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I, Christopher R Powers, hereby submit this original work as part of the requirements for the degree of Doctor of Philosophy in Educational Studies.

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Opportunity or not: Race, Gender, Income, and Academic Success in an Open Access College

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Abstract

Student retention and the factors that impact it is one of the most significant issues facing higher education today. Countless hours and funding have been spent in an attempt to find why some students decide to leave college, while others remain. The majority of previous studies have focused primarily on traditional students from four-year, residential colleges. However, research at non-residential two-year open-access colleges is lacking, and with that population increasing in the United States, more research is required to understand how to increase retention and graduation rates.

The purpose of this study was to use data from a suburban, regional, open-access college of a midwestern research I university to determine factors that impact student retention. In this study, the relationships among these variables were examined: (a) student demographic characteristics – age, race, gender, high school attended, household income level by FAFSA (EFC), (b) academic performance – grade point average, academic action, English placement test, and math placement test, and (c) number of quarters attended, and (d) transfer/graduation rate. The variables examined were applied to two groups, low income students and high income students. These variables were included with the goal of discovering challenges that interfered with successful academic performance.

There was an interaction between race and gender. Income made a large difference in scores, and low income African American students had slightly lower GPAs than low income Caucasian students, but High income African American students had slightly higher GPAs than high income Caucasian students.

When examining student retention and academic performance, income plays a significant role in success or failure.
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Dedication

This dissertation is dedicated to my wife, Christi, and our sons, Evan and Benjamin. Without their love, support, and inspiration none of this would have been possible.
# Table of Contents

## Introduction
- Statement of the Problem 3
- Purpose of the Study & Research Questions 4
- Significance and Limitations of the Study 5
- Assumptions of Study 6

## Literature Review
- History of Open-Access 8
- Retention Models and Theoretical Framework 15
- Retention of Two-Year College Students 20
- Socio-Economic Status 24
- Traditional Students 28
- Race 30
- Gender 33
- Academic Under-preparedness 36
- Summary 38

## Methods
- Design and College Population 39
- Sample 40
- Variables 41
- Procedure 46

## Results
- Overview 47
- Socio-Economic Background and Academic Success 49
- Gender, Race, and Academic Success 51
- Placement Test and Academic Success 57
- Overall Models Predicting Academic Success 62

## Discussion
- Findings 67
- Limitations and Recommendations for Further Research 75
- Conclusion 78

## References 82
List of Tables and Figures

Table 1. Race of Study Sample by Percentage 42
Table 2. Number of Quarters Completed Based on Income Level 43
Figure 1. Percentage of students grouped by income level and academic action status 49
Figure 2. Number of quarters completed based upon income level 49
Figure 3. Percentage of students by income that transfer/graduate successfully 50
Figure 4. Number of quarters completed based upon income level and gender 52
Figure 5. Average GPA grouped by gender and income 52
Table 3. Academic Success with Dependent Children vs. No Children 53
Figure 6. Average GPA Based Upon Income Level and Race 54
Figure 7. Transfer/Graduation Rate by Race and Income 55
Figure 8. Academic Action by Race and Income 56
Figure 9. Average Math Placement Scores by Income Level 57
Figure 10. Average English Placement Scores by Income Level 58
Figure 11. Average English Placement Test Score by High School Type 59
Figure 12. Average English Placement Test Score by High School Type 59
Figure 13. Average College GPA Based on High School Type 60
Figure 14. Quarters completed based on high school type 61
Table 4. Hierarchical Multiple Regression Analyses 62
INTRODUCTION

While there is growing literature on the topic of retention at traditional private colleges and state universities, few researchers have attempted to address the issue for community colleges (McCabe, 2003). Since this line of research is relatively new, there are many methodological and conceptual issues to ascertain and discuss. Due to the limited applicable research of the community college and the open-access admission model, a certain ambiguity exists on how successfully the model meets the needs of students and the community. Evelyn’s (2004) research theorized that this identity crisis has existed since the inception of the community college model and it has become increasingly impaired through the years due to the struggle of budget based enrollment increases and the community college model’s commitment to the community.

Postsecondary education has become almost universally available for any individual in America who wants to pursue such an endeavor. According to a report in 2009 by the American Association of Community Colleges (AACC), over 75% of high school graduates enroll in some form of postsecondary education. However, compared to other industrialized countries, the United States has degree completion rates that are well below the average. Fewer than half of the students who begin college finish a college degree (Haupton, 2007).

