statistical significant predictors for graduation. These study findings show how complex the impact of socioeconomic status is on different student populations at various institutions of higher education. It appears to be crucial to integrate and control for socioeconomic and financial aid factors in retention studies. This research also suggests that retention theories cannot neglect the impact of socioeconomic status of students.

## Theoretical Framework

Early explanations of student attrition and retention are based on Tinto's sociological concept of integration which "served to reinforce the importance of student contact or involvement" (Tinto, 2006, p.3) His theory also emphasized academic integration (value congruence) and social integration (social support), and he made suggestions for improving retention focused on changing institutional practices to foster academic and social integration (Bean & Eaton, 2001). While Tinto's model predominantly applies to students at a residential college, Attewell and colleagues (2011) showed that social integration predicts graduation among community college students, as well. This would indicate that social integration may be equally important at non-residential and commuter universities.

Several different frameworks have been used in retention research. Kahn and Nauta (2001) used as their framework Social Cognitive Career Theory (SCCT) which examined students' beliefs about performing behaviors in context of persistence. Hodges (2007) used Bronfenbrenner's human ecology theory of development, a process-person-context-time (PPCT) model, in her dissertation to examine the many processes that influence college student

experiences (Hodges, 2007). Bean and Eaton (2001) proposed a psychological model of retention which takes into account attitude-behavior theory, coping behavioral theory, self-efficacy theory and attribution.

The theoretical framework used for the current study is based on Bandura's (1986) Social Cognitive Theory which suggests that many factors are necessary to produce a given effect; the model describing this view is known as the triadic model of Reciprocal Determinism (Bandura, 1986). This concept underlies Social Cognitive Theory and demonstrates how "(a) personal factors in the form of cognition, affect, and biological events, (b) behavior, and (c) environmental influences create interactions that result in a triadic reciprocity" (Pajares, 2005, p. 340). More specifically Reciprocal Determinism considers beliefs, expectations, attitudes and knowledge (personal influences), resources, consequences of actions, and knowledge (physical and social influences) and individual choices, and verbal statements (behavior).

Whereas other theories discuss single determinants separately, dependent on their view of learning and development, Social Cognitive Theory includes all factors identified above as interaction forces. These three forces are in constant interaction and influence each other (Bandura, 1986). Becker and Gable (2009) explain in this context that humans act purposefully and not as a reaction to the environment. In other words, the environment influences behavior and the individual's behavior influences the environment, where cognitive processes are activated to influence future behavior. One of those cognitive factors around which most of Albert Bandura's research evolved is self-efficacy, the belief of a person that s/he is capable of organizing and performing actions to achieve a goal (Bandura, 1994; Becker & Gable, 2009). It appears self-evident that self-efficacy plays a major role in academic settings. Pajares (2006) asserts that self-efficacy plays a critical role in people's life choices because individuals take on

activities they feel competent about and they avoid those they are unsure of performing successfully. This understanding has also implications for college students' academic choices, expenditure of effort in academic learning, and persistence in college (Becker & Gable, 2009). Higher self-efficacy has also been found to influence students' self-regulating behaviors including making plans, achieving academic goals, self-monitoring and self-evaluating their learning activities, and aspirations (Becker & Gable, 2009; Zimmerman, 2000). Self-efficacious students have also been found to participate more readily, work more diligently, persist longer, and to have fewer negative emotions when they are facing difficulties than those who are less self-efficacious. In addition findings show that college students' self-efficacy beliefs correlate with their selection of majors, successfully completing coursework, and perseverance (Zimmerman, 2000).

Becker and Gable (2009) studied the relationship between self-efficacy of 194 incoming students and their academic success during their first semester in an urban college. A 20 item-instrument was used to measure general and specific self-efficacy of the students and multiple regression analyses and Pearson's product-moment correlations analyses were performed. The results suggested that general and specific self-efficacy were equally and significantly positively related to first-semester GPA.

Using Bandura's (1986) reciprocal determinism Schunk (2000) reiterates how social influences impact personal factors including learning goals, self-efficacy, outcome expectations, attributions, self-evaluations and self-regulation of the individual learner. Conversely self variables have an effect on social environments, e.g. seeking out additional assistance from a teacher, student or peer. Achievement including goals and motivation, behavior such as choice of activities, effort, and persistence are influenced by social and self variables. Conversely,

behaviors affect these factors. Social learning processes precede higher cognitive and meta-cognitive processes as learners construct knowledge interpersonally and eventually internalize skills and strategies (Schunk, 1999).

This model demonstrates clearly how students' learning, achievement and persistence can be supported by self-efficacy, and Learning Communities and mentorship, all of which emphasize constructive interactions with peers and faculty. The individual acts purposefully within these interacting influences. The individual in return also influences the external influences (Bandura, 1986; Becker & Gable, 2009). Self-efficacy beliefs, for example, determine which challenges students approach, how they approach them and how much effort they put forth to achieve goals (Bandura, 1986; Becker & Gable, 2009; Zimmerman, 2000). Because there is evidence that higher performing students are more likely to persist in college than lower achieving students (DeBerard, Spielman's & Julka, 2004), it is important to consider these reciprocal influences to find ways to minimize attrition rates.

# CHAPTER 3

# METHODS

The current study sought to determine the impact of academic factors (GPA and ACT scores), level of self-efficacy and mentoring relationships of first semester college freshmen on their intent to continue their college education at the university they attended. In addition, socioeconomic status, number of credit hours for which freshmen were enrolled, the number of hours they worked as well as first generation college student status and their involvement in these students' intentions to persist were examined. Furthermore, the study looked at the extent to which freshmen participating in Learning Communities differed from freshmen not participating in Learning Communities (LC) in socio-cognitive variables including their intent to persist. It is important to consider the effect of extraneous variables, methods in recruiting the sample as well as a careful selection and use of instruments for the implementation of the study in order to control for any influences that may have an impact on the results.

## Problem and Purposes Overview

Many institutions of higher education are concerned with student attrition and are continuously trying to improve retention rates. While student retention is widely studied in higher education, few researchers have looked at social-cognitive factors, such as self-efficacy in combination with academic factors and environmental factors to explain freshmen's persistence.

The purpose of the current study is to determine how self-efficacy together with achievement variables such as high school GPA and ACT scores, and first semester college experience (first semester GPA, mentoring support, participation in Learning Communities) impacts college freshmen's intent to persist beyond their first semester of studying at a Midwestern University. While research has repeatedly found that self-efficacy has an impact on

student achievement (Schunk, 1999; Zimmerman, 2000), no study – to the knowledge of the researcher – has examined the above factors in relation to college persistence as proposed in this study.

**Research Questions and Hypotheses Revisited**

The current study utilized social-cognitive factors to explore college freshmen's intent to continue their coursework beyond their first semester in college. First, the current study examined the extent to which high school GPA, ACT scores, college self-efficacy and perceptions of mentorship predict students' intent to persist in their education beyond their first semester of their studies at the beginning of their first semester. Secondly, the study analyzed the extent to which college GPA, college self-efficacy, mentoring support, and participation in Learning Communities impact freshmen's intent to persist at the end of their first semester. Third, differences between two groups, freshmen and freshmen in Learning Communities, comparing first semester college GPA, college self-efficacy, mentorship, and intent to persist were studied. It was predicted, that participation in Learning Communities would not only impact college freshmen's academic performance as shown in previous research (Cobbs et al., 2010; Kuh, Cruce, Shoup, Kinzie, 2008; 2010;Tinto, 2000), but also their intentions to continue studies beyond the first semester (Kuh, et al., 2008). Fourth, the current study scrutinized the extent to which differences in socioeconomic status, number of hours enrolled, number of hours worked and first generation college student status predicted intent to persist. Furthermore, differences in high school GPA, first semester GPA, changes in self-efficacy, mentoring perceptions and intent to persist due to first semester experiences at the end of the first semester were explored.

## Design

For the current study the researcher used a sample of incoming freshmen, identified as "First Time in any College" (FTIAC) students. A pre-post-test design was employed to examine changes in college self-efficacy scores, mentorship scores, GPA and intent to persist from the beginning of the first semester to the end of the first semester. The intervention in this design consisted of first semester college experiences. The researcher was predominantly interested in the relationship among pre-college admission academic factors (high school GPA, ACT scores), college GPA at Time 2, college self-efficacy (Time 1 and 2), perceptions of mentorship (Time 1 and 2) and participation in Learning Communities predict students' intent to persist and actual persistence as defined by reenrollment. The researcher examined pre- and post test results to find out which predictors would be the most salient ones for persistence beyond the first semester and to what extent first semester experiences were involved in First Time in Any College Students' (FTIACS) persistence at a Midwestern University.

Participants in the study belonged either to a Learning Community or not. It was hypothesized that these two groups would have different first semester college experiences with differential outcomes on intent to persist and reenrollment.

## Extraneous Variables

The researcher identified extraneous variables, e.g. previous experience in Learning Communities at a high school setting and participation in college preparation courses. These variables were addressed in the demographics questionnaire. The circumstances under which freshmen decided whether they joined Learning Communities were also taken into consideration. The researcher had students identify which Learning Communities they belonged to. This information showed the variety of Learning Communities students partook in and yielded

information about voluntarily or involuntary participation. Each Learning Community has different goals and emphases, which lead to mixed student outcomes. This information was not used for the analyses in the current study.

## Population and Sample

The study participants were college freshmen at a Midwestern university with a total enrollment of 32,684 and 20,837 undergraduate students as of fall 2010. At that time 7,276 were part-time and 13,561 were full-time undergraduate students. The number of freshmen in the fall of 2012 was 2,856, 1,585 were female and 1,271 were male (University Records and Registration). In the fall of 2013, 2,283 freshmen were FTIACS and of those 1,235 students were first generation college students. Of all FTIACS, 1,263 participated in a Learning Community (University, Office of Budget, Planning and Analysis). For the current study 456 students consented to be contacted for the online surveys. 319 freshmen completed the first survey at the beginning of the first semester in college. Of those, several students had to be excluded from the study. Only First Time in Any College Students (FTIACS) were used for the data analysis. In addition international students were excluded because their pre-college experiences are very different from U.S. students and they did not have any ACT scores available, which was one of the academic factors examined in the current study. After excluding these participants, 239 qualified for the second survey at the end of the first semester in college, however, only 237 participants provided sufficient data for the first wave. The number of participants who participated in both waves was 172. The demographic characteristics of the sample for the current study can be found in Table 1. Furthermore, socioeconomic status data can be found in Table 2. The socioeconomic status scores ranging from 8 – 66 were evenly broken down into three categories to show where the participants fell.

Table 1.

*Demographic Information on First Time in any College Students (FTIACS) (N=237)*

| FTIACS characteristics | n | % |
|---|---|---|
| Age | | |
| 17-18 | 217 | 91.6 |
| 19-20 | 19 | 8.1 |
| Missing | 1 | 0.3 |
| Gender | | |
| Male | 81 | 34.2 |
| Female | 156 | 65.8 |
| Ethnicity | | |
| African American/Black | 42 | 17.7 |
| American Indian/Alaska Native | 4 | 1.7 |
| Asian American/Asian | 48 | 20.3 |
| Native Hawaiian/Pacific Islander | 1 | 0.4 |
| Hispanic or Latino | 6 | 2.5 |
| Middle Eastern | 21 | 8.9 |
| White/Caucasian | 101 | 42.6 |
| Other | 14 | 5.9 |
| First Generation College Student Status | | |
| First Generation College Student | 76 | 32.1 |
| Not First Generation College Student | 159 | 67.1 |
| Missing | 2 | 0.8 |
| Participation in Learning Community | | |
| In a Learning Community | 53 | 22.4 |
| Not in a Learning Community | 182 | 76.8 |
| Missing | 2 | 0.8 |

Table 2. *Frequencies for Socioeconomic Status as measured by BSMSS in categories, high, medium, and low (N=237).*

| FTIACS SES in categories | n | % |
|---|---|---|
| Low (8-26) | 54 | 22.8 |
| Medium (27-46) | 74 | 31.2 |
| High (47-66) | 92 | 38.8 |
| Missing | 17 | 7.2 |

**Recruitment**

Upon permission from the university's Human Investigation Committee the researcher recruited students. The researcher obtained consent to recruit students for the study at the student orientation from the Associate Provost for Student Success of the university (See Appendix G). The researcher introduced the study to freshmen at the mandatory student orientation prior to fall semester. Students who were interested in participating in the study provided their access IDs on an informed consent sheet given to them at the orientation. It was the goal of the researcher to include the total population of incoming FTIACS (with the exception of international students). The researcher also posted information about the study in dormitories and on the university's homepage. It was anticipated that approximately 20% of all the recruited students would participate based on a study by Sax, Gilmartin, and Bryant (2003) who looked at differences in response rates by mode of administrations. In their study 19.8% of their sample responded. Because potential participants were personally approached during orientation, this estimated percentage was exceeded. 70% of those approached answered at least some of the survey questions. The researcher had planned on using standard multiple regression for some of the analyses which is why she employed Green's rule (50 + 8m) to determine the number of

participants needed to achieve adequate power for the current study. The highest number of predictors used in the multiple regression analyses was five, so the researcher needed at least 180 participants (twice the number calculated through Green's rule) because of the pre-post test design of the study (Tabachnick & Fidell, 2011). A total number of 237 participants met this requirement.

Instructors of introductory courses were identified and asked per e-mail to remind students to participate in the study and to fill out the online questionnaires. E-mail reminders and/or paper notes were distributed to the students one week after the initial request for participation, and were sent again two weeks later. Because of the pre-post design of the study, the researcher had to be aware of an imminent attrition rate between the first and second data collection, therefore, she hoped that reminders would increase the number of participating students, especially in the beginning.

**Procedures**

After the instruments had been approved by the university's Human Investigation Committee, the researcher sent e-mails including complete information about the study to the students who provided access IDs at their orientation. The students were also reminded of the pre-post design of the study which required students to fill out surveys at the beginning and end of their first semester in college. The e-mails contained a link to the online instruments, which provided informed consent for the students, the opportunity to indicate their willingness to participate in the study and to give consent to obtain their records for GPA, ACT scores, and enrollment status. The researcher sent reminder e-mails to students and to instructors of freshmen classes and Learning Communities for freshmen to remind their students to fill out the online surveys within the first three weeks of the semester. The post-test surveys were e-mailed to the

freshmen in the second to last week of their first semester of their studies at the university. The students were again urged to respond within three weeks of receiving the e-mail in order to be eligible to collect $15. Reminder e-mails were again sent to all research participants.

To protect students' rights to privacy their questionnaires received a code after responding at Time 1. A list with all the codes and corresponding student access IDs was created. A university faculty member who has access to the student records stored the list safely in a password protected file, so FTIACS who had qualifies at Time 1 could be contacted at Time 2. This method was used in order to keep student record data separate from any other information collected from the participants.

**Measures**

Several instruments were used for collecting data for the current study. Among those were measures of the demographic characteristics of the sample, high school achievement measures, a college self-efficacy measure, a survey determining mentoring relationships as well as an instrument to measure freshmen's intent to persist studying towards their degree.

Academic Performance: The students' high school GPA, measured on a 4.0 scale, as well as their ACT scores (composite of verbal and math score), the students' first semester GPA on a 4.0 scale, and students' reenrollment status was obtained through the Student Tracking Advising Retention System (STARS). STARS is a web application that connects several university databases. It allows access to university data for advising, retention efforts, curriculum tracking, and program. The researcher obtained permission from the STARS project director to access the data under supervision of a faculty member (see Appendix G). The total scores for each academic performance variable were used for the study.

Demographics: A demographics questionnaire was developed to meet the research needs of the study. Some of the items included inquired about freshmen's family background, their on-campus or commuter status, their motives to attend the particular university and participation in Learning Communities. Other questions addressed ethnic background and whether students were first generation college students. This survey was filled out at the beginning of the semester. See Appendix A.

Self-efficacy: In order to measure college self-efficacy of the participants at the beginning and the end of their first semester, students were given the College Self-Efficacy Inventory (Solberg, O'Brian, Villareal, Kennel, & Davis, 1993). The scale comprises 19 questions and includes three factors (Course Efficacy, Roommate Efficacy, Social Efficacy) with item loadings between .56 and .95. The students were asked to indicate their level of agreement on a 10 point Likert type scale (0 = not at all confident to 10 = extremely confident). For the current study total scores were used, ranging from 19-190. Higher total scores signified higher levels of self-efficacy and lower total scores lower levels of self-efficacy. The questions asked about the students' confidence in completing tasks such as writing a course paper, getting along with roommates, making friends at college. An α coefficient of .93 and had been determined for the total College Self-Efficacy Inventory and an alpha coefficient of .88 had been determined for each subscale. The instrument has been used in several studies, e.g. by Phinney, Dennis, and Osorio (2006) on ethnically diverse college students and a modified version of the instrument had been used by Dixon, Rayle, Arredondo, Robinson and Kurpius (2005) in their study of educational self-efficacy of college women. See Appendix B for detailed survey items.