In most cases, costs more to recruit new students than it does to retain current students, but many institutions often focus on student recruitment rather than student retention. Astin (1993), Pascarella & Terenzini (1991), Tinto (1993). Instead of implementing sound retention programs, most institutions budget for recruiters and associated expenses such as travel and recruitment materials because it is a common perception that retention programs are more work
and effort than recruiting (Gaither, 1999). Recruiting is essential for getting new students enrolled but once they are enrolled, what are institutions doing to retain those students? According to Tinto (1999), most institutions do not take students retention seriously. With an average attrition rate of nearly 41% from first to second year and a 34% persistence-to-degree rate, it is paramount that post-secondary institutions focus on student success and determine predictors of student retention (ACT, 2010).

Retention is important for a variety of reasons. From the institution’s perspective, the retention of students is necessary for financial stability and to sustain academic programs. Public policy makers are advocating accountability, and a strong measure of accountability is student retention leading to graduation. Additionally, the federal Higher Education Act may use graduation rates as a measure of the effectiveness of a college or university. And finally, if not most importantly, the institution wants students to achieve academic goals, graduate, and enter the workforce.

Understanding why students choose to leave or stay is essential to those wanting to impact the lives and academic experience of the students. A number of theories exist regarding student retention. One is student development theory (student integration model) attributed to Tinto (1993). This theory suggests that students progress through stages as they make the transition from being a first time college student to being a mature student. According to Tinto these stages are influenced by academic and social integration. When both the academic and social aspects work collectively they lead to the student’s decision to either leave or remain in college. Another retention expert, John Bean (1990), is known for his psychological model of retention (attrition model) which claims that background variables influence the manner in which
a student with the college or university. Bean’s theory adds environmental variables and student intention as factors that predict retention.

In addition to Tinto and Bean, Alexander Astin (1991) is well known for his input-environment-outcome model. According to Astin, outputs (degrees earned, number of graduates, etc.) must always be evaluated in terms of inputs (student ability, gender, age, major, etc.). The environmental factors (courses, programs, facilities, faculty, peer groups, etc.) complete the model. Astin believes that to fully assess student outcomes accurately that one must review input, output, and environmental data equally.

As enrollment at institutions of higher education fluctuate from year to year, particularly among less selective and open-admission institutions, retaining an existing student is becoming more important as are the challenges this presents. According to McCabe (2000), efforts to identify clear patterns of student “dropout” or “stop out” behavior and to explain retention and attrition rates have remained difficult. Until those factors influencing student departure are better understood, retention efforts are likely to be elusive. Meanwhile, those in higher education will continue to be expected to explain and justify retention and attrition issues on their campuses.

**Statement of the Problem**

The primary purpose of this study is to examine the retention and persistence challenges of low income traditional students in a suburban open-access institution in southwest Ohio. For open-access institutions, early assessment of student needs contribute to retention initiatives for those at risk for dropping out or leaving college. Issues associated with retention are paramount and are directly associated with fiscal audits, program audits, budget negotiation, formula
funding, institutional effectiveness, and program reviews (DesJardins, Ahlburg, & McCall, 2002).

Decreasing levels of state funding combined with increased pressure for institutions to demonstrate effectiveness have resulted in institutions being forced to focus on increasing retention efforts. According to DesJardins, Ahlburg, and McCall (2002), governmental funding formulas for colleges and universities are often tied to and based upon student graduation rates. Therefore, as the concern for student enrollment increases, institutional leaders have come to the realization that retaining students is just as important as recruiting new freshmen. Soaring rates of student attrition place the financial health of the institution at risk especially for smaller open-access colleges that rely upon tuition and fees as the primary source of funding. For small colleges in this situation, retention is a financial necessity.

**Purpose of the Study**

The purpose of this study is to examine the retention and persistence of low income traditional age students categorized by academic and performance factors and compare them to students from a higher income background. This study will be conducted using a cohort of degree-seeking traditional students enrolled in a suburban open-access institution in southwestern Ohio from the fall 2008 to the spring 2010 quarters. The factors that were selected were based upon previous findings of traditional students at similar institutions of higher education.

**Research Questions**

1) Do Low income/EFC and High income/EFC students differ in their academic success (i.e. GPA, quarters completed)?
2) Do race and gender predict academic success? If so, do they predict independently of income/EFC?

3) Explore how placements tests contribute to predicting academic success.

4) Explore correlations of demographics with placement tests.

**Significance of Study**

It is the researcher’s belief that this study will identify and describe the relationship of demographics and academic factors that influence student enrollment at an open-access institution. This type of study will provide an opportunity to contribute to the growing body of research concerning open-access enrollment and retention. The researcher hopes to provide a perspective about discernible facts associated with low income traditional aged students and their challenges at open-access institutions. The overall goal is to add insight and bring attention to retention as well as student persistence rates among low income students at a two-year open-access college. The identification of these factors and the results of this study will contribute and prove to be applicable to the higher education profession.