Mentoring: The researcher used the College Student Mentoring Scale (CSMS) developed by Gloria Crisp (2009) to analyze the perceptions of mentorship both at the beginning and end of

FTIACS' first semester. Crisp (2009) originally developed and used this 25-item-measure with a stratified random sample of courses at a community college. Crisp had identified four latent factors through factor analysis: Psychological and emotional support, degree and career support, academic subject knowledge support and existence of a role model which were highly reliable with α ranging from .845 - . 912. The first factor is measured by eight items involving open discussions about personal and social issues. Six items are being used for gauging degree and career support, e.g. examination of degree options and educational opportunities. The third factor is assessed through five items such as discussion of problems with coursework and achievement. The existence of a role model is measured by six items asking if participants have someone to look up to in respect to academic goals and challenges in accomplishing those. Scores are provided through a five-point Likert scale (1 = strongly disagree to 5 = strongly agree) and range from 25-125, with higher total scores showing better mentorship experiences. Students' overall scores were used for the current study. The stem to the questions on the mentoring scale is "While in college, I have had someone who …" Examples for items are "helps me work toward achieving my academic aspirations", "… expresses confidence in my ability to succeed academically." The measure was previously used with both community college students in Crisp's (2010) study and undergraduates and in Bruland, Huff, and Sano-Franchini's (2011) work. In their article, Crisp & Cruz (2010) suggested that in future research students should identify their mentors (e.g., family, staff, faculty, peers). Therefore, the researcher added this option to the existing instrument. The complete questionnaire can be found in Appendix C.

Intent to persist: In order to examine participants' intent to persist, the College Persistence Questionnaire (CPQ) by Davidson, Beck and Milligan (2009) was used both at the beginning and end of the students first semester in college. This questionnaire consists of 34

items and was developed taking six factors into consideration, yielding six subscales: Academic and social integration, supportive services satisfactions, institutional and degree (or goal) commitment, and academic conscientiousness (Davidson et al., 2009). Scores are provided through a five-point Likert scale (1 = very unsatisfied or very unfavorable to 5 = very satisfied or very favorable) and range from 34-170, with higher total scores indicating greater intentions to persist. Participants' overall scores were used for the current study's purpose. The answer options for Academic and Social integration are used to find out how academic and social experiences influence engagement at college and students' intent to persist. Example items are "How satisfied are you with the extent of your intellectual growth and interest in ideas since coming here?" (academic integration) and "How strong is your sense of connectedness with other faculty, students, staff on this campus?" Supportive Services Satisfaction targets the extent to which students feel that their out-of-class and school-related needs are met. This factor includes quality of communication about rules, regulations, and policies but also other education related issues. Among the items is "How easy is it to get answers to your questions about things related to your education here?" Institutional Commitment is the degree of confidence in and satisfaction with the selection of the institution at which they are doing their coursework. Degree Commitment is defined as the weight students put on receiving a degree. Degree Commitment and Institutional Commitment do not necessarily correlate because students may want their degree, but would rather earn it at a different university than the one they are attending. Nevertheless, the intent to reenroll requires commitment to both. An example item for Institutional Commitment used in the questionnaire is "How confident are you that this is the right university for you?" An example for Degree Commitment is "At this moment in time, how certain are you that you will earn a college degree (Davidson et al. 2009). Academic

Conscientiousness – the sixth factor - comprises academic responsibilities. A question on this subscale is "How often do you turn in assignments past the due date?" (Davidson, Beck, Milligan, 2009). Davidson, Beck, & Milligan (2009) established validity of this measure for predicting retention in two studies. The internal reliability level was at .63. The scores on this instrument are determined through a five-point Likert scale, with answer options ranging from either "very satisfied" to "very dissatisfied" or "very favorable to "very unfavorable" depending on the wording of the question. (Davidson, Beck, & Milligan, 2009). See Appendix D.

Socioeconomic Status: To determine the socioeconomic status of the students, the researcher used the Barratt Simplified Measure of Social Status (BSMSS) (2005). The students completed this survey at the beginning of their freshman semester. This ten-item-measure is an updated version of Hollingshead's four factor index of social status (1975). The BSMSS is a measure that utilizes the participant's and the participant's parents' marital status, educational attainment and occupation to create a score. The total score calculated according to Barratt's (2005) scoring system, falls between 8 and 66. The instructions to this measure were modified to specifically address the student population. Also, the researcher replaced the numbers with circles to be marked. In addition the scoring sheet was not be used in the online survey, but the researcher developed a formula to calculate the score after the students submitted their surveys. The BSMSS has been used in several studies, such as in Reynolds & Ou's (2011) study on paths of effects from preschool to adult well-being. See Appendix E for both the survey and scoring procedures as developed by Barratt.

It is important to note that the Appendices contain the questionnaires as originally developed. Because the students were expected to fill out the entire survey online, the individual

instruments were programmed to meet the format of the "Zoomerang" platform which became "Survey Monkey" after the first survey was posted.

**Web Based Questionnaires**

In recent years web surveys have gained popularity as a research tool. According to Fan and Yan (2010), advantages include shorter transmitting time, lower cost in terms of delivery, availability of attractive designs and decreased data entry time. Response rates vary and have been found both as lower and higher (Sax, Gilmartin, Bryant, 2003) while a more recent study suggests that web survey response rates are 11% lower than for other survey modes (Fan & Yan, 2010). Fan & Yan (2010) point out several factors which impact a lower response rate in survey and delivery. Among those factors are sponsorship with higher response rates for academic and governmental stakeholders compared to commercial ones. In addition, topic and length of survey, wording (specific versus vague), order as well as display of questions appear to have an impact on response rate. Moreover, contact delivery methods, designs of invitations, use of pre-notifications, reminders and incentives (Fan & Yan, 2010). Fan and Yan (2010) also point out factors affecting response rates in survey completion, such as sample populations with student populations among those more likely to respond. Socio-demographics impact the response rates with respect to computer/internet literacy as well as age and gender, but also personality factors need to be considered. The authors also address features of the software as crucial, e.g. the user friendliness of the software, the compatibility with different formats, as well as data safety features (Fan & Yan, 2010).

The researcher opted for the web survey mode in part because university students in all disciplines do have to be computer savvy and need access to the internet on a daily basis to communicate with university personnel. Both, the delivery of the surveys to the prospective

participants and the convenience of returning the completed surveys were considered by the researcher.

## Data Analysis

For the current study, the researcher used standard multiple regression analyses, a MANOVA, and PROCESS, an SPSS utility designed by A.F. Hayes for step process for mediation and moderation analyses. Logistic Regression was suggested for the hypotheses analyzing actual persistence (reenrollment). An overview of all hypotheses, variables and analyses can be seen in Table 1.

For hypothesis 1 standard multiple regression analysis was be performed with the independent (predictor) variables high school GPA and ACT scores, initial college self-efficacy (beginning of the first semester), and initial perception of mentorship support (beginning of the first semester) as measured by quantitative measures. The dependent variable for this first multiple regression analysis was intent to persist as measured by the College Persistence Questionnaire (Davidson, Beck, & Milligan, 2009). The researcher reported $R^2$, to show the variance accounted for by the predictors. Partial correlations will be considered as well as significance testing of regression weights will be undertaken. The researcher analyzed the characteristics that were proposed to be the strongest predictors for the beginning freshmen's intentions to persist, either academic characteristics (each high school GPA, and ACT scores separately), perceived mentoring relationships, and level of college self-efficacy. Prior to the standard multiple regression analysis, Pearson correlations were performed for each sub-hypothesis (H1a –H1d).

A second standard multiple regression analysis was used for hypothesis 2. The independent variables for this hypothesis are, first semester college GPA, college self-efficacy

(end of first semester), mentoring relationships (end of first semester), and participation in Learning Communities (end of first semester). The data for this analysis will be collected at the end of freshmen's first semester in college. Participation in Learning Communities was entered as dummy variable. The researcher analyzed the data to see which characteristics would turn out to be the strongest predictors for freshmen's intentions to persist, either first semester college GPA, perceived mentoring relationships, level of college self-efficacy, or participation in Learning Communities. Prior to the standard multiple regression analysis, Pearson correlations were performed for each sub-hypothesis (H2a –H2d). The predictors from hypothesis 2 were to be used to show actual persistence (reenrollment status) in hypothesis 3. For that purpose logistic regression was proposed because actual persistence is a dichotomous variable.

Hypotheses 4 through 8 examined mediating and moderating variables and their influence on both, intent to persist and persistence (reenrollment). Hypotheses 4 and 5 explored whether self-efficacy accounted for intent to persist and actual persistence (reenrollment). Hypotheses 6 through 7 examined the impact (moderating effect) of participation in learning communities on the relationship between College GPA and intent to persist and actual persistence (reenrollment). Hypothesis 8 scrutinized the impact (moderating effect) of participation of learning communities on the relationship between ACT scores and first semester college GPA. For these hypotheses the researcher employed PROCESS, an SPSS utility designed by A. F. Hayes to interpret mediating effects and simple slope analyses as well as moderating effects (Hayes, 2013). Preacher and Hayes suggested this new test for mediation after analyzing both, Baron and Kenny's (1986) four step test and the Sobel test, which have both been used for mediation in psychological research. Preacher and Hayes (2004) argue for this test in part because Baron & Kenny's criteria may lead to erroneous detection of a mediation effect (Type I

error) due to a small change of the coefficient. By the same token, a large coefficient due to adding a mediator may lead to a large drop in significance, directing to a Type II error. In addition, Baron and Kenny's causal steps approach requires a total effect to consider a mediator (Hayes, 2009). Furthermore, Baron and Kenny's method has been found to have low statistical power (Hayes, 2009; Preacher and Hayes, 2004). The Sobel test (product of coefficients approach), which is often used in addition to Baron and Kenny's test, assumes "that the sampling distribution of the indirect effect is normal," (Hayes, 2009, p. 411). The given criticisms of these mediation methods led Hayes to develop PROCESS which uses the bootstrapping method, which is already being used with (Structural Equation Modeling (SEM) (Hayes, 2013; Hayes, 2009). Hayes proposes "bootstrapping is one of the more valid and powerful methods for testing intervening variable effects" (Hayes, 2009, p. 412). In addition, bootstrapping uses the estimate of indirect effects as the basis for the inference; it does not require normality of the sampling distribution of the indirect effect, or a standard error of indirect effect for the inference (Hayes, 2009). PROCESS as used for the mediation and moderation effects in hypotheses 4-8 is defined by Hayes (2013) as follows:

> PROCESS uses an ordinary least squares or logistic regression-based path analytical framework for estimating direct and indirect effects in simple and multiple mediator models, two and three way interactions in moderation models along with simple slopes and regions of significance for probing interactions, conditional indirect effects in moderated mediation models with a single or multiple mediators and moderators, and indirect effects of interactions in mediated moderation models also with a single or multiple mediators. Bootstrap methods are implemented for inference about

> indirect effects in both unmoderated as well as moderated mediation models (Hayes, 2013, no page).

For the reasons given above, the current research used PROCESS to examine mediating and moderating variables.

Hypothesis 9 attempted to answer the research question "Do freshmen in LCs differ from freshmen not in LCs with regard to GPA, self-efficacy, perceptions of mentorship and intent to persist at time 2?" The researcher used a MANOVA to determine which dependent variables would contribute most to the multivariate effect. For Hypotheses 10 standard multiple regression were performed to study the extent to which SES, number of hours worked, number of hours enrolled, and first generation college student status predicted freshmen's intent to persist at the end of their first semester in college. Prior to the standard multiple regression analysis, Pearson correlations were executed for each sub-hypothesis (H10a –H10d).

Hypothesis 11 used logistic regression to examine the extent to which SES, number of hours worked, number of hours enrolled and first generation college student status predict actual persistence (reenrollment) of first time in any college students at the end of their first semester in college.

Hypothesis 12 studied the impact of high school GPA, ACT scores, college self-efficacy (end of the semester), mentoring perceptions (end of the semester), and participation in Learning Communities on first semester college GPA, utilizing standard multiple regression.

A $p < .05$ was applied to show if there were significant differences. SPSS was used for the data analyses and the data corresponding to hypotheses and research questions will be presented in tables. The researcher was looking for a medium effect with .80 power for the study (Cohen, 1988).

Table 3. *Proposed Hypotheses, Types of Variables and Statistical Analyses.*

| Hypotheses | Variable Type | Scale | Statistics to be used |
|---|---|---|---|
| H1: High school GPA, ACT scores, college self-efficacy, and perceived mentoring support uniquely contribute to intent to persist at the onset of the first semester of college.<br><br>H1a: High school GPA predicts intent to persist among freshmen at the onset of their first semester of college.<br><br>H1b: ACT scores predict intent to persist among freshmen at the onset of their first semester of college.<br><br>H1c: College self-efficacy predicts intent to persist among freshmen at the onset of their first semester of college.<br><br>H1d: Perceptions of mentoring support predict intent to persist among freshmen at the onset of first semester of college. | <u>Independent Variables (IVs):</u><br>High school GPA, ACT scores, College Self-efficacy (SE) Perceptions of Mentoring<br><br><u>Dependent Variable (DV)</u><br>Intent to Persist | **High school GPA**: RATIO (continuous)<br><br>**ACT score**: RATIO (continuous)<br><br>**College Self-Efficacy:** (Likert scale): RATIO/Continuous<br><br>**Mentoring:** (Likert): RATIO (continuous)<br><br>**Intent to Persist**: (Likert) RATIO (continuous) | A standard multiple regression analysis will be conducted with college self-efficacy, high school GPA, and ACT score, perceptions of mentoring as independent variables (predictor variables) and intent to persist as dependent variable (criterion variable).<br><br>Through this analysis, the degree of relationship between the DV and the IVs can be evaluated. In addition the proportion of variance in the DV can be predicted by regression, as well as the relative importance of the IVs (Tabachnick & Fidell, 2011).<br><br>For each sub-hypothesis (H1a-H1d) Pearson correlations will be run. The correlation coefficients will show the strength and direction of the relationships between variables. |
| H2: College GPA, college self-efficacy, perceptions of mentoring support, and participation in Learning | <u>Independent Variables (IVs):</u><br>College GPA, College Self- | **College GPA**: RATIO (continuous) | A standard multiple regression analysis will be conducted with college GPA, college self-efficacy |

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| Communities (LCs) predict intent to persist among college students at the end of their first semester in college.<br><br>H2a: College GPA predicts intent to persist among freshmen at the end of their first semester in college.<br><br>H2b: College self-efficacy predicts intent to persist among freshmen at the end of their first semester in college.<br><br>H2c: Perceptions of mentoring support predict intent to persist among freshmen at the end of their first semester in college.<br><br>H2d: Participation in LCs predicts intent to persist among freshmen at the end of their first semester in college. | efficacy (SE) at time 2, Perceptions of Mentoring Support at time 2 and Participation in LCs.<br><br><u>DV</u><br>Intent to Persist | **College SE (end of semester) time 2:** RATIO (Continuous)<br><br>**Mentoring time 2:** RATIO (continuous)<br><br>**LC:** CATEGORICAL (dummy variable) (dichotomous)<br><br>**Intent to persist time 2**: RATIO (continuous) | and perceptions of mentoring as independent variables (predictor variables) and intent to persist as dependent variable (criterion variable).<br><br>Through this analysis, the degree of relationship between the DV and the IVs can be evaluated. In addition the proportion of variance in the DV can be predicted by regression, as well as the relative importance of the IVs (Tabachnick & Fidell, 2011).<br><br>For each sub-hypothesis (H2a-H2d) Pearson correlations will be run. The correlation coefficients will show the strength and direction of the relationships between variables. |
| H3: College GPA, college self-efficacy, perceptions of mentoring support, and participation in learning communities predict persistence (reenrollment) among college students at the end of their first semester in college (Model 2). | <u>Independent Variables (IVs):</u><br>College GPA, College Self-efficacy at time 2, Perceptions of Mentoring Support at time 2, and Participation in LCs.<br><br><u>DV: Persistence</u> | **College GPA**: RATIO (continuous)<br><br>**College SE time 2:** RATIO (Continuous)<br><br>**Mentoring time 2:** RATIO (continuous)<br><br>**LC:** CATEGORICAL (dummy variable) (dichotomous) | Logistic Regression with actual persistence as DV will be used. The Wald test will show which factors are statistical significant. Odds ratios will show the effect of the independent variables on the dependent variable (Tabachnick and Fidell, 2011) |

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| | | **Persistence:** Reenrollment (dichotomous) | |
| Mediation Hypotheses<br><br>H4: The relationship between college GPA and intent to persist among freshmen at the end of their first semester in college is mediated by college self-efficacy.<br><br>H5: The relationship between college GPA and PERSISTENCE (reenrollment) among freshmen at the end of their first semester in college is mediated by self-efficacy (Model 2). | IV<br>College GPA<br>DV (H4)<br>Intent to persist<br><br>DV (H5)<br>Persistence<br><br>Mediating Variable<br>College self-efficacy | **College GPA**: RATIO (continuous)<br><br>**College SE time 2:** RATIO (Continuous) MEDIATOR<br><br>**Intent to persist:** RATIO (Continuous)<br><br>**Persistence:** Reenrollment (dichotomous) dummy variable | Regression analyses will be conducted using PROCESS (Hayes, 2013) an SPSS utility specially designed for interpreting mediation effects. The mediation analysis will yield total, direct, and indirect effects. To investigate mediation, bootstrapping will be used as described in Preacher and Hayes (2013) with 5000 random samplings of the data with replacement and first semester college GPA as independent variable, college self-efficacy as proposed mediator and intent to persist as dependent variable. A significant indirect effect of college self-efficacy will be shown through confidence intervals that do not contain 0. |