**Limitation of the Study**

This study is limited to one open-access institution located in southwest Ohio; therefore the findings should not be generalized to students from other open-access institutions within Ohio or other states. The study is limited to first-time traditional aged college students (18-24) enrolled at least part-time. Students over the age of 24 and students registered for less than six credit hours were not included in the study.
The size of the college’s population of students, faculty, and staff was not a variable for the participation of the study. There may be characteristics about the open-access institution in this study that differ from other similar types of institutions. Therefore, this study will not be as effective if compared to all students enrolled in institutions of higher education in the United States. Additionally, according to data from the U.S. Department of Education (2009), open-access institutions differ from traditional four-year colleges and universities in student population in that many students are commuters from lower socio economic backgrounds and in need of more basic literacy skills before starting traditional college courses.

Assumptions

It is assumed that all data collected in this study will be reported accurately and without bias to race, gender, or culture. The research performed in this study was conducted with the goal of comparing the impact of retention and persistence rates of low and high socio economic students as related to demographic and academic factors.

For the purpose of this study, the following terms are defined in the following manner.

*Academic Action* – In this study, this term refers to the lack of successful academic performance. Academic action is categorized into: Probation, Continued Probation, Suspension, and Academic Dismissal if satisfactory academic performance is not achieved.

*Age* – In this study, this term refers to the students’ ages at the time of admission. All students in this study are between the ages of 18-24.

*Degree-seeking students* – In this study, this term refers to students enrolled at the institution with the intent of completing all requirements for a certificate or degree.
**EFC** – In this study, this term refers to the Estimated Family Contribution (EFC) that is recorded on the Free Application for Federal Student Aid (FAFSA) as result of the students’ household income. The EFC indicates the financial need of students. The higher the EFC number the less financial aid the student is awarded.

**High School Type** – In this study, this term refers to the actual type of high school. The schools’ in this study were divided into: urban, rural, suburban, and GED (students that did not graduate from a high school but obtained the high school equivalent via a GED program).

**High Socio-Economic Status** – In this study, this term was assigned to students with an EFC above $ 7,000.

**Low Socio-economic Status** – In this study, this term was assigned to students with an EFC of below $500.

**Open-access** – In this study, this term refers to all public two-year colleges that require only a high school diploma or equivalent and minimum state high school testing scores as admission standards.

**Persistence** – In this study, the term refers to college students who enrolled for a second quarter within the period of an academic year

**Placement Tests** – In this study, the term refers to tests that are administered in the subjects of English/writing and math to new incoming students to determine if they require remedial courses.

**Retention** – In this study, the term refers to continuous course enrollment from one academic year to the next academic year.
Review of the Literature

History of the open-access college

During the latter part of the nineteenth century, there was a change in higher education and with the manner it was to be delivered. For decades, German and English modeled education systems were admired and therefore established in the United States. Acceptance into these schools was competitive and often dependent upon secondary school performance. Overall, they provided a sound education. As the higher education system in America blossomed, colleges and leading educational professionals began to realize that there were issues with the model. Two principle pressures that began to surface at this time were more competitive college entrance requirements and the greatly improved quality of American higher education.

One would assume that these types of challenges would not inherently be detrimental to higher education but what it caused was a shift between the secondary and post-secondary institution. Much of what was formerly done in college was now done in secondary school. As colleges raised their entrance requirements and went to more advanced collegiate work, they forced more and more of their former subject matter down into secondary school. As a result, some leading educators, such as Charles Eliot, President of Harvard University, and Nicholas Murray Butler, President of Columbia University, pushed an agenda to change college curriculum programs from four years in length to three years in length. In some instances the college curriculum was compressed into three years by permitting students to commence their professional specialization in their senior year. This idea did receive some support, specifically at Columbia where approximately 25 % of the student body between 1892 and 1902 chose to combine liberal and professional education in this manner (Cohen & Brawer, 2009).
One of the chief skeptics of the three-year proposal was William Rainey Harper, president of the University of Chicago. In the late 19th century and early 20th century, Harper pushed for a model that would allow secondary students to attend a college for two years and have an option to continue at a four year college. Harper believed that a lower or “junior” college might appeal to those students who otherwise might not ever attend college. As different institutions started putting these ideas into practice, the traditional American educational ladder began to change.

The junior-college movement created more options for students. Over the remaining decades of the 19th century and the first half of the 20th century junior colleges grew and allowed more students to attend college in their local community before transferring to a four year school. The junior-college movement blossomed during this time period. The movement took another leap after World War II with the 1944 GI Bill of Rights and evolved into an approach towards higher education during the 1960’s known as open admission or open-access.