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| <u>Moderation Hypotheses:</u><br><br>H6: The relationship between college GPA and intent to persist among freshmen at the end of their first semester is moderated by participation in learning communities.<br><br>H7: The relationship between college GPA and PERSISTENCE among freshmen is moderated by participation in learning communities (Model 2). | <u>IV</u><br>College GPA<br><u>DV (H6)</u><br>Intent to Persist<br><u>DV (H7)</u><br>Persistence<br><br><u>Moderating Variable</u><br>Participation in LCs | **College GPA**:<br>RATIO<br>(continuous)<br><br>**LC**:<br>CAT/NOMINAL<br>(dichotomous)<br>(dummy variable)<br>MODERATOR<br><br>**Intent to persist:**<br>RATIO<br>(Continuous)<br><br>**Persistence:**<br>Reenrollment<br>CATEGORICAL<br>(dichotomous)<br>dummy variable | For the regression analyses PROCESS will be used (Hayes, 2013), an SPSS utility specially designed by A. F. Hayes for interpreting moderation effects and simple slopes analysis. All predictors will be mean centered. Bootstrap with 5000 resamples. Significant effects will be indicated by confidence intervals that do not contain 0. High and low conditional simple slopes will be computed for Participation in Learning Communities, which is a dichotomous moderator, to explore interaction effects (Hayes, 2013). |
| H8: The relationship between ACT scores and college GPA among college freshmen is moderated by participation in learning communities. | <u>IV</u><br>ACT scores<br><br><u>DV</u><br>College GPA<br><br><u>Moderating Variable</u><br>Participation in LCs | **ACT**<br>RATIO<br><br>**College GPA**:<br>RATIO<br>(continuous)<br><br>**LC:**<br>CAT/NOMINAL<br>(dummy variable, dichotomous) | |
| H9: There is a difference between freshmen participating in LCs and freshmen not participating in LCs in socio-cognitive variables (College GPA, college self-efficacy, perceptions of mentorship at & intent to persist) at the end of their first semester in college. | <u>IV</u><br>Participation in LC<br><br><u>DVs</u><br>o First semester College GPA<br>o College SE<br>o Perceptions of mentorship<br>o Intent to persist | **LC:**<br>CAT/NOMINAL<br>**College GPA**:<br>RATIO<br>(continuous)<br>**College SE time 2:**<br>RATIO<br>(continuous)<br>**College SE**<br>RATIO<br>(continuous) | A one-way MANOVA will be performed.<br><br>• Pillai's Trace will provide effect size.<br>• (Salkind, 2007; Tabachnick & Fidell, 2011). |

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| | | **Mentoring**<br>RATIO<br>(continuous)<br>**Intent to persist:**<br>RATIO<br>(continuous) | |
| H10: SES, number of hours worked, number of hours enrolled, and first generation student status uniquely contribute to intent to persist among freshmen in their first semester of college.<br><br>H10a: Socioeconomic status (SES) predicts intent to persist among freshmen in their first semester of college.<br><br>H10b: The number of hours worked predicts intent to persist among freshmen in their first semester of college.<br><br>H10c: The number of hours enrolled predicts intent to persist among freshmen in their first semester of college.<br><br>H10d: First generation college student status predicts intent to persist among freshmen in their first semester of college. | <u>IV</u><br>SES score<br><br><u>IV</u><br>Hours worked<br><br><u>IV</u><br>Hours enrolled<br><br><u>IV</u><br>First generation college status<br><br><u>DV</u><br>Intent to persist (end of semester) | **SES:**<br>RATIO<br>(continuous)<br><br>**Hours worked:**<br>RATIO<br>(continuous)<br><br>**Hours enrolled:**<br>RATIO<br><br>**First generation college status:**<br>(dummy variable, dichotomous)<br><br>**Intent to persist:**<br>RATIO<br>(continuous) | A standard multiple regression analysis will be conducted with, high school GPA, and ACT scores, college self-efficacy, perceptions of mentoring as independent variables (predictor variables) and intent to persist as dependent variable (criterion variable).<br>Through this analysis, the degree of relationship between the DV and the IVs can be evaluated. In addition the proportion of variance in the DV can be predicted by regression, as well as the relative importance of the IVs (Tabachnick & Fidell, 2011). |

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| H11: SES, number of hours worked, number of hours enrolled and first generation student status uniquely contribute to PERSISTENCE (reenrollment) among freshmen in their first semester of college (Model 2). | IV<br>SES score<br>IV<br>Hours worked<br>IV<br>Hours enrolled<br>IV<br>First generation college status<br><br>DV (H10)<br>Persistence | **SES:**<br>RATIO<br>(continuous)<br><br>**Hours worked:**<br>RATIO<br>(continuous)<br><br>**Hours enrolled:**<br>RATIO<br><br>**First generation college status:**<br>(dummy variable, dichotomous)<br><br>**Persistence:**<br>Reenrollment<br>CATEGORICAL<br>(dichotomous) | Logistic Regression with actual persistence as DV will be used. The Wald test will show which factors are statistical significant. Odds ratios will show the effect of the independent variables on the dependent variable (Tabachnick and Fidell, 2011). |
| H12: High school GPA, ACT scores, college self-efficacy (end of semester), mentoring perceptions (end of semester), and participation in learning communities predict College GPA | Independent Variables (IVs):<br>High school GPA, ACT scores, College Self-efficacy (end of semester), perceptions of mentoring support (end of semester) and participation in LCs.<br><br>DV<br>College GPA | **High school GPA**:<br>RATIO<br>(continuous)<br>**ACT scores:**<br>RATIO<br>(continuous)<br>**College SE time 2:**<br>RATIO<br>(Continuous)<br>**Mentoring time 2:**<br>RATIO<br>(continuous)<br>**LC:**<br>CATEGORICAL<br>(dummy variable)<br>(dichotomous)<br>**College GPA**:<br>RATIO<br>(continuous) | A standard multiple regression analysis will be conducted with, high school GPA, and ACT scores, college self-efficacy, perceptions of mentoring as independent variables and intent to persist as dependent variable (criterion variable).<br>Through this analysis, the degree of relationship between the DV and the IVs can be evaluated. In addition the proportion of variance in the DV can be predicted by regression, as well as the relative importance of the IVs (Tabachnick & Fidell, 2011). |

## Summary

The current study studies the impact of a host of variables on freshmen's – specifically First Time in Any College Students' – intent to continue their studies at a Midwestern university they started in Fall 2012. College freshmen and college freshmen in Learning Communities in the Fall of 2012 were the participants in the study. Surveys to explore the students' demographic background, academic standing, self-efficacy, and perceived mentoring relationships and intent to persist were used to examine factors that might influence college student retention. The analysis plan included Multiple Linear Regression analyses were used to find significant correlations, and contributions of individual predictors to students' intent to persist and academic success at the end of their first freshmen semester. Mediating and moderating effects of variables were to be analyzed. Freshmen in Learning Communities were to be compared to freshmen not in Learning Communities by main effects and simple effects by means of an ANOVA. The results were expected to yield significant outcomes which would help understand the complexity of variables impacting college student persistence.

# CHAPTER 4
# RESULTS

## RESULTS OF DATA ANALYSES

In this chapter the results of the data analyses will be presented in two sections. The first section includes preliminary analyses, descriptions of mean group differences between First Time in Any College Students (FTIACS) in Learning Communities (LC) and not in Learning Communities and changes over time. The second section shows the analyses for each main hypothesis and sub-hypotheses, which include correlations among variables. Analyses for sub-hypotheses precede analyses for main hypotheses.

### Restatement of the Purpose

The purpose of this study was to explore to what extent different variables such as academic performance (ACT score, high school and first semester GPA), college self-efficacy, and perceptions of mentoring support predict the First Time in Any College Students' (FTIACS) intent to persist past the first semester of college. The influence of participation in Learning Communities and changes in self-efficacy, perceptions of mentorship and intent to persist was also investigated.

### Group Differences, changes over Time and Preliminary Analyses

All data used for the analyses stemmed from First Time in Any College Students (FTIACS), students who had never been in a college before (neither a community college nor a university). In addition, students had to be citizens or green card holders to qualify for the analyses. Of all participants, 239 qualified for the current study.

To identify outliers, the Mahalonobis Distance (Mertler & Vannatta, 2010; Tabachnick and Fidell, 2011), was computed. Two cases were found to have extreme values and, therefore, were removed from the data set, decreasing the number of valid cases to 237. In order to not lose

cases due to missing answers on the surveys, the researcher totaled the scores and calculated the means for the college self-efficacy survey, the perceptions of mentorship survey, and the intent to persist survey at the beginning and end of the participants' first semester in college. This score will be referred to as "Mean Total Score" throughout this chapter. Also, the number of cases fluctuates in the various analyses, because a) of attrition between first and second wave, b) missing data for the surveys, or c) unavailable data from participants.

The screening processes for the mean total scores for college self-efficacy, perceptions of mentorship support, and intent to persist showed no significant issues with normality, linearity, or homeoscedasticity. Multicollinarity was explored also. According to Hair, Black, Babin, Anderson and Tatham (2006) multicollinarity is measured through two statistics, Tolerance and Variance of Inflation Factor. Because the tolerance values remained $> .10$ and the variance inflation factor was $< 10$, multicollinarity did not present a problem.

The participants filled out online surveys both at the beginning (first wave) and the end of their first semester (second wave) in college. To explore the collected data, Tables 4-6 were included in this section. Table 4 gives an overview of the mean scores for the academic variables focused on in the analyses (mean high school GPA, mean ACT scores, mean college GPA) as well as the mean total scores for college self-efficacy, perceptions of mentoring support, and intent to persist from both waves. In addition, Table 4 compares FTIACS participating in a Learning Community (LC) and FTIACS not participating in a Learning Community (LC), which will be examined in one of the hypotheses as well (hypothesis 9).

Table 4. *Descriptive Statistics for FTIACS in Learning Communities (LC) and FTIACS not in Learning Communities (not in LC).*

| | In a Learning Comm. | | | Not in a Learning Comm. | | | |
|---|---|---|---|---|---|---|---|
| Variable | *M* | *SD* | *N* | *M* | *SD* | *N* | Range |
| ACT Score | 25.08 | 4.0 | 53 | 23.10 | 4.94 | 178 | 12.00-35.00 |
| High School GPA | 3.59 | .45 | 51 | 3.41 | .49 | 177 | 1.85-4.00 |
| First Semester GPA | 3.27 | .88 | 53 | 2.93 | .94 | 182 | 0.00-4.00 |
| College Self-Efficacy[1] | 7.72 | 1.1 | 53 | 7.38 | 1.27 | 180 | 3.16-10.00 |
| Mentorship Perceptions[1] | 3.79 | .67 | 53 | 3.68 | .81 | 179 | 1.00-5.00 |
| Intent to Persist[1] | 3.52 | .33 | 53 | 3.42 | .41 | 178 | 1.85-4.30 |
| College Self-Efficacy[2] | 7.63 | 1.07 | 40 | 7.42 | 1.16 | 130 | 4.26-9.89 |
| Mentorship Perceptions[2] | 3.76 | .55 | 40 | 3.82 | .83 | 128 | 1.00-5.00 |
| Intent to Persist[2] | 3.49 | .3 | 40 | 3.42 | .45 | 128 | 1.79-4.76 |

[1]Scores are from first wave (beginning of first semester in college).
[2]Scores are from second wave (end of first semester in college).

Although no hypothesis in the current study examined the changes between first and second wave data, scores for self-efficacy, mentoring support perceptions, and intent to persist, a table of differences between the data from both waves were included (Table 5).

Table 5. *Descriptive Statistics for College Self-Efficacy, Mentorship Perceptions, Intent to Persist for Participants in Both First and Second Wave.*

| | Beginning of first Semester | | | End of Semester | | |
|---|---|---|---|---|---|---|
| Variable | *M* | *SD* | *N* | *M* | *SD* | *N* |
| College Self-Efficacy | 7.45 | 1.24 | 170 | 7.46 | 1.13 | 170 |
| Mentorship Perceptions | 3.73 | 1.13 | 168 | 3.81 | .49 | 168 |
| Intent to Persist | 3.43 | .37 | 168 | 3.43 | .41 | 168 |

Paired-samples *t*-tests were performed for participants of both waves. No significant changes over time were found for college self-efficacy, $t(169) = -.16$, $p = .87$ , and for intent to persist $t(167) = .10$, $p = .92$. Because of attrition and missing data only 168-170 survey results could be compared in this analysis, which also affected the degrees of freedom in the *t*-tests.

High school GPA and first semester college GPA were also compared to see if there were significant differences. Paired samples *t*-tests showed significant differences $t(229) = 8.42$, $p < .001$ with high school GPA significantly higher than college GPA ($M = 3.45$ and $M = 3.02$, respectively). Table 6 shows the results of the analysis.

Table 6. *Paired Samples t-test for High School GPA and First Semester GPA.*

| Variable | *N* | *M* | *SD* | *df* | *t* | *Sig* |
|---|---|---|---|---|---|---|
| High School GPA | 230 | 3.45 | .49 | 229 | 8.42 | <.001 |
| First Semester GPA | 230 | 3.02 | .93 | | | |

**Analyses for Main Hypotheses and Sub-Hypotheses**

All hypotheses were tested using inferential statistics. Significance was determined using an alpha level of .05. Pearson correlations for each sub-hypothesis were run for individual variables, and the analyses for the sub-hypotheses precede the analyses for the main hypotheses. For the main hypotheses multivariate analyses including standard linear multiple regression analyses, logistic regression analyses, multivariate analyses of variance, as well as mediation and moderation analyses were employed.

The first hypothesis and its sub-hypotheses, for which analyses were run, used first wave data, which was collected in the beginning of the participants' first semester in college. The data

included mean total scores for college self-efficacy, mentoring support perceptions, and intent to persist.

H1: High school GPA, ACT scores, college self-efficacy, and perceived mentoring support uniquely contribute to intent to persist at the onset of the first semester in college.

H1a: High school GPA predicts intent to persist among freshmen at the onset of their first semester in college.

H1b: ACT scores predict intent to persist among freshmen at the onset of their first semester in college.

H1c: College self-efficacy predicts intent to persist among freshmen at the onset of their first semester in college.

H1d: Perceptions of mentoring support predict intent to persist among freshmen at the onset of first semester in college.

Pearson correlations were run to explore individual correlations of high school GPA, ACT scores, as well as mean total scores for college self-efficacy and perceptions of mentorship with mean total scores for intent to persist at the onset of the semester (first wave) for FTIACS. Table 7 shows the correlation matrix.

Table 7. *Pearson Correlations among High School GPA, ACT Scores, Mean Total Self-Efficacy Score, Mean Total Mentorship* Scores and Mean Total Intent to Persist Scores in first wave (N = 230).

| | High School GPA | ACT Score | Coll. Self-Efficacy | Mentor-ship Per-ceptions | Intent to Persist |
|---|---|---|---|---|---|
| High School GPA | | .528** | -.068 | .053 | -.018 |
| ACT Score | | | -.117 | .078 | .016 |
| College Self-Efficacy[1] | | | | .428** | .617** |
| Mentorship Perceptions[1] | | | | | .508** |
| Intent to Persist[1] | | | | | |

[1] Scores are from first wave
** Correlation is significant at the .01 level (2-tailed)

The analyses provided the following results: High school GPA and intent to persist (beginning of the first semester) were not significantly correlated, $r$ (n=30) = -.018 at $p$ = .05 (Hypothesis H1a). No significant correlation was found between ACT scores and mean total scores for intent to persist (beginning of the first semester), $r$ = -.016, $p$ =.05 (Hypothesis H1b). College self-efficacy and intent to persist (beginning of first semester) were significantly correlated, $r$ = .617 at $p$ =.01 (Hypothesis H1c). In addition, mean total scores for perceptions of mentoring support were significantly correlated with intent to persist, $r$ = .508 at $p$ =.01 (Hypothesis H1d). It was also found that the academic variables, high school GPA and ACT scores, were strongly correlated as well as college self-efficacy and mentorship perceptions.

For the main hypothesis (H1) a standard linear multiple regression analysis was used to test if ACT score, high school GPA, first semester college self-efficacy and perceptions of

mentorship significantly predicted FTIACS' intent to persist. Data was available for 220 participants. Values of the analysis are presented in Table 8.

Table 8. *Standard Linear Multiple Regressions Predicting Intent to Persist at the Beginning of the First Semester in College (First Wave) (N=220).*

| *Variables* | *B* | *β* | *Sr* | $Sr^2$ | *F* | *df* | *R* | $R^2$ | Sig. | *t* |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.649 | | | | 45.48 | 4, 216 | .676 | .46 | <.001 | 8.32*** |
| ACT Score | .005 | .07 | .056 | .003 | | | | | | 1.12 |
| High School GPA[1] | -.027 | -.03 | -.029 | .008 | | | | | | -.57 |
| College Self-Efficacy[1] | .161 | .49 | .508 | .189 | | | | | | 8.67*** |
| Mentorship Percept.[1] | .149 | .30 | .269 | .072 | | | | | | 5.38*** |

Dependent Variable: Intent to Persist (beginning of first semester in college)
[1] Scores are from first wave
***Correlation is significant at the .001 level (2-tailed)

The results of the standard linear multiple regression analysis indicated that the predictors explained 45.7% of the variance ($R^2$ = .46, $F(4,216)$ = 45.48 $p$ <.001). It was found that college self-efficacy significantly predicted intent to persist, $\beta$ = .49, $t$=8.67, at $p$<.001), as did Mentorship, $\beta$ = .30 and $t$ = 5.38, $p$ < .001). ACT and High school GPA did not show significant prediction of intent to persist in the beginning of the first semester of first time in any college students. The standardized regression coefficients ($\beta$) clearly show that self-efficacy is the most important predictor for intent to persist, followed by perceptions of mentorship. The Semi-partial Coefficient of Determination ($Sr^2$) was calculated for each predictor to show each independent variable's unique contribution to the model, it was found that 18.9% of the variance was uniquely accounted for by college self-efficacy, 7.2% by perceptions of mentorship, .8% by HSGPA, and .03% by ACT scores.

For hypothesis 2 and sub-hypotheses 2a-2d, in addition to first semester GPA, data from the second wave (end of first semester) of the data collection was utilized (mean total scores for college self-efficacy, perceptions of mentoring support and intent to persist).

H2: College GPA, college self-efficacy, perceptions of mentoring support, and participation in Learning Communities predict intent to persist among first time in any college students at the end of their first semester in college.

H2a: College GPA predicts intent to persist among freshmen at the end of their first semester in college.

H2b: College self-efficacy predicts intent to persist among freshmen at the end of their first semester in college.

H2c: Perceptions of mentoring support predict intent to persist among freshmen at the end of their first semester in college.

H2d: Participation in Learning Communities (LCs) predicts intent to persist among freshmen at the end of their first semester in college.

First, Pearson correlations were performed for first semester GPA, mean total self-efficacy scores, mean total mentorship scores and intent to persist of FTIACS at the end of the first semester. Data for these analyses were available for 170 participants – people who completed both, wave 1 and wave 2 data. Table 9 shows detailed results.

Table 9. *Pearson Correlations between First Semester GPA, Mean Total Self-Efficacy Scores, Mean Total Mentorship Scores and Mean Total Intent to Persist Scores (Wave 2)* (*N* = 170).

| | First Semester GPA | First Sem. Self-Efficacy | Mentorship Perceptions | Intent to Persist |
|---|---|---|---|---|
| First Semester GPA | | .023 | .182* | -.033 |
| First Sem. Self-Efficacy[1] | | | .444** | .555** |
| Mentorship[1] | | | | .501** |
| Intent to Persist[1] | | | | |

[1] Scores are from second wave (end of the first semester in college)
* Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)

No significant correlation was found between first semester GPA and intent to persist (hypothesis 2a); however, significant correlations were found between college self-efficacy and intent to persist, $r$ = .555, $p$=.01 (hypothesis 2b). In addition mentoring support perceptions were significantly correlated with intent to persist at the end of FTIACS' first semester, $r$ = 501, $p$ = .01 (hypothesis 2c). It was also found that mentorship perceptions were significantly correlated with first semester GPA, $r$ = .182, $p$ = .05 and mentorship perceptions were also significantly correlated with first semester college self-efficacy, $r$ = .444, $p$ = .01.

Hypothesis 2d pertains to the impact of Learning Communities on intent to persist. For this hypothesis mean total scores for intent to persist from the second wave were again utilized.

Participants in LCs and not in LCs were compared using independent samples *t*-tests. Data for 128 participants was available for this analysis. Table 10 shows the results of the *t*-test.

Table 10. *The t-test for FTIACS in Learning Communities) and Not in Learning Communities using Mean Intent to Persist Scores at the End of the First Semester (second wave).*

| Group | *N* | *M* | *SD* | *df* | *t* | *Sig* |
|---|---|---|---|---|---|---|
| In LC | 40 | 3.49 | .30 | 166 | .995 | .322 |
| Not in LC | 128 | 3.42 | .45 | | | |

The Levene's Test for Equality of Variances showed unequal variances between students in LCs and students not in LCs. The *t*-test on differences on persistence (end of the first semester) between FTIACS participating in LCs and FTIACS not participating in LCs indicated no significant difference in intent to persist, $t(166) = .995$, $p = .322$, $M = 3.49$ and $M = 3.42$ respectively. The power of this test was .26.

For the main hypothesis 2 (H2) mean total scores for self-efficacy, mentoring support perceptions, and intent to persist from the second wave (end of the first semester) were utilized in addition to first semester college GPA and participation in Learning Communities (LC). Standard linear multiple regression was used to test if First Semester GPA, College Self-Efficacy, Perceptions of Mentorship and Participation in a Learning Communities significantly predicted FTIACS' Intent to Persist at the end of their first semester in college (second wave). Table 11 presents results of this analysis.

Table 11. *Standard Linear Multiple Regression Analysis to Predict Intent to Persist at the End of FTIACS' First Semester in College.*

| *Variables* | *B* | *β* | *Sr* | *Sr²* | *F* | *df* | *R* | $R^2$ | *Sig F* | *t* |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.804 | | | | 28.09 | 4, 165 | .64 | .41 | <.001 | 9.39 |
| First Semester GPA | -.062 | .13 | .120 | .014 | | | | | | -2.00 |
| Coll. Self-Efficacy[1] | .145 | .40 | .352 | .124 | | | | | | 5.86*** |
| Mentorship Percept[1] | .190 | .35 | .306 | .094 | | | | | | 5.10*** |
| Part. in LC.[2] | .078 | .08 | .076 | .005 | | | | | | 1.26 |

Dependent Variable: Intent to Persist (end of first semester in college)
[1] Scores are from second wave (end of the first semester in college)
[2] Part. in LC = Participation in Learning Communities
*** p<.001

The results of the standard linear multiple regression analysis indicated that the predictors explained 41% of the variance ($R^2$ = .41, $F(4,165) = 28.09$, $p <$ .001). It was found that college self-efficacy significantly predicted intent to persist at the end of the first semester in college, $\beta$ = .40 and $t$ = 5.86 at $p < .001$, as did Mentorship with $\beta$ = .35, $t$ =5.10 at $p < .05$) while college GPA and participation in Learning Communities did not. The importance of college self-efficacy and perceptions of mentorship at the end of the FTIACS first semester in college is similar to the findings in the first wave, however, the standardized regression coefficients ($\beta$) dropped slightly for self-efficacy by .9 and increased for mentorship by .5. The Semi-partial Coefficient of Determination ($Sr^2$) was calculated for each predictor to show each independent variable's unique contribution to the model. It was found that 12.4% of the variance was uniquely accounted for by college self-efficacy, 9.4% by perceptions of mentorship, 1.4% first semester college GPA and .5% by participation in Learning Communities.

The current research sought to examine hypotheses for Model 2. Model 2 was proposed to predict actual enrollment from the social-cognitive and academic variables utilized in Model 1 which used intent to persist as the dependent variable.

H3: College GPA, college self-efficacy, perceptions of mentoring support, and participation in learning communities predict PERSISTENCE (reenrollment) among college students at the end of their first semester in college. (Model 2).

Because only three FTIACS had not reenrolled after their first semester in college, the proposed logistic regression analysis for H3 could not be conducted.

**Mediation Hypotheses**

The current research also examined direct and indirect effects of variables on intent to persist. Hypothesis 4 and hypothesis 5 explored whether self-efficacy had a mediation function.

H4: The relationship between college GPA and intent to persist among freshmen at the end of their first semester in college is mediated by college self-efficacy.

Regression analyses were conducted using PROCESS (Hayes, 2013) an SPSS utility specially designed for interpreting mediation effects. The mediation analysis revealed no significant total, direct, or indirect effects of college GPA on persistence. To investigate mediation, bootstrapping was used as described in Preacher and Hayes (2004) with 5000 random samplings of the data with replacement and first semester college GPA as independent variable, college self-efficacy as mediator and intent to persist as dependent variable. Figure 1 shows the mediation model and coefficients.

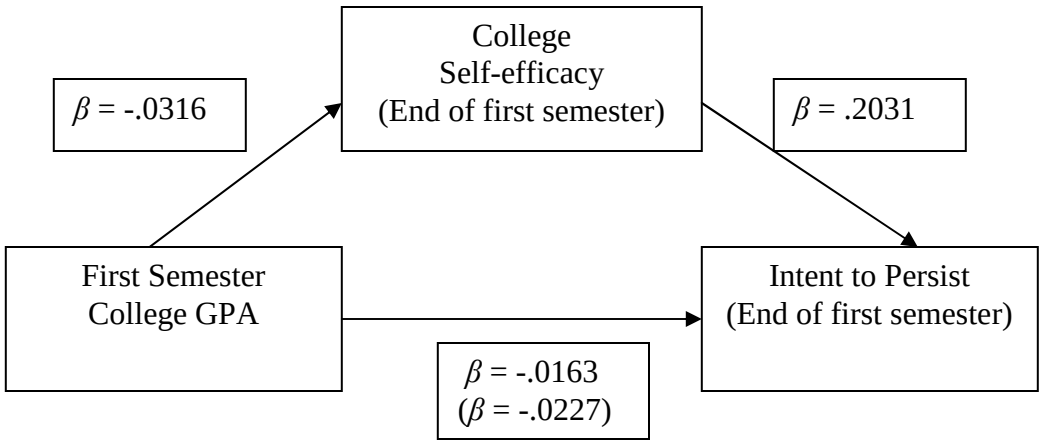


*Figure 1. No Existing Mediating Effects of College Self-Efficacy between First Semester GPA and Intent to Persist.*

According to PROCESS, significant indirect (mediation) effects can be determined by confidence intervals that do not include 0. Mediation analysis revealed that college self-efficacy did not mediate the relationship between college GPA and intent to persist (95% CI: -.03, .04). These results were verified when testing mediation using the more conservative Sobel Z-test ($Z$ = .30, $p$ = .76). First semester college GPA neither had a significant direct effect on intent to persist, nor a significant indirect effect. In addition, there was no significant effect of first semester college GPA on college self-efficacy (95% CI: -.17, .24). However, there was a significant effect of college self-efficacy on intent to persist (95% CI: .16, .25, $p$ = .001). Again, the effect of college self-efficacy on intent to persist could be shown in this analysis.

Mediation analysis was also proposed for hypothesis 5.

H5: The relationship between college GPA and PERSISTENCE (reenrollment) among freshmen at the end of their first semester is mediated by self-efficacy (Model 2).

Because only three FTIACS had not reenrolled after their first semester in college, a mediation analysis could not be conducted for hypothesis 5.

**Moderation Hypotheses**

Three hypotheses in the current research – hypothesis 6 through hypothesis 8 – suggested moderating effects of participation in Learning Communities.

H6: The relationship between first semester college GPA and intent to persist among freshmen at the end of their first semester is moderated by participation in learning communities.

See the proposed model in Figure 2.

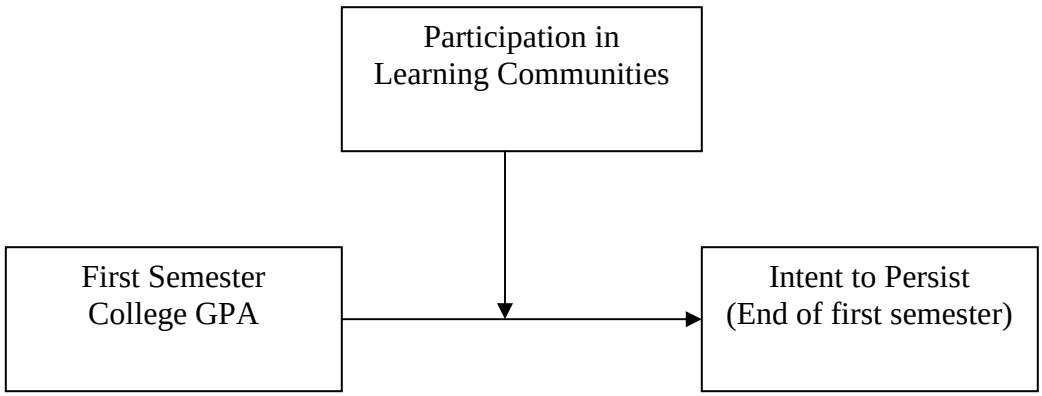


Figure 2. *Moderation Model Predicting that Participation in Learning Communities Has a Moderating Effect on the Relationship between First Semester College GPA and Intent to Persist (End of First Semester).*

For the regression analyses PROCESS was used (Hayes, 2013), an SPSS utility specially designed by A. F. Hayes for interpreting moderation effects and simple slopes analysis. All predictors were mean centered. High and low conditional simple slopes were computed for participation in Learning Communities – a dichotomous moderator – to explore interaction effects. No significant main effects of participation in Learning Communities and first semester college GPA were found, $b$ = .02, $SE$ = .09, $t(170)$ = .22, $p$ = .83 for participation in *LC*s and

*b* = -.001, *SE* = .05, *t*(170) = -.02, *p* = .99 for first semester college GPA. In addition no significant interaction was found, *b* = .16, *SE* = .15, *t*(170) = 1.13, *p* = .26.

For exploratory purposes, simple slopes analysis was included. It revealed that first semester college GPA predicted minimal non significant change in intent to persist when individuals participated in Learning Communities (*b* = .76, SE = .14, *t*(170) = .90, *p* = .37) and an even smaller non significant change when individuals did not participate in Learning communities (*b* = -.24, *SE* = .04, *t*(170) = -.96, *p* = .34). See Figure 3 below.

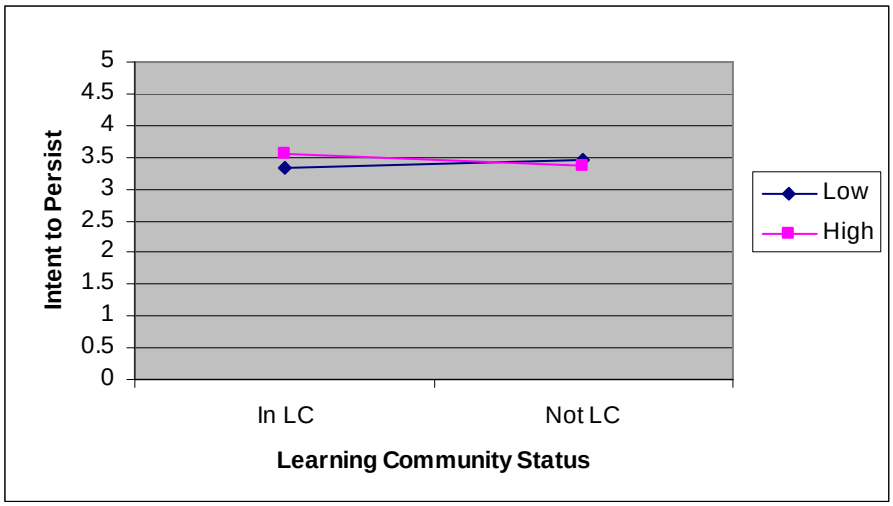


Figure 3. *Simple Slopes Analysis Shows that Participation in Learning Communities Has a Non Significant Effect on the Relationship Between First Semester College GPA and Intent to Persist.*

Mediation analysis was also proposed for hypothesis 7. Because only three FTIACS had not reenrolled after their first semester in college, analyses for the following hypothesis could not be conducted:

H7: The relationship between college GPA and PERSISTENCE among freshmen at the end of their first semester is mediated by self-efficacy (Model 2).

A moderation analysis was performed for hypothesis 8:

H8: The relationship between ACT scores and first semester college GPA among college freshmen is moderated by participation in learning communities.

See Figure 4 for proposed model.

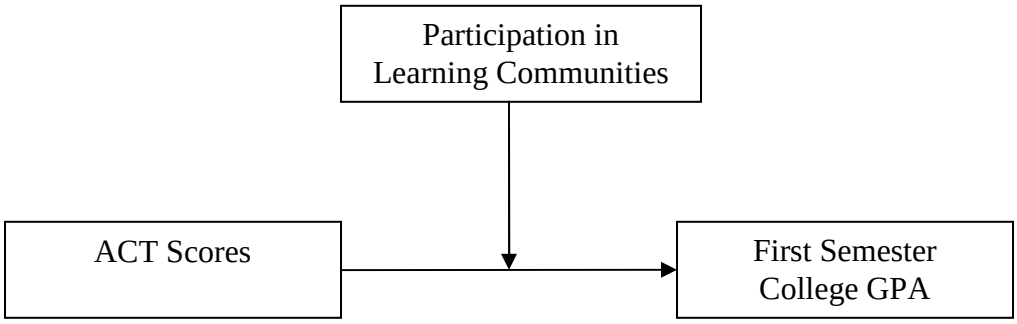


Figure 4. *Proposed Moderation Model Predicting that Participation in Learning Communities Has a Moderating Effect on the Relationship between ACT Scores and First Semester College GPA.*

Similar moderation analyses were conducted using PROCESS (Hayes, 2013) to determine if there were moderation effects. In addition, simple slopes analysis was performed. All predictors were mean centered, and for the dichotomous moderator – participation in Learning Communities - high and low conditional simple slopes were computed and used to explore interaction effects. No significant main effect was found for participation in Learning Communities, $b$ = .17, $SE$ = 14, $t(233) = 1.28$, $p$ = .20. A significant main effect was found for ACT and first semester GPA, $b$ = .08, $SE$ = .01, $t(233) = 7.16$, $p < .001$. However, no significant interaction was found, $b$ = -.001, SE = .03, $t(233)$ = -.12, $p$ = .90.