Once the concept of open admission was introduced, it changed the foundation of higher education. At the time, two year colleges were urged by the Carnegie Commission on Higher Education to establish an “open door” policy that would admit all high school graduates and those that were deemed qualified to study (Baker, 1994). The reasons behind this adoption of the open door policy were to extend the educational opportunity to those that may have been excluded due to entrance, residence, or graduation requirements.

Despite the overwhelming acceptance of the open-access policy, the concept certainly did have critics. The critics were members of the academy, as well as those who did not serve on the President’s Advisory Commission on Higher Education as they believed in the older American or even European tradition of higher education. They held the belief that education should be
selective not inclusive. These critics feared that in order to provide post-secondary education to such a large and diverse population would mean a watering down of the curriculum and the student body. Cohen and Brawer (2008) referred to one such critic, Yale graduate and Harper’s editor, Russel Lynes in their book, *The American Community College* (2008). Cohen and Brawer described an opinion that Lynes had published about of two-year colleges:

> Its functions are so diverse, its people so scattered, and its efforts to be all things to all students so determined that it escapes identification…

> In general it has been looked down upon by holders of B.A. degrees as a refuge for the stupid, and it has been avoided as a place to teach by most serious scholars (p.76).

In trying to be all things to all students, the evolving open-door colleges were confronted with harsh criticism as to their capacity to deliver effective programs (Berg & Axtell, 1968) and their ability to deliver on their mission (Jennings, 1970). With the opportunity to attend an open-access college many students, both academically prepared as well as the academically ill prepared, flocked to be educated. However, the open-access colleges were unprepared to serve the influx of students needing remedial instruction. This issue was revealed in early studies of remedial programs in open-access colleges. The studies found that the remedial programs were housed in traditional departments that offered little more than “watered down” curricula by faculty who had no training, experience, or commitment to remedial instruction (Roueche, 1968). Roueche’s review of the research concerning open-door policies and underprepared students revealed that 55 percent of remedial instructors in California had less than two years of experience which confirmed other research indicating that the least experienced instructors were
likely to be found in remedial settings. Instructors teaching in remedial courses interviewed by the American Association of Junior Colleges felt that graduate school courses must be offered to help potential instructors learn effective teaching methods in open-door institutions Roueche & Kirk (1973).

Although the critics of the 1960’s and 1970’s placed open-access education under a scathing microscope, the concept continued to grow during the 1980’s and 1990’s. If the 60’s and 70’s revealed what was wrong with the open door concept, the 80’s and 90’s were the decades that attempted to improve the concept. During these decades, much of the focus was placed upon developing programming that would assist the open-access student such as new student orientation, learning labs, and college study skill classes. These programs and classes were widely implemented during the mid-1980’s to the early 1990’s (McGrath & Spear, 2003). Based upon their reports, McGrath and Spear claim that open-access colleges have improved the success of students by implementing these types of programs. Some colleges experienced a 5% increase in retention when orientation was required along with a required study skills class.

Although the open-access institution has experienced lows and highs, it remains a staple of higher education in America. Since 1973, enrollment has grown from approximately 6% to 11.5% in 2008. Technology, such as the internet, has led to a boom in online education that has taken the open-access concept worldwide and is responsible for increasing its demand. Given the strides that the open-access college has taken, much of the current literature still echoes many of the concerns from the 60’s and 70’s such as the need for increased remedial classes and study skill support. One aspect that has increased has been the retention rate. According to the ACT’s 2010 report What Works in Student Retention the average retention rate for first-year, full-time students who return to the same institution for their second year of college at an open-access
college is at an all-time high of 56%. To give you an idea, the retention rate for the same group at a four year public is 72% and at a four year privates 74% (ACT, 2010).

The report explains that open-access colleges rely more on remedial classes, study groups and tutoring and less on academic advising and first-year transition programs to help students succeed. However, contained in the conclusion, is a dim reminder that the more things change the more they appear to stay the same. It is revealed that the long-term trend is very clear when it comes to open-access institutions. Many students still enter open-access colleges unprepared to succeed, and retention and completion rates haven’t changed a lot over the years. The conclusion reveals that the retention rate at open-access colleges in 1973 was 49% and in 2010 they have grown only 7% to 56% (p.52).