Simple slopes analysis graphically presents that ACT scores significantly predicted College GPA under both conditions, participation in Learning Communities ($b$ = .08, $SE$ = .02, $t(233) = 2.81$, $p$ = .005) and non-participation in Learning communities ($b$ = -.08, $SE$ = .01,

*t*(170) = 6.74, *p* = .001). Figure 5 shows exploratory simple slopes analysis despite non-significant interaction.

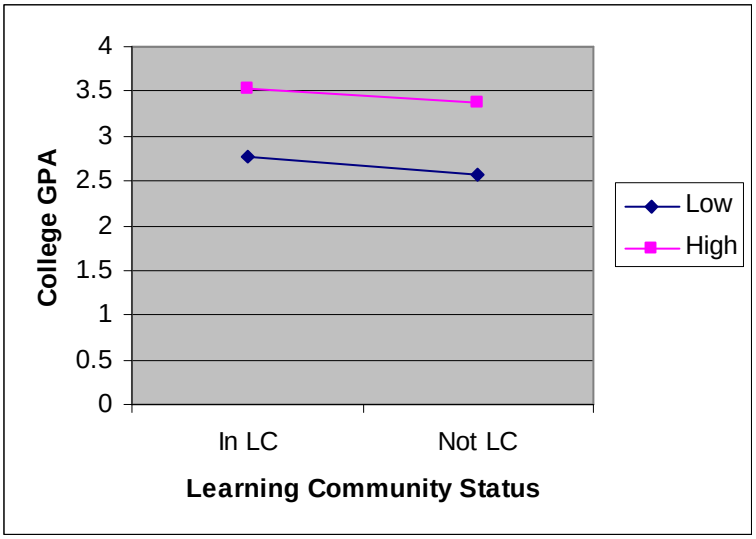


Figure 5. *Simple Slopes Analysis Showing High and Low Scores of ACT Predicting College GPA. Participation in Learning Communities Was Not a Significant Moderator.*

Hypothesis 9 examined differences between FTIACS in Learning Communities and FTIACS not in Learning Communities:

H9: There is a difference between freshmen participating in Learning Communities and freshmen not participating in Learning Communities in social-cognitive variables (college GPA, college self-efficacy, perceptions of mentorship at & intent to persist) at the end of their first semester in college.

A MANOVA was conducted to examine the effects of participation in Learning Communities on first semester college GPA, college self-efficacy, perceptions of mentorship and intent to persist. Data for 167 participants were available for this analysis. Table 12 shows the results.

Table 12. *Multivariate Analysis of Variance on Participation in Learning Communities*

| Source of Variation | Pillai's Trace | F | df | Sig. | Power |
|---|---|---|---|---|---|
| Participation in LC | .10 | 4.19 | 4, 163 | .003 | .92 |

A Levene's test of the homogeneity of variance was significant for first semester college GPA, $F(1, 166) = 10.77$ at $p = .001$, mentorship perceptions with $F(1,166) = 6.920$ at $p = .009$, and intent to persist with $F(1,166) = 6.683$ at $p = .01$ but not for self-efficacy $F(4,163) = .72$. To correct for this, Pillai's Trace correction was used to assess the multivariate test. The multivariate test results indicated that participation in Learning Communities had a significant effect, $F(4,163) = 4.187$, $p = .003$ with an effect size of .92.

The current study examined the individual effects of participation in Learning Communities on first semester GPA, college self-efficacy, mentorship perceptions and intent to persist. Means and standard deviations for each of the variables can be found in Table 13.

Table 13. *Descriptive Statistics for FTIACS in Learning Communities (n = 40) and FTIACS not in Learning Communities (n = 128) who Filled Out Surveys for Wave 2.*

| | In a Learning Community | | Not in a Learning Community | |
|---|---|---|---|---|
| Variable | *M* | *SD* | *M* | *SD* |
| First Semester GPA | 3.44 | .48 | 2.94 | .90 |
| College Self-Efficacy[1] | 7.63 | 1.07 | 7.42 | 1.17 |
| Mentorship Perceptions[1] | 3.76 | .55 | 3.82 | .83 |
| Intent to Persist[1] | 3.49 | .30 | 3.42 | .45 |

[1]Scores are from the second wave

A significant effect of participation in Learning Communities on first semester college GPA, $F(1, 166) = 11.56$, $p = .001$ was found. Individual effects of participation in Learning Communities were not significant for college self-efficacy, $F(1,166) = 1.01$, $p = .32$, perceptions of mentorship, $F(1, 166) = .17$, $p = .69$ and intent to persist at the end of the first semester, $F(1,166) = .66$, $p = .42$.

Hypotheses 10 and sub-hypotheses 10a-10d explored Socioeconomic factors, including Socioeconomic Status (SES) scores from Barratt's Simplified Measure of Social Status (BSMSS), number of hours enrolled, number of hours worked, and first generation college student status.

H10: SES, number of hours worked, number of hours enrolled, and first generation student status uniquely contribute to intent to persist among college among freshmen in their first semester in college.

H10a: Socioeconomic status (SES) predicts intent to persist among freshmen in their first semester of college.

H10b: The number of hours worked predicts intent to persist among freshmen in their first semester of college.

H10c: The number of hours enrolled predicts intent to persist among freshmen in their first semester of college.

H10d: First generation college student status predicts intent to persist among freshmen in their first semester of college.

Hypothesis 10 sought to determine the contribution of socioeconomic factors (including a SES score consisting of educational and occupational status, work, enrollment and first generation college student status).

The socioeconomic status scores were calculated using Barratt's (2005) instructions for the BSMSS, which had to fall between 8-66. Descriptives for socioeconomic status scores and the number of hours enrolled at the university are presented in Table 14.

Table 14. *Descriptive Statistics for Socioeconomic Status and Number of Hours Enrolled in FTIACS' first semester in college.*

| Variable | *M* | *SD* | *N* | *Range* |
|---|---|---|---|---|
| Socioeconomic Status Score | 40.17 | 15.57 | 224 | 8-66 |
| Number of Hours Enrolled | 13.96 | 1.6 | 237 | 9-18 |

Participants of the study were asked about their employment status. Out of all 237 First Time in Any College Students 90 indicated that they worked. Table 15 reveals the number of hours worked by participants (in categories) broken down in categories.

Table 15. *Number of Hours FTIACS Worked in Their First Semester (N = 236).*

| Number of Hours Worked | *N* | % |
|---|---|---|
| Not working | 146 | 61.9 |
| Fewer than ten hours | 20 | 8.5 |
| 10-14 hours | 24 | 10.2 |
| 15-19 hours | 15 | 6.4 |
| 20-24 hours | 14 | 5.9 |
| 25-29 hours | 8 | 3.4 |
| 30-34 hours | 6 | 2.5 |
| 35-39 hours | 1 | .4 |
| 40 hours | 2 | .8 |
| Total | 236 | 100 |

Pearson correlations were run to determine the correlations between Socioeconomic Status (SES) score, the number of hours participants worked, the number of credits for which they had signed up and the intent to persist (second wave). Correlations can be found in Table 16.

Table 16. *Pearson Correlations among Socioeconomic Status (SES) Score, Number of Hours Worked, Number of Credits Taken and Intent to Persist (second wave).*

| | Total SES Score | Number of Work Hours | Number of Credits | Intent to Persist |
|---|---|---|---|---|
| Total SES Score | | -.09 | .28** | .02 |
| Number of Work Hours | | | .10 | .10 |
| Number of Credits | | | | .10 |
| Intent to Persist[1] | | | | |

[1] Score from second wave (end of first semester)

** Correlation is significant at the .01 level (2-tailed)

SES and intent to persist were not significantly correlated $r = .02$, $p = .82$ (H10a). The number of hours participants worked were also not significantly correlated with intent to persist, $r = .10$, $p = .18$ (H10b). In addition, the number of hours participants were enrolled in college classes was not significantly correlated to intent to persist, $r = .10$, $p = .19$ (H10c). While not explored by any hypothesis, there was a significant positive correlation between the number of hours participants were registered and the number of hours they worked, $r = .28$, $p = .01$.

Independent samples *t*-tests were run to see if participants with first generation student status differed from students who did not have first generation student status on intent to persist (H10d). Results are presented in Table 17.

Table 17. *The t-test for FTIACS who are First Generation College Students (n= 56) and who are not First Generation College Students (n = 112) on Intent to Persist.*

| Group | *N* | *M* | *SD* | *df* | *t* | *Sig.* |
|---|---|---|---|---|---|---|
| First Gen. College Student | 56 | 3.39 | .49 | 166 | -.964 | .338 |
| Not First Gen. Coll. Student | 112 | 3.46 | .37 | | | |

A standard linear multiple regression analysis was conducted to test if SES, number of hours worked, number of hours enrolled, and first generation student status significantly predicted FTIACS' intent to persist (end of first semester). The number of cases for which sufficient data was available was 159. Table 18 shows the results of the standard linear regression analysis.

Table 18. *Standard Linear Multiple Regression Analysis to predict Intent to Persist based on SES Score, Number of Work Hours, Number of Credits Taken, and First Generation Student Status (N = 159)*

| *Variables* | *B* | *B* | *Sr* | *Sr²* | *F* | *df* | *R* | $R^2$ | Sig. | *t* |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3.021 | | | | .828 | 4, 155 | .150 | .02 | <.51 | 8.77 |
| Total SES Score | -.002 | -.058 | -.048 | .002 | | | | | | -.605 |
| Number of Work Hours | .010 | .041 | .040 | .001 | | | | | | .505 |
| Number of Credits | .030 | .112 | .107 | .01 | | | | | | 1.342 |
| First Generation Student | -.082 | -.091 | -.078 | .006 | | | | | | -.980 |

The results of the regression indicated that the predictors only explained 2% of the variance ($R^2$ = .02, $F(4,155) = .50$, $p < .51$). None of the variables significantly predicted intent to persist. According to these results the socioeconomic factors used in this analysis did not predict intent to persist at the end of FTIACS' first semester in college. The Semi-partial

Coefficient of Determination ($Sr^2$) was calculated for each predictor to show each independent variable's unique contribution to the model. No predictor accounted for any significant unique contribution to the variance.

H11: SES, number of hours worked, number of hours enrolled uniquely and first generation student status contribute to PERSISTENCE (reenrollment) among freshmen in their first semester of college. (Model 2)

Because only three FTIACS had not reenrolled after their first semester in college, analyses for the following hypotheses could not be conducted: Because only three FTIACS had not reenrolled after their first semester in college, the proposed logistic regression analysis for hypothesis 11 could not be conducted.

Hypothesis 12 utilized academic variables (high school GPA, ACT scores) and socio-cognitive variables (first semester college self-efficacy, perceptions of mentorship at the end of their first semester) and participation in Learning Communities in the regression model.

H12: High school GPA, ACT scores, college self-efficacy (end of semester), mentoring perceptions (end of semester), and participation in Learning Communities predict College GPA.

First, Pearson correlations were run to determine bivariate correlations between the continuous variables. Data for 234 participants were available for this analysis. Results are presented in Table 19.

Table 19. *Pearson Correlations among High School GPA, ACT Score, College Self-Efficacy (second wave), Mentorship (second wave) and First Semester GPA.*

| | High School GPA | ACT Score | Coll. Self-Efficacy | Mentor-ship | First Sem. GPA |
|---|---|---|---|---|---|
| High School GPA | | .528** | -.061 | .053 | .565** |
| ACT Score | | | -.019 | .060 | .449** |
| Coll. Self-Efficacy[1] | | | | .444** | .023 |
| Mentorship[1] | | | | | .182* |
| First Semester GPA | | | | | |

[1]Scores from second wave
* p<.05
** p<.01

The results showed that high school GPA was significantly correlated with ACT scores, $r$ = .528, $p$ = .01 and high school GPA was also significantly with first semester college GPA, $r$ = 565, $p$ = .01. In addition college self-efficacy was significantly correlated to mentorship, $r$ = 444, $p$ = . 01 and mentorship was significantly correlated to first semester GPA, $r$ = .182, $p$ = .05. Self-efficacy was not significantly correlated to any academic scores (high school GPA, ACT score, first semester GPA).

The researcher decided to explore differences in first semester GPA between FTIACS in Learning Communities and FTIACS not in Learning Communities. Table 20 shows the detailed results.

Table 20. *The t-test for FTIACS in Learning Communities (n = 53) and Not in Learning Communities (n = 182) on First Semester GPA.*

| Group | *N* | *M* | *SD* | *df* | *t* | *Sig* |
|---|---|---|---|---|---|---|
| In LC | 53 | 3.27 | .88 | 233 | 2.34 | .02 |
| Not in LC | 182 | 3.93 | .94 | | | |

The *t*-test on differences of first semester GPA between FTIACS in Learning Communities and FTIACS not in Learning Communities showed a significant difference, $t(233) = 2.344$, $p = .02$. Students in Learning Communities had higher first semester GPAs than FTIACS not in Learning Communities ($M = 3.27$ and $M = 2.93$ respectively).

A standard linear multiple regression analysis was used to test if high school GPA, ACT scores, first semester college self-efficacy (end of semester), perceptions of mentoring support (end of first semester) and participation in Learning Communities significantly predicted FTIACS' first semester college GPA (hypothesis 12). The results can be found in Table 21.

Table 21. *Standard Multiple Regression to predict First Semester GPA.*

| *Variables* | *B* | *β* | *Sr* | *Sr²* | *F* | *df* | *R* | *R²* | *Sig.* | *t* |
|---|---|---|---|---|---|---|---|---|---|---|
| | -.762 | | | | 17.12 | 5, 156 | .60 | .35 | <.001 | -1.33 |
| High School GPA | .705 | .40 | .327 | .106 | | | | | | 5.08** |
| ACT Score | .031 | .18 | .147 | .021 | | | | | | 2.28** |
| Coll. Self-Efficacy[1] | -.007 | -.01 | -.008 | .000 | | | | | | -.13 |
| Mentorship Percept.[1] | .173 | .16 | .145 | .021 | | | | | | 2.26* |
| Participation in LC[2] | .265 | .14 | .131 | .017 | | | | | | 2.03* |

Dependent Variable: Intent to Persist (end of first semester in college)
[1] Scores are from second wave (end of the first semester in college)
[2] Participation in LC = Participation in Learning Communities
* $p<.05$
** $p<.01$

The results of the regression indicated that the predictors explained 35% of the variance ($R^2$ = .35, F(5,156) = 17.12, p < .001). It was found that HSGPA (β = .40, t = 5.08, p <.001), ACT score (β = .18, t = 2.28, p < .02), mentorship perceptions (β =.16, t = 2.26, p < .03), and participation in Learning Communities (β = .24, t = 2.03, p < .04) all significantly predicted first semester college GPA. College self-efficacy (end of first semester) did not significantly predict first semester college GPA (β = -.01, t =-.13, p < .09). The Semi-partial Coefficient of Determination ($Sr^2$) was calculated for each predictor to show each independent variable's unique contribution to the model. It was found that 10.6% of the variance was uniquely accounted for by HSGPA, 2.1% by both ACT score and perceptions of mentorship, and 1.7% by participation in Learning Communities. No significant contribution was made by self-efficacy.

## Summary

In this chapter the results of the statistical analyses which were used to examine the collected data and to address the hypotheses which guided the current study were presented. The next chapter will consist of the discussion and future recommendations for further research and practice.

# CHAPTER 5

## DISCUSSION, CONCLUSIONS, RECOMMENDATIONS

Many students who enter college never finish their college degree. Approximately 20-30 percent drop out during their first year in college. Various attempts have been made to increase graduation rates. These attempts have included: providing needs based scholarships, offering remedial or so called "developmental" courses, and also support services such as Learning Communities. At the university at which the current research was done, 23 percent of freshmen had dropped out during their freshman year in 2009 and only 33 percent of undergraduates graduated within six years. There is a great need to investigate factors that may influence student retention, and the current study explored factors that impacted First Time in Any College Students' intentions to finish college.

Using First Time in Any College Students (FTIACS), the purpose of the current study was to examine the extent to which academic performance (high school and first semester college GPA and ACT scores), self-efficacy, mentoring relationships, participation in Learning Communities and socioeconomic status influenced freshmen's intent to persist at the beginning and the end of their first semester in college. In addition, the impact of academic variables, college self-efficacy, perceptions of mentoring relationships and participation in Learning Communities on first semester GPA were analyzed. Changes in these factors from the beginning to the end of their first semester in the above variables were also explored.

In this chapter the demographic characteristics of the sample for this research will be scrutinized and compared to the student population at the university at which the current research was done. The results of the quantitative data analysis will be utilized to discuss the hypotheses which guided the current study. Considerations regarding the results, recommendations for future

research and practical implications will be provided in order to shed light on first semester college experiences. Possible ways of increasing student retention will be discussed.

**Demographic Characteristics and Comparisons**

In the fall of 2013 the university at which the current research was done had 2856 freshmen, 1585 females and 1271 males. Of these freshmen 2283 students were FTIACS, and of those 1235 were first generation college students. The number of FTIACS participating in Learning Communities was 1263. For the current study 237 FTIACS were analyzed (10% of the total number of FTIACS during the fall of 2013), and 53 participants were in a Learning Community (8% of the total number). These numbers reflect an acceptable pool to make predictions for First Time in Any College Students at the university and to generalize results about this population in similar university settings.

**Discussion of Hypotheses**

The first hypothesis explored whether and to what extent high school GPA, ACT scores, college self-efficacy and perceptions of mentorship predicted intent to persist in the beginning of FTIACS' first semester in college. The variables explained 46 percent of the variance with college self-efficacy having the strongest correlation (18.9%) followed by perceptions of mentorship (7.2%) as significant predictors, while the academic variables (high school GPA and ACT scores) did not show significant prediction. Similarly, the second hypothesis examined whether first semester GPA, college self-efficacy, perceptions of mentorship and participation in Learning Communities predicted intent to persist at the end of the first semester. The results showed that the predictors explained 41 percent of the variance, with college self-efficacy (12.4%) as the strongest and with perceptions of mentorship (9.4%) as the second strongest significant predictor. The academic variables and participation in Learning Communities did not

show any significant connection to intent to persist. With regards to self-efficacy, Wright, Jenkins-Guarnieri and Murdock (2012) found similar results when including self-efficacy in their prediction model. They found that the probability for students to persist at the end of their first semester increased with high self-efficacy. The findings of Dixon-Rayle et al. (2005) showed that educational self-efficacy related positively to valuing education (among others) and negatively to academic stress. Both the value the students placed on education and coping with stress associated with attending college appear to be indicators of college students' persistence. The college self-efficacy scale used in this current study addressed students' confidence in their capability in dealing with different aspects of college life; therefore, the significant association of college self-efficacy with intent to persist clearly shows that not only educational and academic self-efficacy seem to matter, but also social aspects of this construct.

In addition to college self-efficacy, mentorship was a significant factor related to persisting. It is interesting to note that perceptions of mentorship became more important at the end of the semester (hypothesis 2), compared to the beginning of the semester. Mentorship perceptions of freshman in the context of persistence have not been as frequently studied in previous research as some other factors. Mangold et al. (2002/2003) found a positive effect of enrollment as cohort and mentoring to freshmen on graduation and drop-out rate. Mentorship provides academic and personal caring and support with learning and critical decision making. Woolfolk, Hoy & Weinstein (2006) identify personal caring, including the willingness to listen and taking interest in students' lives as especially important in high school, but these variables may also continue to be important in college. Academic caring, such as setting reasonable expectations and helping students meet them, appears to be important for those who are trying to achieve higher (Woolfolk Hoy & Weinstein, 2006). These aspects of academic and personal

caring have been captured in Crisp's (2009) mentoring scale utilized in the current study, and the participants indicated overwhelmingly that they valued mentorship. Heeding Crisp's (2009) suggestion to have students identify people that provide mentoring support, the current study added questions that allowed participants to select among four answer options (family member, faculty member, staff, and friend). When asked "When I am looking for advice regarding my decisions that affect my academic performance or relate to college I first go to …" of those who answered, 52% marked "family member", followed by "a friend" (28%), faculty member (14%) and six percent "staff at the university." When it came to career choices, 58% indicated that "a family member", 19% "a staff at the university" 18% "a friend" and 5% "a faculty member" was the first person they consulted. This breakdown shows that many FTIACS heavily relied on someone with whom they had a personal relationship for advice regarding academic and career matters, rather than a person who could give professional advice.

Surprisingly, participation in Learning Communities (LCs) did not predict intent to persist. Among the features of LCs at the university at which the current research was done are integrative activities/assignments, peer advising to support student learning, interaction and connectedness, development of leadership skills, and active learning in and out of class (Cobbs et al, 2010). While one of the goals of LCs is advising and support, it is unclear if students seek or receive mentoring support in their LC. While Cobbs et al. (2010) had found that students participating in LC's were more likely to continue their studies at their university, the results of the current study showed no difference in intent to persist between those in a Learning Community and those not in a Learning Community. However, the two significant predictors – perceptions of mentorship and self-efficacy – show that adding better mentorship provided by peers and staff, and self-efficacy boosting techniques to the current features of Learning

Communities might be beneficial to FTIACS. Cobbs et al. (2010) suggested that programs to increase retention should include "faculty support based on specific learning outcomes for students with common interests" (Cobbs et al., 2010, p. 14).

Hypothesis 3 attempted to examine the extent to which the predictors used in hypothesis 2 predicted actual reenrollment. The researcher used second wave data, and of the 170 participants only three (1.76%) discontinued their studies after the first semester. For that reason, the analysis for this hypothesis could not be executed. Reenrollment data was available for all participants who provided some data (including all international students and non –native speakers of English). Of those 318 initial participants, 15 (4.71%) did not continue their studies at the university. Neither of those numbers reflected the 20-30 percent first year freshmen dropout rate at the current university or as often cited in the literature (DeBerard, Spielmans & Julka, 2004). This may indicate that the majority of FTIACS do not make their decision to drop out before they reach the end of their freshman year.

Hypothesis 4 explored whether college self-efficacy mediated the relationship between college GPA and intent to persist. Because previous research found that academic scores such as HSGPA and ACT scores had an impact on retention, the researcher was interested in determining if self-efficacy accounted for the relationship. The results showed that college GPA did not predict intent to persist, but that self-efficacy was a predictor of intent to persist. This finding is consistent with the results of previous analyses of the current study. Analyses for hypothesis 1 and hypothesis 2 revealed that academic variables had no impact on intent to persist. This finding was different from other college student retention studies including that of Kahn and Nauta (2001) who had found that an increase of one point in GPA during students' first college semester was linked to a fourfold increase in persistence. The path of the mediation

analysis showed a significant $\beta$ only from self-efficacy to intent to persist which again confirmed the role of college self-efficacy in intent to persist.

Unfortunately hypothesis 5 analyses could not be executed because the number of dropouts after the first semester was too small. Model 2 may be used in a follow-up study after the participants have completed their freshman year.

Hypothesis 6 examined whether participation in Learning Communities had an influence on the relationship between college GPA and intent to persist. This hypothesis was based on previous research which had found that participation in LCs increases student retention and academic performance (Hotchkiss, Moore, & Pitts, 2003), as well as student engagement (Zhao & Kuh, 2004) and motivation (Jaffee, 2007). This hypothesis was examined also because reports and articles from several researchers showed that academic variables such as HSGPA, ACT scores predicted persistence in college. In a report about student retention at the university the data was collected indicated that participation in learning communities had an impact on retention (Cobbs et al. 2010), this result could not be replicated in the current study. One finding by Cobbs at al. (2010) was that students with lower ACT scores benefited more from Learning Communities (LCs) than did students with higher ACT scores. The current research did not look at these categories. Another possible reason why the current study found no significant impact of LCs on persistence may be that some programs require students to take part in a LC connected to a class, versus others do not. For example, some students are placed in a Learning Community because they receive a scholarship, others are placed in a Learning Community because of a recommendation their teacher or counselor made, or some participated because they aided their learning and social integration. All of these scenarios need to be taken into consideration when examining the results.

Hypothesis 7 was initially proposed to examine the moderation model from hypothesis 6, using actual reenrollment as outcome variable. Because of the low number of first semester college dropouts, the analysis could not be performed. This hypothesis may be utilized with students who discontinued their studies after their first year in college. If there is a dropout rate of 20-30% of freshmen, the results might shed some light on whether Learning Communities do indeed boost reenrollment numbers as indicated by previous research.

Hypothesis 8 examined if the relationship between ACT scores and first semester GPA is moderated by participation in LCs. While ACT scores predicted first semester college GPA, there was no significant moderation effect of participation in Learning Communities on this relationship. This result confirms what previous research has found, that is, ACT scores predict academic success in college, participation in Learning Communities did not show any significant influence. This finding again raises the question about the characteristics of those who participate in LCs, whether a course or program requires participation, or if participation is voluntary. To see if there were differences between the two groups in academic scores, the ACT scores and HSGPAs of students participating in LCs and not participating in LCs were compared. The results showed that those in LCs had both significantly higher ACT scores and HSGPAs than their comparison group. When examining the data in more detail, it was found that 14 of the 55 students who indicated that they were in LCs said that they were in the Honor's College Learning Community, and they had a HSGPA of 3.41 or higher and a ACT score between 25 and 32. What this shows is that approximately 25% of the students in LCs were in the honor's program. Because these students already have a high GPA and ACT score, the impact of their participation in a LC most likely does not have a significant impact on their college GPA. This examination of the data seems to explain why Learning Communities had no moderation effect

on the relationship between ACT scores and first semester college GPA. Because 25% of the students in Learning Communities had high academic scores to begin with, it is difficult to determine what the effect of participation in Learning Communities is on students who have low ACT scores. The college GPA of four of the six students who entered college with the lowest HSGPA and ACT scores (between 19 and 25) and who participated in a LC was lower than their HSGPA. This finding was addressed in Cobbs et. al (2010) who also had found that those who started college with very low academic scores were not usually successful. These consistent results do support the university's decision to raise admission standards.

Other concerns need to be addressed when it comes to LCs. Participating in LCs equals signing up for a one credit course for which the student is also charged tuition. If students are not receiving scholarships or any other financial assistance they will most likely refrain from taking an additional credit hour. Chances are that students who enter college with high academic scores may also receive merit based scholarships which cover some or all of their tuition expenses although this was not measured. If this additional credit hour is mandatory, students will have to sign up regardless of financial situation. Costs may have an impact on voluntary enrollment. Other Learning Communities have no course designation, but are more designed around social integration. Because of all these differences in enrollment criteria, goals of different Learning communities and the small number of LC students in the sample (53 students), it cannot be determined from the analyses whether and to what extent students benefit from LCs.

Hypothesis 9 examined second wave data for differences between students in LCs and not in LCs on several socio-cognitive variables, among those first semester college GPA, college self-efficacy, college mentorship perceptions and intent to persist. Significant group differences were only found only for first semester college GPA. This finding supports previous findings on

participation in Learning Communities and may show that the majority of those participating in LCs may generally have higher academic scores to begin with. We also have to take into consideration that because the participants in LCs receive a grade for taking the one credit course, their GPA may get a boost, and this may be a confounding variable. We can therefore speculate that this may account for the difference in their GPA as well.

Hypothesis 10 explored the influence of socioeconomic status (SES) factors on intent to persist on FTIACS: an SES score taken from Barratt's Simplified Measure, number of hours worked, number of hours enrolled and first generation student status. The mean SES score of 40 (range 8-66) shows that the majority of participants are from middle class families. When examining the data, it was found that only three of the 237 were not enrolled full-time. This number represents 1.8% of all FTIACS who were part-time. Because of this low percentage

of number of part-time FTIACS, the sample may have a truncated range. Surprisingly, the mean number of credit hours for which students were enrolled was above the minimum number of twelve credit hours for full-time student status with an average of 13.96. This seems like a quite large course load for FTIACS. Further examination showed only a .5 credit hour difference, with students who worked having slightly higher course loads compared to students who did not work. The National Center for Education Statistics revealed that full-time enrollment was linked to higher rates of persistence and attainment (NCES, 2002), but the current study did not find a link between full-time enrollment and intent to persist. It is possible that full-time and above full-time enrollment increases the students' commitment to their studies because of the more frequent attendance and association with the university, but also the social integration. For example, students meet people who take the same classes with them and make connections and share aspirations. Studies have also shown that cohort

enrollment and more intense contact with fellow students increases commitment to degree completion (Mangold, 2002/2003).

When examining the correlations among the variables above (SES score, number of hours enrolled, number of hours worked and first generation student status) only one significant correlation emerged: The SES score was significantly correlated with the number of credit hours for which students had enrolled. This finding indicates that students with a higher socioeconomic status appear to take more credit hours, most likely because they are not worried about finances. Hoyt and Winn (2004) found that 50% of the students who did not return to college did so because of financial constraints but also full-time work. These students typically only attended part-time (Hoyt & Winn, 2004). It appears that fewer credit hours are related to lower SES which may lead to lower SES students to be less concerned about college studies but more about their finances. In addition, student scholarships are often requiring a student to sign up for a specific number of credit hours. If someone attends college part-time, they may not qualify for financial aid and certain scholarships and, therefore, pay for their tuition solely from their own funds.

It might be interesting to investigate how many of the students who had signed up for an above fulltime credit load dropped classes. The current study only asked about the number of credits students were taking in the beginning of the semester but not at the end. Students may have dropped courses during the semester because they might have underestimated the workload involved in taking college classes.

Although the analyses of the sub-hypotheses provided some interesting findings, the regression model that included all four predictors (SES score, number of hours worked, number of credit hours enrolled, first generation student status) were not significant, which indicated that none of the factors significantly predicted intent to persist in the current sample.

Hypothesis 11 proposed the Model 2 using predictors from hypothesis 10 but actual reenrollment as outcome. As for some of the hypotheses previously stated, the analyses could not be performed because of insufficient data.

Hypothesis 12 examined the extent to which academic variables (HSGPA and ACT score) as well as social-cognitive variables (college self-efficacy, mentorship perceptions, and participation in Learning Communities at the end of the first semester) predicted first semester GPA. The regression model was significant and the predictors explained 35% of the variance. All the variables except for college self-efficacy significantly predicted first semester college GPA. HSGPA was the strongest predictor for first semester College GPA (16%), followed by the ACT score and mentorship as the second strongest predictors (each 2.1%). ACT had been identified as a predictor of first semester college GPA earlier in hypothesis 8, but in this model it was much weaker than HSGPA. Previous studies have pointed out that academic scores are indicators of college success. Ewert (2010) stated that high school grades are an indication of students' academic preparedness for college and their capability to manage academic challenges at college. If students come in with academic difficulties, their difficulties may likely persist. Research has also shown that universities demanding higher academic scores usually have lower attrition rates (DeBerard et al., 2004). In the current study, mentorship perceptions (2.1%) and participation in Learning Communities (1.7%) contributed only minimally to higher first semester college GPA. Again, the heterogeneity of Learning Communities does not allow the draw conclusions about the true impact of Learning Communities on academic performance. Surprisingly, college self-efficacy, which in previous hypotheses has been identified as a significant predictor of intent to persist, was not a significant predictor of first semester college GPA.

## Conclusions

A literature review on factors influencing persistence and college success in freshmen showed the complexity of the matter. Very few studies have looked at a combination of academic factors and socio-cognitive factors such as self-efficacy and mentorship. The current study found that in First Time in Any College Students college self-efficacy and mentorship perceptions were the strongest predictors of intentions to complete college, while academic factors and social support (mentorship perceptions and participation in Learning Communities) are the strongest predictors of first semester academic success at an urban Midwestern university. Even though previous research had discussed socioeconomic status factors as influential on persistence, especially number of credit hours taken and work obligations, these findings did not ring true for the current sample. Socioeconomic status factors such as a calculated socioeconomic status score, number of credit hours, number of work hours and first generation student status did not predict intent to persist.

## Limitations of the Study

Each university has unique characteristics; therefore, the current findings cannot be generalized to universities of very different demographics. The current sample was from an urban university. Admission criteria vary among universities; for that reason the results using similar variables as the current study may look different at other universities. The current study used self-report which is appropriate to learn about individual self-characteristics and perceptions, but inherently may bear biased perceptions. Participants were paid if they participated in both parts of the data collection; it is possible that an economic factor had an impact on who took part in the research activities and who participated in both wave one and wave two.

## Implications for Practice

The findings discussed have implications for university personnel working with freshmen and for implementation of programs and services. Because self-efficacy and mentorship perceptions emerged as most important factors for persistence, these need to be addressed. For example, Learning Communities could incorporate more mentoring functions that address students' self-efficacy in addition to managing course material and teaching study skills. Furthermore, personal and academic caring may be especially important for first generation college students or students whose lives lack of role models when it comes to education. It may be important to address mentoring with faculty members and staff – especially in academic matters – and create some consistency in the type of support students need. Because students with low ACT scores and HS GPA are often not sufficiently prepared to go to college, they may need a preparatory course or a Learning Community that teaches them study techniques that help them succeed. In addition, these preparatory courses should be free of charge to students who are more vulnerable or are from low-income families. Navarro (2012) revealed initial results of a study on students who took a two week-long pre-Foundation Course and results revealed that students scores significantly increased in self-efficacy and other variables such as personal responsibility, communication, goal persistence and more. These students also showed better persistence (Navarro, 2012). Courses targeting similar goals would clearly be very beneficial to especially more vulnerable students.