Due to a mission that incorporates open-access and support, open-access colleges continue to play a potentially significant role as the national need for an educated citizenry grows more prominent. Jones and Becker (2002) conducted a study revealing that open-access college campuses reflect the culture of America, a true melting pot, representing students of all ages, races, backgrounds, and levels on these campuses. Jones and Becker's study characterized these students into two distinct groups. The first groups of students were determined and knew exactly what they wanted and which classes they needed to get what they wanted; and then the second group of students knew none of those answers- the underprepared. Jones and Becker's research affirms that these groups of students (the underprepared) are a mix: of first-generation college students, adults returning to school after many years because they need more skills, students who come to a college because they do not know what else to do, transfer students, students from low socioeconomic backgrounds, and minorities. Unfortunately, these are the students who so often
are placed into remedial and/or developmental classes. Many are academically and socially underprepared for college (Jones & Becker, 2002).

In the 21st century, arguably a college degree has become what a high school diploma was 100 years ago, a prominent pathway to a successful career and to knowledgeable citizenship. Today, people enroll in post-secondary institutions in record numbers. These students have many motivating factors for attending college and they bring different skills to the classroom. Cohen and Kisker (2010) suggested that many of those factors influence the time it takes for a student to obtain a degree and many factors are beyond the control of the institution. Some of those factors considered beyond the control of an institution include students who arrive at college underprepared, part-time enrollment, students who change majors, students who transfer, and students who may opt to pursue a dual degree or extend their studies through work study experience.

According to McCabe's (2000) study, open-access colleges serve every type of student--from the well prepared high school graduate to the underprepared high school graduate, from the academically gifted to the academically at-risk, from the high school student taking a few courses to the senior citizen interested in personal enrichment. This makes the student body at any given open-access college remarkably complex (Cohen & Brawer, 2003).

McCabe's study contradicts the assumptions of Cohen and Brawer and asserts that many students who attend open-access colleges have no intention of ever graduating with any type of degree. Crawford (2003) agreed, revealing that many students plan to take a small number of courses and then transfer to a four-year school. Other students may intend to graduate but either transfer out or, for a variety of reasons, fail to complete a program of study. Crawford observed
that these circumstances increase time to degree completion and potentially increase dropout rates as well as financial aid issues. Nearly half of all undergraduates in this country and more than half of all new college entrants begin their post-secondary education at the open-access college. The importance of open-access college retention becomes greater as more students choose these institutions as their pathway into higher education. Many higher education institutions report record enrollments as nearly 75% of high school graduates get some postsecondary education within two years of receiving their diplomas (Allen, 2008). Currently, there are 6.6 million students (more than double the number in 1974) enrolled in the 986 public open-access colleges in the United States (Syed, 2008). Over the past thirty years, open-access college credit enrollment has more than doubled and continues to expand at a rapid pace. For example, according to the Planning, Accountability, Research, and Evaluation section in the CCS (2009), a study was conducted to ascertain the number of students enrolled in curriculum or occupational extension courses in Ohio open-access colleges. The results of the data indicated that the enrollment of 2008-2009 high school graduates in open-access colleges in the academic year of 2008-2009 was 25,804, representing a 7.3% increase from the previous years of enrollment.

While these institutions have experienced phenomenal growth, especially over the last forty years, they have also been plagued with questions about effectiveness, quality and purpose. For students who begin with a full-time load, the open-access college three-year retention to graduation rate stands at 28.9% (ACT, 2010). This rate has dropped 3.5 percentage points since 2000, when the rate was 32.4% (ACT, 2010). The first to second year retention rate of students at two-year public institutions was 52.5% in 2009 (ACT, 2010). These low rates of retention and graduation attainment have fostered a dubious image of the open-access college. Thus, the open door admissions policy
that allows all students the opportunity to participate in higher education now is questioned as to where that open door leads.

There is scarce research pertaining specifically to open-access colleges despite the large numbers of students who attend. In the 1997 article, *It's Time We Started Paying Attention to Community College Students*, prominent researcher Ernest Pascarella chides himself for his lack of attention to the open-access college student. Speaking about his initial research on the topic, *How College Affects Students*, which synthesized the results of over 2,600 research project participants, Pascarella noted that it would be a liberal estimate to say that even 5% of the studies reviewed focused on open-access college students (p.15). In a second edition of the same title, the authors put considerably more focus on the open-access college, with highlights that illustrate attainment and persistence levels as they compare to four-year schools, as well as transfer success of open-access college attendees. Pascarella & Terezini (1998) determined that as a result of limited research, a comprehensive and shared understanding of the role or identity of open-access colleges and the degree to which it successfully meets the needs of its students and its communities, has been elusive.