## Recommendations for Future Research

The current study examined the impact of academic factors, college self-efficacy, perceptions of mentorship and socioeconomic factors on First Time in Any College Students' intent to persist at an urban Midwestern university. In order to be able to generalize these

findings to a greater population of FTIACS, replicating this study at other universities around the country could give even more insight into student retention.

The findings showed that both college self-efficacy and perceptions of mentorship have a great impact on persistence. With respect to these findings, it would be interesting to look more closely at the results and determine if there are any general characteristics of those who had lower scores on the self-efficacy and perceptions of mentorship measure, so this perhaps more vulnerable student population can specifically be targeted for interventions.

Because the current study's findings about Learning Communities are inconclusive, it would also be of interest to inquire about students' experiences with Learning Communities to see what aspects benefit the students' self-efficacy and academic success. In addition, it would be of value to directly ask first semester students what type of support they are looking for to be more successful in college. With a larger sample of Learning Community participants, a distinction between Learning Communities and their different focuses and controlling for GPA and other factors, more information about the benefits of Learning Communities can be given.

One of the issues not addressed in the current study are self-regulatory skills which appear to be crucial for college success. Certain technology and social media appear to take up much time in students' lives and interfere with completing work for college. Including a questionnaire that addresses self-regulatory skills may lead to an understanding of the role of self-regulatory process in academic success and persistence.

Because the student population entering college comes from such different backgrounds and school experiences, capturing all the critical factors influencing retention is a difficult endeavor. If it was possible to collect information from those who did indeed drop out (not transfer out) a more accurate picture of a student leaving college could be painted. Perhaps a

combination of approaches, including surveys, academic data and interviews may give a holistic approach to getting to the ground of retention issues.

Most of all, more light could be shed on student retention especially at the university at which the current research was done by doing a follow-up study during the participants' sophomore year in college, but also by contacting those who did not continue attending at the university. Perhaps using a mixed methods approach that includes interviews may be a good way of retrieving more detailed answers.

## APPENDIX A

## Demographic Background Survey

Please go through the questions and click the "Submit" button everytime you finish a sub survey. Please read the closing information carefully after you have completed Freshmen Study Part 1. Thank you!

**1. What is your Access ID?** You were assigned an Access ID to establish your e-mail at WSU, e.g.xx1234@wayne.edu) _____

**General Demographic Characteristics**

2. What is your **gender**?
   - o Male
   - o Female
   - o No Answer

3. What is your age? _____

4. What is your Ethnicity?
   - o African American/Black
   - o American Indian/Alaska Native
   - o Asian American/Asian
   - o Native Hawaiian/Pacific Islander
   - o Hispanic or Latino
   - o Middle Eastern
   - o White/Caucasian
   - o Other: Please specify

5. What is your citizenship status?
   - o U.S. citizen.
   - o Permanent resident (green card)
   - o International student (F1-visa)
   - o Other

6. Is English your native language?
   - o Yes No

**Family Characteristics**

7. Family Status (Check all that apply):
   - o Single
   - o Married
   - o Divorced
   - o Cohabitating with partner
   - o Parent

8. Do your parents support you financially?
   O Yes O No

**Your Educational, College and Employment Background**

9. What high school did you attend?
   - o Detroit public high school
   - o Michigan urban high school (not Detroit public high school)
   - o Michigan suburban public high school
   - o Private Michigan high school (parochial/religious)
   - o Public Charter school
   - o Out of State high school
     Specify state/country/public/private: _____

10. Have you previously attended college?
    - o Yes (Please answer question 9a)
    - o No (Please continue to question 10)

11. If your answer to question 10 was "Yes", which one of the following did you attend:
    - o Community College
    - o Another University

12. Are you a first generation college student? (You are a first generation college student if your parents have never attended college)
    - o Yes
    - o No

13. How important do you think it is for your career that you earn a four-year college degree?"
    - o not very important
    - o somewhat important
    - o neutral
    - o important
    - o very important

14. How many credits are you registered for? _____

15. Where do you live?
    - o On campus
    - o Off campus, in an apartment/place approximately one mile from campus
    - o Off campus, in an apartment/place in Detroit from which I commute
    - o Off campus; I commute (drive to school from outside of Detroit)

16. Employment Status
    - o I work on campus.
    - o I work off campus.
    - o I don't work. (Please continue to question 18)

17. If you work, how many hours per week do you work?
    - o 40 hours or more
    - o 35- 39 hours
    - o 30-34 hours
    - o 25-29 hours
    - o 20-24 hours
    - o 15-19 hours
    - o 10-14
    - o fewer than 10 hours

18. Which of the following is true for your college finances? I utilize the following to pay for college tuition and expenses:
    - o My own funds
    - o Parents or a family member
    - o Non-related sponsor
    - o Financial aid
    - o Private loan
    - o Merit-based scholarship
    - o Need-based scholarship
    - o Work-study
    - o Other: Please specify: _____

19. Why are you attending Wayne State University? Check all that apply.
    - o Because of its convenient location.
    - o Because it offers the degree programs I am interested in.
    - o Because I qualify for financial aid.
    - o Because I received a scholarship.
    - o Because my family attended.
    - o Because of the quality programs.
    - o Other: Please specify: _____

20. What would prevent you from continuing your education at Wayne State University after your first semester? Check all that apply.
    - o Financial problems
    - o Time constraints because of work responsibilities
    - o Time constraints because of family responsibilities
    - o Class schedule
    - o Grades, school performance
    - o Not having any friends
    - o Other: Please specify: _____

21. What would be the NUMBER ONE reason for you not to continue at WSU?

_____

22. If you are not planning on staying at WSU, where do you plan to be next year?

_____

**The next few questions will ask you about your involvement in a Learning Community.**

**A Learning community** gives you the avantages of a small college learning environment with the resources of a major research university. In Learning Communities, small groups of students with similar interests work closely together in a "community of learners." Students, along with advanced student mentors and a faculty advisor, study, socialize and problem-solve together. Most likely, your entire group would take a course together, or you might all live on the same floor of a residence hall.

23. Are you participating in a Learning Community during your current Semester (Fall 2012)?
- o Yes (Please answer questions 19a and 19b)
- o No (Please continue to question 20)

24. If YES, how did you learn about Learning Communities?
- o during Orientation
- o in class
- o my advisor
- o peers
- o Other: Please specify: _____

25. Write down which Learning community you belong to.

_____

26. Have you previously been in a Learning Community (e.g. at your high school)?
- o Yes
- o No

27. Have you taken any AP courses before coming to WSU?
- o Yes
- o No

28. Are you in the Honor's Program?
- o Yes
- o No

**Use of Technology**

29. Which of the following do you own? Check all that apply! Personal Computer
- o Laptop
- o Tablet (e.g. iPad)
- o Smart phone
- o Kindle or Nook

## APPENDIX B

### College Self-Efficacy Scale

**Solberg, V. S., & O'Brian, K., & Villareal, P., Kennel, R., Davis, Betsy. (1993).**

**How confident are you that you could successfully complete the following tasks. Please integrate your level of agreement on a 10 point scale from 1 (not at all confident) to 10 (extremely confident)**

1. Research a term paper.

   1 2 3 4 5 6 7 8 9 10

2. Write course papers.

   1 2 3 4 5 6 7 8 9 10

3. Do well on your exams

   1 2 3 4 5 6 7 8 9 10

4. Take good class notes.

   1 2 3 4 5 6 7 8 9 10

5. Keep up to date with your schoolwork.

   1 2 3 4 5 6 7 8 9 10

6. Manage time effectively.

   1 2 3 4 5 6 7 8 9 10

7. Understand your textbooks.

   1 2 3 4 5 6 7 8 9 10

8. Get along with roommate(s).

   1 2 3 4 5 6 7 8 9 10

9. Socialize with your roommate(s).

   1 2 3 4 5 6 7 8 9 10

10. Divide space in your apartment/room.

1 2 3 4 5 6 7 8 9 10

11. Divide chores with your roommate(s).

1 2 3 4 5 6 7 8 9 10

12. Participate in class discussions

1 2 3 4 5 6 7 8 9 10

13. Ask a question in class

1 2 3 4 5 6 7 8 9 10

14. Get a date when you want one

1 2 3 4 5 6 7 8 9 10

15. Talk to your professors

1 2 3 4 5 6 7 8 9 10

16. Talk to university staff

1 2 3 4 5 6 7 8 9 10

17. Ask a professor a question

1 2 3 4 5 6 7 8 9 10

18. Make new friends at college

1 2 3 4 5 6 7 8 9 10

19. Join a student organization

1 2 3 4 5 6 7 8 9 10

## APPENDIX C

### College Student Mentoring Scale (CSMS) by Crisp (2009)

**While in college, I have had someone in my life who. . . .**
**(strongly disagree = 1, disagree =2, neutral = 3, agree = 4, strongly agree = 5)**

1) … I look up to regarding college-related issues

   1 2 3 4 5

2) … helps me work toward achieving my academic aspirations

   1 2 3 4 5

3) … helps me realistically examine my degree or certificate options

   1 2 3 4 5

4) … I can talk with openly about social issues related to being in college

   1 2 3 4 5

5) … I admire

   1 2 3 4 5

6) … helps me perform to the best of my abilities in my classes

   1 2 3 4 5

7) … encourages me to consider educational opportunities beyond my current plans

   1 2 3 4 5

8) … I want to copy their behaviors as they relate to college-going

   1 2 3 4 5

9) … provides ongoing support about the work I do in my classes

   1 2 3 4 5

10) … gives me emotional support

   1 2 3 4 5

11) … encourages me to talk about problems I am having in my social life

   1 2 3 4 5

12) … sets a good example about how to relate to other people

   1 2 3 4 5

13) … helps me to consider the sacrifices associated with my chosen degree

1 2 3 4 5

14) … expresses confidence in my ability to succeed academically

1 2 3 4 5

15) … serves as a model for how to be successful in college

1 2 3 4 5

16) … discusses the implications of my degree choice

1 2 3 4 5

17) … makes me feel that I belong in college

1 2 3 4 5

18) … encourages me to use him or her as a sounding board to explore what I want

1 2 3 4 5

19) … shares personal examples of difficulties they have had to overcome to accomplish academic goals

1 2 3 4 5

20) … helps me carefully examine my degree or certificate options

1 2 3 4 5

21) … I can talk with openly about personal issues related to being in college

1 2 3 4 5

22) … encourages me to discuss problems I am having with my coursework

1 2 3 4 5

23) … questions my assumptions by guiding me through a realistic appraisal of my skills

1 2 3 4 5

24) … recognizes my academic accomplishments

1 2 3 4 5

25) … provides practical suggestions for improving my academic performance

1 2 3 4 5

**Additional Questions regarding Mentorship:**

**26) When I am looking for advice regarding my academic decisions (decisions that affect my academic performance and anything college related) I go to**

- o a family member
- o my professor or a faculty
- o a staff at WSU
- o a friend

**27) When I am looking for advice regarding personal life decisions I go to**

- o a family member
- o my professor or a faculty
- o a staff at WSU
- o a friend

**28) When I am looking for advice regarding my career choices I go to**

- o a family member
- o my professor or a faculty
- o a staff at WSU
- o a friend

# APPENDIX D

## College Persistence Questionnaire by Davidson, Beck, & Milligan (2009)

**5 point Likert scale: "very unsatisfied" (1) to "very satisfied" (5) or "very unfavorable" (1) to "very favorable" (5)**

***Academic Integration***

1) How well do you understand the thinking of your instructors when they lecture or ask students to answer questions in class?

   1 2 3 4 5

2) How satisfied are you with the extent of your intellectual growth and interest in ideas since coming here?

   1 2 3 4 5

3) In general, how satisfied are you with the quality of instruction you are receiving here?

   1 2 3 4 5

4) How concerned about your intellectual growth are the faculty here?

   1 2 3 4 5

5) On average across all your courses, how interested are you in the things that are being said during class discussions?

   1 2 3 4 5

6) How much of a connection do you see between what you are learning here and your future career possibilities?

   1 2 3 4 5

7) I believe that many instructors deliberately impose unreasonable requirements on students and enjoy their distress.

   1 2 3 4 5

8) Students differ widely in how much interaction they want to have with faculty. How disappointed are you in the amount of interaction you have?

   1 2 3 4 5

***Social Integration***

9) How much have your interpersonal relationships with other students had an impact on your personal growth, attitudes, and values?

   1 2 3 4 5

10) How much have your interpersonal relationships with other students had an impact on your intellectual growth and interest in ideas?

1 2 3 4 5

11) How strong is your sense of connectedness with other faculty, students, staff on this campus?

1 2 3 4 5

12) How much do you think you have in common with other students here?

1 2 3 4 5

13) When you think about your overall social life here - friendships, college organizations, extracurricular activities - and so on, how satisfied are you with yours?

1 2 3 4 5

14) How many of your closest friends are here in college with you rather than elsewhere such as other colleges, work, or hometown?

1 2 3 4 5

15) What is your overall impression of the other students here?

1 2 3 4 5

16) How often do you wear clothing with this college's emblems?

1 2 3 4 5

***Supportive Services Satisfactions***

17) How satisfied are you with the academic advisement you receive here?

1 2 3 4 5

18) How well does this institution communicate important information to students such as academic rules, degree requirements, individual course requirements, campus news and events, extracurricular activities, tuition costs, and financial aid and scholarship opportunities?

1 2 3 4 5

19) How easy is it to get answers to your questions about things related to your education here?

1 2 3 4 5

20) How much input do you think you can have on matters such as course offerings, rules and regulations, and registration procedures.

1 2 3 4 5

21) If you have needs that are different from the majority of students here, how well does this university meet these needs?

1 2 3 4 5

*22)* How fairly do you think students are handled here?

1 2 3 4 5

***Degree Commitment***

23) When you think of the people who mean the most to you (friends and family), how disappointed do you think they would be if you quit school?

1 2 3 4 5

24) At this moment in time, how certain are you that you will earn a college degree?

1 2 3 4 5

25) At this moment in time, how strong would you say your commitment is to earning a college degree, here or elsewhere?

1 2 3 4 5

26) How strong is your intention to persist in your pursuit of the degree, here or elsewhere?

1 2 3 4 5

27) How supportive is your family of your pursuit of a college degree, in terms of their encouragement and expectations?

1 2 3 4 5

***Institutional Commitment***

28) How likely is it that you will earn a degree from here?

1 2 3 4 5

29) How confident are you that this is the right university for you?

1 2 3 4 5

30) How likely is it that you will reenroll here next semester?

1 2 3 4 5

31) How much thought have you given to stopping your education here perhaps transferring to another college, going to work, or leaving for other reasons?

1 2 3 4 5

***Academic Conscientiousness***

32) How often do you miss class for reasons other than illness or participation in school–sponsored activities?

1 2 3 4 5

33) How often do you turn in assignments past the due date?

1 2 3 4 5

34) I am disinterested in academic work and do as little as possible.