**Retention Models**

The origin of Tinto's (1975) conceptual model was rooted in the foundation of Durkheim's suicide theory as well as Spady's model of the student dropout process. Spady's research built upon Durkheim's theory hypothesizing that students who withdraw from college are similar to individuals who choose to withdraw from society, in that they lack the ability to fully integrate into the social structure. Attributed with the earliest model of student attrition, Spady's study/attempted to synthesize the existing research on retention and construct a
conceptual framework. Spady's model emphasized the importance of the interaction between students' pre-matriculation characteristics and the college environment. He theorized that if a student failed to become integrated into the academic and social environment of the institution, dropout would occur. Spady felt that integration into the college setting would lead to greater satisfaction and institutional commitment by the student, and that the lack of institutional commitment was a direct precursor to dropout (Seidman, 2005).

Tinto borrowed from the research conclusions of Spady and Durkheim and made it applicable towards student retention in higher education and elaborated upon their work. The Tinto model states that individuals possess pre-entry college attributes to include such things as family background, skills and abilities, and prior schooling that influence choice of goals and commitments (et.al Seidman, 2005). Institutional experiences then interact with students' goals and commitments. Whether a student departs prior to goal attainment from an institution is largely a result of the extent to which the student becomes academically and socially connected with the institution.

In Tinto's (1975) model, student retention is a function of a complex series of interactions between a student and the institutional environment. Background characteristics (e.g., family background, individual attributes, and pre-college schooling) interact with each other and, in turn, influence both commitments to the institution and to graduation. Such commitment is increased to the extent that the student/institutional match foster both academic and social integration. Elements of the Tinto model have been demonstrated to be particularly appropriate for explaining student retention and attrition for the typical student at a residential institution (Munro, 1981; Pascarella & Terenzini, 1983). Halpin and Altinasi (1990) tested Tinto's model on two-year, non-residential, open-door community colleges. The results were very similar to
the results from Tinto's model, showing that retention is a complex issue involving many variables. In particular, retention is influenced by the interplay of student attributes and beliefs with institutional characteristics.

In 1993, Tinto expanded upon his original theoretical framework and created the student integration model. This student development theory suggests that students progress through stages as they make the transition from a first-time college student to becoming a mature student. According to Tinto, these stages are comprised of academic and social experiences that ultimately lead to the decision of staying in place or leaving college. Possibly in response to these criticisms, Tinto (1993) added to his theory the idea that college administrators should pay more attention to subgroups or “enclaves” on campus and better understand their particular needs. Specifically, he observed that one way students manage cultural distance is to join enclaves or affinity groups that have values, attitudes, beliefs, and assumptions similar to those of the students’ cultures of origin or those the students find appealing. Enclave membership is critical for fitting in, for developing a sense of belonging to one or multiple groups and perceiving that there are people there with similar values, assumptions, perspectives, beliefs, and meaning making systems. Students with close friends who are doing well academically and like college life are more likely to persist (Kuh & Love, 2000). In reviewing the foundational retention literature, it is clear that Tinto’s (1993) model of student departure is one of the most studied in the field of higher education and is widely held as the paradigm for understanding student behavior as it relates to their persistence or withdrawing from college.

Models similar to Tinto’s have been proposed and tested by other theorists. Both John Bean (1990) and Alexander Astin are well known for their retention models. Bean is known for
his psychological model of retention which is known as the student attrition model and Alexander Astin is known for his Input-Environment-Outcome retention model.

Beans psychological model was influenced by the attitude-behavior theory of Fishbein and Ajzen as well as approach-avoidance theory, self-efficacy theory, and attribution (locus of control) theory. The primary theme of his model is that student departure is the result of the premeditated intention to leave. As described by Bean (2005), “Intention is based on pre-matriculation attitudes and behaviors that affect the way a student interacts with the institution. On the basis of this interaction, the student develops attitudes towards his/her experiences and norms related to student behavior. As with Tinto’s (1993) model, Bean’s model is longitudinal in nature and reflects the student’s attitudes and behaviors as they navigate the educational experience. The model is also summarized by Bean (2002) with the example of an individual entering an institution with psychological attributes shaped by particular experiences, abilities, and self-assessments. Among the most important of these psychological factors are: 1) self-efficacy assessments “Do I have confidence that I can perform well academically here?” 2) normative beliefs “Do the important people in my life think attending this college is a good idea”; and 3) past behavior, “Do I have the academic and social experiences that have prepared me to succeed in college?”. The student then interacts with the institution (its bureaucratic, academic, and social realms) while continuing to interact with people (parents, spouses, employers, and old friends) who are outside of the institution. These interactions include staff from various departments, their faculty, both inside and outside the classroom, and also with other students. As Bean (2002) summarized, “The interactions within each realm do not directly and magically result in academic and social integration. While interacting with the college environment and its many different features, the student engages in a series of self-assessments
that can be described by several psychological processes.” These self-assessments help students connect particular experiences they have had at the institution with their general feelings about college.