1 2 3 4 5

## APPENDIX E

**The Barratt Simplified Measure of Social Status (BSMSS) Measuring SES:**
**Will Barratt, Ph.D.**

Circle the appropriate number for your Mother's, your Father's, your Spouse / Partner's, and your level of school completed and occupation. If you grew up in a single parent home, circle only the score from your one parent. If you are neither married nor partnered circle only your score. If you are a full time student circle only the scores for your parents.

| Level of School Completed | Mother | Father | Spouse | You |
|---|---|---|---|---|
| Less than 7th grade | 3 | 3 | 3 | 3 |
| Junior high / Middle school (9th grade) | 6 | 6 | 6 | 6 |
| Partial high school (10th or 11th grade) | 9 | 9 | 9 | 9 |
| High school graduate | 12 | 12 | 12 | 12 |
| Partial college (at least one year) | 15 | 15 | 15 | 15 |
| College education | 18 | 18 | 18 | 18 |
| Graduate degree | 21 | 21 | 21 | 21 |

Circle the appropriate number for your *Mother's*, your Father's , your Spouse / Partner's, and your occupation. If you grew up in a single parent home, use only the score from your parent. If you are not married or partnered circle only your score. If you are still a full-time student only circle the scores for your parents. If you are retired use your most recent occupation.

| Occupation | Mother | Father | Spouse | You |
|---|---|---|---|---|
| Day laborer, janitor, house cleaner, farm worker, food counter sales, food preparation worker, busboy. | 5 | 5 | 5 | 5 |
| Garbage collector, short-order cook, cab driver, shoe sales, assembly line workers, masons, baggage porter. | 10 | 10 | 10 | 10 |
| Painter, skilled construction trade, sales clerk, truck driver, cook, sales counter or general office clerk. | 15 | 15 | 15 | 15 |
| Automobile mechanic, typist, locksmith, farmer, carpenter, receptionist, construction laborer, hairdresser. | 20 | 20 | 20 | 20 |
| Machinist, musician, bookkeeper, secretary, insurance sales, cabinet maker, personnel specialist, welder. | 25 | 25 | 25 | 25 |
| Supervisor, librarian, aircraft mechanic, artist and artisan, electrician, administrator, military enlisted personnel, buyer. | 30 | 30 | 30 | 30 |
| Nurse, skilled technician, medical technician, counselor, manager, police and fire personnel, financial manager, physical, occupational, speech therapist. | 35 | 35 | 35 | 35 |
| Mechanical, nuclear, and electrical engineer, educational administrator, veterinarian, military officer, elementary, high school and special education teacher, | 40 | 40 | 40 | 40 |
| Physician, attorney, professor, chemical and aerospace engineer, judge, CEO, senior manager, public official, psychologist, pharmacist, accountant. | 45 | 45 | 45 | 45 |

Level of School Completed Scoring

| | | | |
|---|---|---|---|
| 1 | If you grew up with both parents add Mother + Father and divide by 2.<br>If you grew up with one parent enter that score to the right. | | |
| 2 | If you are married or partnered add Spouse + You and divide by 2.<br>If you live alone enter Your score to the right.<br>If you are a full-time student leave this blank. | | |
| 3 | Double your score from line 2.<br>If you are a full-time student leave this blank. | | |
| 4 | If you are a full-time student enter only your parents' score.<br>Add line 1 and line 3 then divide by 3 (three) for a **TOTAL EDUCATION**<br>Score should be between 3 and 21 | | |

Occupation Scoring

| | | | |
|---|---|---|---|
| 1 | If you grew up with both parents add Mother + Father and divide by 2.<br>If you grew up with one parent enter that score to the right. | | |
| 2 | If you are married or partnered add Spouse + You and divide by 2.<br>If you live alone enter Your score to the right.<br>If you are a full-time student leave this blank. | | |
| 3 | Double your score from line 2.<br>If you are a full-time student leave this blank. | | |
| 4 | If you are a full-time student enter only your parents' score.<br>Add line 1 and line 3 then divide by 3 (three) for **TOTAL OCCUPATION**<br>Score should be between 5 and 45 | | |

TOTAL Score:

| | |
|---|---|
| Add **TOTAL EDUCATION** + **TOTAL OCCUPATION**:<br>Score should be between 8 and 66 | |

## APPENDIX F

**Permissions to Use Measures**

From: Gloria Crisp [Gloria.Crisp@utsa.edu]
Sent: Monday, May 14, 2012 10:30 AM
To: Gloria Crisp
Subject: Re: Permission to use the CSMS for my dissertation

Yes, you have my permission. Best of luck to you!

-----Original Message-----
From: Stefanie Theresia Baier [mailto:stefanie.baier@wayne.edu]
Sent: Monday, May 14, 2012 9:16 AM
To: Gloria Crisp
Subject: Permission to use the CSMS for my dissertation

Dr. Crisp,

We had a brief correspondence about the College Student Mentoring Scale (CSMS)a few weeks ago. I am in the final stages of my dissertation proposal about the role of academic factors, self-efficacy, mentoring relationships and participation in learning communities on persistence in freshmen college students. I will be defending my proposal in the beginning of June.

After searching for different instruments I have decided to use the CSMS developed by you to analyze the role of mentorship in student persistence. I would like to ask you for permission to use this instrument for my dissertation. I'd be happy to share my results with you once I have completed my dissertation. If you have any further questions, please contact me at cp4444@wayne.edu.

Thank you for your time. I am looking forward to your response.

Sincerely,

Stefanie

Stefanie Baier, MA
Ph.D. Candidate Educational Psychology
Wayne State University
cp4444@wayne.edu
Tel. 248-921-8456

From: Will Barratt
Sent: Monday, May 14, 2012 11:26 AM
To: Stefanie Baier
Subject: Re: Permission to use the Barratt Simplified MEasure of Social Status (BSMSS) for my dissertation

You have my permission to use the BSMSS in your dissertation research as described below.

Will
==========
Will Barratt, Ph.D.
Coffman Distinguished Professor
Office 812-237-2869
Department of Educational Leadership, Bayh College of Education , Indiana State University
Social Class on Campus Blog  Project 1st Gen in Student Affairs Blog

"E pluribus unum" means finding our common ground among our important differences
"It's about students and it's about relationships!"

-----Original Message-----
From: Stefanie Theresia Baier [mailto:stefanie.baier@wayne.edu]
Sent: Monday, May 14, 2012 10:34 AM
To: Will Barratt
Subject: Permission to use the Barratt Simplified MEasure of Social Status (BSMSS) for my dissertation

Dr. Barratt,

We had a brief correspondence about the Barratt Simplified Measure of Social Status (BSMSS) a few weeks ago. I am in the final stages of my dissertation proposal about the role of academic factors, self-efficacy, mentoring relationships and participation in learning communities on persistence in freshmen college students. I will be defending my proposal in the beginning of June.

I am also measuring the students' socioeconomic status to see if socioeconomic status has an impact on persistence. In order to measure the students' socioeconomic status, I would like to use the BSMSS for my dissertation. I would like to ask you for permission to use this instrument developed by you. I'd be happy to share my results with you once I have completed my dissertation. If you have any further questions, please contact me at cp4444@wayne.edu.

Thank you for your time. I am looking forward to your response.

Sincerely,

Stefanie Baier, MA
Ph.D. Candidate Educational Psychology
Wayne State University
cp4444@wayne.edu
Tel: 248-921-8456
From: Scott Solberg
Sent: Monday, May 14, 2012 10:31 AM

To: Stefanie Baier
Subject: Re: Permission to use the College Self-Efficacy Scale for my Dissertation

Stefanie:
Great, here's the instrument and some related publications.

Best of luck.

Scott Solberg
V. Scott Solberg, PhD
Professor and Associate Dean for Research
School of Education
Boston University
617.358.2958
www.bu.edu/sed

-----Original Message-----
From: Stefanie Theresia Baier [mailto:stefanie.baier@wayne.edu]
Sent: Monday, May 14, 2012 10:28 AM
To: Solberg, V. Scott
Subject: Permission to use the College Self-Efficacy Scale for my Dissertation

Dr. Solberg,

My name is Stefanie Baier and I am a Ph.D. Candidate at Wayne State University in Detroit, Michigan. I am in the final stages of my dissertation proposal exploring the role of academic factors, self-efficacy, mentoring relationships and participation in learning communities on persistence in freshmen college students. I will be defending my proposal in the beginning of June.

I have been looking for self-efficacy instruments to study freshmen's college self-efficacy and came across the College Self-Efficacy Inventory (CSI)developed by you and your colleagues. I believe this instrument will be best for my study purposes.

I would like to ask you for permission to use the CSI developed this instrument developed by you and your colleagues. I'd be happy to share my results with you once I have completed my dissertation. If you have any further questions, please contact me at cp4444@wayne.edu.

Thank you for your time. I am looking forward to your response.

Sincerely,
Stefanie Baier

---

Stefanie Baier, MA
Ph.D. Candidate Educational Psychology
Wayne State University
cp4444@wayne.edu
Tel. 248-921-8456
From: William Davidson
Sent: Monday, May 18, 2012 1:18 PM
To: Stefanie Baier

Subject: Re: Permission to use the College Persistence Questionnaire (CPQ) for my dissertation

Hi Stephanie,

Thanks for the interest in the CPQ. Yes, you have our permission to use it in your research. Also, we have a revised version which has additional scales that are particularly relevant to retention. Let me know if you would like to see the revised version (and scoring keys), and I'll send it to you.
Best wishes in your research,
Bill

Member, Texas Tech University System
William B. Davidson, Ph.D.
Professor and Department Head
Department of Psychology, Sociology, and Social Work
Angelo State University
ASU Station #10907
San Angelo, TX 76909-10907
Phone: (325) 942-2219 Fax: (325) 942-2290
bill.davidson@angelo.edu

-----Original Message-----
From: Stefanie Theresia Baier [mailto:stefanie.baier@wayne.edu]
Sent: Monday, May 14, 2012 9:45 AM
To: Bill Davidson
Subject: Permission to use the College Persistence Questionnaire (CPQ) for my dissertation

Dr. Davidson,

My name is Stefanie Baier and I am a Ph.D. Candidate at Wayne State University in Detroit, Michigan. I am in the final stages of my dissertation proposal exploring the role of academic factors, self-efficacy, mentoring relationships and participation in learning communities on persistence in freshmen college students. I will be defending my proposal in the beginning of June.

I have been looking for instruments measuring intent to persist to study freshmen's plans of continuing college after their first semester and found the College Persistence Questionnaire (CPQ) developed by you and your colleagues. I believe this instrument will be best for my project.

I would like to ask you for permission to use the CPQ developed by you and your colleagues. I'd be happy to share my results with you once I have completed my dissertation. If you have any further questions, please contact me at cp4444@wayne.edu.

Thank you for your time. I am looking forward to your response.

Stefanie Baier, MA
Ph.D. Candidate Educational Psychology
Wayne State University
cp4444@wayne.edu

## APPENDIX G

## Permissions to use the Student Tracking Achievement Retention System (STARS)

WAYNE STATE UNIVERSITY

Human Investigation Committee Office
Division of Research
Wayne State University
101 E. Alexandrine
Detroit, Michigan 48202

May 14, 2012

To Whom It May Concern:

I am aware of the dissertation research of Stefanie Baier on retention and self efficacy. I have communicated with her dissertation advisor Professor Barry S. Markman about the research and support the use of data in STARS (Student Tracking, Advising and Retention System) for this work.

Sincerely,

Robert Berman
Professor of Mathematics
Stars Project Manager

WAYNE STATE UNIVERSITY

Office of the Provost and Senior Vice President
for Academic Affairs
4092 Faculty/Administration Building
Detroit, MI 48202
Office (313) 577-2200
Fax (313) 577-5666

**Memorandum**

To: Stefanie Baier

From: Monica Brockmeyer, Associate Provost for Student Success

Subject: Study of Impact of Self-Efficacy, Mentoring, and Learning Community Participation on Student Retention

Date: May 29, 2012

I support the project headed by Stefanie Baier, the principal investigator (PI), to study the role of academic factors, self-efficacy, mentoring relationships and learning community participation in college freshmen retention at WSU.

Upon approval by Wayne State University's Human Subjects Committee, the PI will solicit participants and obtain informed consent from incoming first year students at an appropriate point during the orientation process. I will support the PI in coordinating this effort.

Students agreeing to participate will be contacted to fill out an online survey both at the beginning and the end of their first semester in college.

In addition, students willing to participate in the study will be asked for permission for the use of admissions and academic data (high school GPA, first semester GPA, and ACT scores). After the data collection is complete, the PI will replace all access IDs with codes to protect students' identities. The students will have the right to opt out of the study at anytime. Students who are willing to participate in the study will be compensated for their time either with an amount to be determined from $10 to $20 or the right to participate in a prize lottery.

# APPENDIX H – HIC APPROVAL

WAYNE STATE UNIVERSITY

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

## NOTICE OF EXPEDITED APPROVAL

**To:** Stefanie Baier
Theoretical & Behavior Foundations

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

**Date:** July 24, 2012

**RE:** IRB #: 064612B3E

Protocol Title: The Role of Academic Factors, Self-Efficacy, Mentoring Relationships and Participation in Learning Communities on Persistence and Academic Success in College Freshman

Funding Source:

Protocol #: 1206011011

**Expiration Date:** July 23, 2013

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

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The above-referenced protocol and items listed below (if applicable) were **APPROVED** following *Expedited Review* Category ( #7 )* by the Chairperson/designee *for* the Wayne State University Institutional Review Board (B3) for the period of 07/24/2012 through 07/23/2013. This approval does not replace any departmental or other approvals that may be required.

- Revised Protocol Summary Form (received in the IRB Office 7/16/12)
- Protocol (received in the IRB Office 6/11/12)
- The request for a waiver of the requirement for written documentation of informed consent has been granted according to 45 CFR 46.117(1)(2). Justification for this request has been provided by the PI in the Protocol Summary Form. The waiver satisfies the following criteria: (i) The only record linking the participant and the research would be the consent document, (ii) the principal risk would be potential harm resulting from a breach of confidentiality, (iii) each participant will be asked whether he or she wants documentation linking the participant with the research, and the participant's wishes will govern, (iv) the consent process is appropriate, (v) when used requested by the participants consent documentation will be appropriate, (vi) the research is not subject to FDA regulations, and (vii) an information sheet disclosing the required and appropriate additional elements of consent disclosure will be provided to participants not requesting documentation of consent.
- Internet Research Information Sheet (dated 7/12/12)
- Research Informed Consent (dated 7/12/12)
- Data collection tools: Survey 1 and Survey 2

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

**NOTE:**

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

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# ABSTRACT


## THE ROLE OF ACADEMIC FACTORS, SELF-EFFICACY, MENTORING RELATIONSHIPS AND LEARNING COMMUNITIES IN PERSISTENCE AND ACADEMIC SUCCESS OF FRESHMAN COLLEGE STUDENTS

by

**STEFANIE T. BAIER**

May 2014

**Advisor:** Dr. Barry Markman

**Major:** Educational Psychology

**Degree:** Doctor of Philosophy

Many U.S. universities are concerned with student retention. The current study surveyed 237 first time college students at a Midwestern university to determine the extent to which socio-cognitive factors, such as high school GPA, ACT scores, first semester college GPA, college self-efficacy and perceptions of mentorship support influence freshmen's intent to persist and academic success.

Pearson Correlations, Standard Multiple Regression Analyses, PROCESS for Mediation and Moderation, and a MANOVA were performed. The study's findings show that college self-efficacy and perceptions of mentorship were the strongest predictors for intentions to persist past the first college semester. High school GPA was the strongest predictor, but ACT scores, perceptions of mentorship and participation in Learning Communities were also related to first semester college GPA. However, these results must be taken with caution. Because of the heterogeneous nature of Learning Communities, their impact may be further explored in future studies.

# AUTOBIOGRAPHICAL STATEMENT

**Education**

PhD in Educational Psychology: May 2014
Wayne State University
MA in Educational Psychology: December, 2005
Eastern Michigan University, Ypsilanti, MI
Teaching Diploma for Teaching Religion K-9, June 1997
Religionspaedagogische Academie Graz-Eggenberg, Graz, Austria
Teaching Diploma for Teaching Primary School (K-4), June 1994
Paedagogische Academie Graz-Eggenberg, Graz, Austria
Associate Degree in Liberal Arts
Schoolcraft College, Livonia, MI (2002)

**Presentations**

Baier, S. T., Markman, B. S., Pernice-Duca, F.M., Hillman, S. B., Siple, P. (April, 2014). *Freshmen in College: Who Will Stay and Who Will Leave? Factors Influencing College Freshmen's Intent to Persist Past Their First Semester in College.* Paper to be presented at the Conference of the American Educational Research Association (AERA) in Philadelphia, PA.

Baier, S. T. (August, 2011). *Challenges of International Students in Adapting to the U.S. Culture.* Poster presented at the European Conference for Developmental Psychology (ECDP) in Bergen, Norway.

Pernice-Duca, F. M. & Baier, S. T. (2009, November). *For Love or Money. Examining the Influences on Marital Attitudes over Time among Unwed Parents.* Paper presented at the National Council on Family Relations (NCFR) conference in San Francisco, CA.

Lanzon, P. M., & Baier, S. T. (2009, August). *Ready or Too Soon, Here We Come to Kindergarten.* Paper presented at the European Conference for Developmental Psychology (ECDP) in Vilnius, Lithuania.

Baier, S. T. (2005, November). *College Experience and Adjustment Issues of International Students.* Paper presented at the NAFSA Regional V Conference in Springfield, Illinois.

Baier, S. T., & Mourer, M. (2005, September). *A Student-Centered Approach to Internationalization.* Workshop at the 13th Annual Student Success Conference: "Intercultural Competence: Education for Global Effectiveness" at Michigan State University, East Lansing, MI.

Baier, S. T.,& Boiko O., & Bynens, I., et al. (2005, May). Student Panel at International Cultural Competence Institute at Eastern Michigan University, Ypsilanti, MI.

Baier, S.T., & Bishop, J.J. (2005, April). *International Student Culture Shock Experiences.* Paper presented at Michigan Association of International Educator Conference, Detroit MI.

Baier, S.T. (2005, March). *Cultural Shock Experience of International Students in the US.* Paper presented at Graduate Research Fair, Ypsilanti, MI.

Baier, S.T., Bishop, J., & Lupinacci, J., & Michaels, D. (2003, October). *International and Citizenship Education in Europe: Austria in Comparison.* Paper presented at the Comparative and International Education Society Midwest Regional Conference. Ypsilanti, MI

Baier, S.T. (2003, October). *Multicultural Education Following the Levels of Integration of Multicultural Content in Austria*. Paper presented at The Comparative and International Education Society Midwest Regional Conference. Ypsilanti, MI.

**Teaching and Research Experience**

Graduate Assistant for Student Success (January 2014 – May 2014)
Adjunct Lecturer (2006/07; 2008 – present)
Teaching Human Development and Learning (EDPS 322) to undergraduate students at Eastern Michigan University.
Research Student Assistant (October 2007 – August 2010)
Center for Urban Studies, Evaluation Unit, Wayne State University