Similarities can be seen with Tinto’s (1993) model, such as the pre-college attributes which the student brings with them to college and which informs their attitudes and predisposition to stay enrolled or drop out. It is interesting to note that Tinto only included environmental factors into his model in 1993 after Bean had demonstrated their importance in better understanding the student dropout picture. There are numerous reasons why a student might leave college before graduation.

As can be seen, theoretical models seek to describe these behaviors and classify the groups of variables that are assumed to relate to the general underlying causes. Any list of factors associated with student retention will only be an incomplete list. As described by Bean (2003), the specific factors affecting retention decisions at colleges and universities vary from institution to institution and according to gender, social background, and ethnicity. It is unlikely that an institution can find a single, simple program that increases student retention, or that a single identifiable group is responsible for low retention rates.

Alexander Astin took a different approach than Tinto in looking at the process of college student retention and development. Astin’s original work, *Four Critical Years*, focused on what he called the input-environment-outcome [I-E-O] model. Inputs refer to the characteristics of the student at the time of initial entry to the institution; environment refers to the various programs, policies, faculty, peers, and educational experiences to which the student is exposed; and outcomes refers to the student’s characteristics after exposure to the environment (Astin, 1993). To elaborate on his model, Astin’s research points repeatedly to the need for students to become
involved on campus. Astin stresses that campus involvement is an important component that enables students to retain and to stay enrolled. In his book, *Achieving Educational Excellence*, Astin (1991) offered five postulates relating to student involvement:

1) Involvement requires the investment of energy (psychological and physical)
2) Students invest varying amounts of energy in the tasks facing them.
3) Involvement has both qualitative and quantitative features.
4) The amount of learning is proportional to the quality and quantity of involvement
5) The education effectiveness of a policy or practice depends on its capacity to stimulate involvement.

This theme of student involvement and its importance is a common thread through much of Astin’s writings. Put simply, Astin believed that students who were involved devote significant energy to academics, spend time on campus, participate actively in student organizations and activities, and interact with faculty. On the other hand, uninvolved students neglect their studies, spend little time on campus, abstain from extracurricular activities, and rarely initiate contact with faculty or other students (Astin, 1984). As described, the most persuasive types of involvement are academic involvement, involvement with faculty, and involvement with student peer groups.

**Retention of Open-Access College Students**

Exactly why open-access college retention rates are low is constantly debated in the academic community. Due to the nature of their student populations, most two-year colleges have higher rates of student withdrawal than four-year institutions. It is not unexpected that these institutions enroll a greater number of students who are: academically underprepared,
ethnic minorities, financially independent, from lower socioeconomic households, and/or single parents of low socioeconomic status (Mohammadi, 1996; Schmid & Abell, 2003).

Many studies tend to simply describe the differences between those students who leave and those who stay, while the best studies predict future behavior by explaining how these differences arise within the context of a specific institution. Vaughn's (1999) study revealed that retention of open-access college students is a result of a combination of circumstances, student characteristics, and the institutional environment. Vaughn contends that although there are a number of reasons (poor secondary educations, lack of guidance, high unemployment rates, etc.), a school with open admissions must simply accept these students and try to correct their deficiencies retroactively. The research conclusion of Vaughn surmised that other factors such as personal autonomy, self-confidence, ability to deal with racism, study behaviors, or social competence that may have an equal or greater effect on grades and retention than academic competency.

Most previous retention studies have been conducted on populations not relevant to students at open-access colleges. Retention research has grown increasingly complex as the student population at these institutions has continued to diversify. Much of the research that led to previous models of student retention was built upon the characteristics of students at traditional four-year colleges. Few of the students enrolled in open-access colleges share those characteristics (Choy, 2000). While previous research is helpful for understanding retention in general, it does not necessarily benefit individual institutions trying to improve the retention efforts with their own students. Students' campus experiences are unique, and so are their reasons for leaving (Bean, 2005).
Due to the nature of the student population at these institutions, and their higher rates of attrition, it is critical to understand the unique needs of the student body. To do so, the institution must be able to identify dropout prone students, define their needs, and prescribe services to aid them in their college success (Seidman, 2005). Assessment, monitoring, early warning systems, and intrusive interventions have been put in place in some colleges to catch students early. According to Bettinger(2000), Tinto(1998), and Harvey (2002) in most cases once the warning signs occur, the time has passed to intervene successfully- the student departs, costing both the institution and the student.

Differing student populations and unique institutional missions require that each institution conduct its own research regarding this issue (Bettinger, 2010). For example, once at-risk students have been identified, the institution can begin targeting these students with interventions in order to assist with maintaining enrollment and encourage academic success (Seidman,2005). Because the majority of attrition occurs during the first semester of college, and students are unlikely to seek help until it is too late, these services should be provided earlier in the student's career (Tinto, 1993). Among all public four-year institutions, the freshman-to-sophomore attrition rate was highest at those institutions with open admissions policies (ACT, 2010). Consequently, these types of colleges must look for ways to identify students who might be at risk and to assist them, regardless of their level of preparation, in reaching their college goals.

Bean (1990) found that the most important (retention) variables were likely to differ for subgroups such as lower income students, part-time students, ethnic minorities, women, or academically underprepared students at different types of institutions. In fact, Pascarella's and
Terenzini's (2005) research correlated with Bean’s suggesting that the academic and social correlates of attrition may be different for different kinds of students.

Conflicting findings exist among many of these studies as to whether gender, student goals, the need for remedial education, student grade point averages, contact with faculty, or hours studied can be related to student retention. Pascarella (2005) found that academic integration, measured by grade point average, intellectual development and faculty interaction, is the most influential for retention of open-access students. Unlike traditional four-year college students, open-access students usually do not live on campus, some are married with children, and most of them work at least part-time. Most open-access students have very little social interaction at college; instead, they have social links to organizations outside of the college community. Furthermore according to Bers(1999), it is more important to define academic integration as intellectual development rather than good grades. Furthermore, according to Stark social integration means group work, studying together, and contact with fellow students rather than joining social groups or campus activities. Ashar and Skenes (1993) tested Tinto's model on open-access students. The results showed that fostering social interaction and the social environment needed to take place in the classroom for the open-access student. They found that if social interaction occurs in the class setting, retention will increase.

Students often juggle many roles in addition to student, such as employee, spouse, and parent. Work, family responsibilities, commuting distance to campus, and finances may all have an impact on students' persistence. Often students may be forced to leave school for reasons out of their control and beyond the control of the institution (Seidman, 2005). Because open-access students are more likely to balance multiple roles and responsibilities, the environment external to the institution plays a significant role in their persistence (Braxton & Hirschy, 2005).
Furthermore, students with multiple roles off-campus are at an increased risk for attrition (Johnson, 1999). Studies have found that family obligations have been among the top reasons for student departure at commuter institutions like most open-access colleges (Bean, 1985). These additional responsibilities compete with the academic and social realms of the college, thereby lessening a students' integration, which has the result of decreased persistence. Having a spouse and children to support increases the need to complete college and obtain a higher paying job, but attempting to support that family while in school leaves less time for studying (Leppel, 2002). Specifically, women have been shown to be more sensitive to these responsibilities and have higher rates of withdrawal due to family issue (Tinto, 1993).

Bradburn (2002) examined the characteristics associated with departure at two- and four-year colleges. The results showed that 62% of the married students withdrew within three years, compared with 15% of the students who had never been married. Other studies have reported a negative correlation between marriage and persistence for women, but found a positive correlation for men (Godwyll & Annin, 2007). Women may be more likely to leave school because a spouse relocates or due to lack of spousal support. Summers (2003) studied the relationship between marital status and time to graduation. Single students with no children graduated at a higher rate than married students. Divorce has also been found to decrease an individual's chances for persistence; however, this may be because it forces the student to attend part-time while they pursue full-time employment (Jacobs & King, 2002).

**Socio-Economic Status**

An individual’s socio-economical class background can have a powerful effect on college retention and persistence. In his recent study, Rumberger (2010), found that the odds of
completing college for a student from a high SES background are more than six times higher than for a student from a lower social class background, even when controlling for other predictors such as test scores, grades, and college expectations. Farkas (2003) supports Rumberger and states that differences in educational outcomes between high SES students and low income students are also due to differences in the quality of schools and instructors. Lower SES students are more apt to attend poorer qualities of schools and be subjected to substandard educational practices such as ability grouping, poor retention, and tracking (Kao and Thompson, 2003).

The literature suggests that household socioeconomic status (SES) – normally measured as parental household income and or level of education- is critically important for academic achievement (Johnson, 2011). A consistent factor within the research centers on the amount of time parents spend with their children concerning educational attainment, specifically, post-secondary education. Lareau (2001) suggests that those parents from working class background have less disposable income and time to spend with their children as opposed to the parents from the middle-upper to upper SES levels. Those parents from the higher SES levels, according to Lareau, “can invest in household educational resources, can hire tutors, are more likely to use proper English in the household and have time to meet with teachers”. In addition, higher SES parents are heavily involved with their offspring’s academic activities and tracking placement in high school (Lareau 2000; Lareau and Horvat 1999; Lucas 1999; Massey 2003). These parents convey their postsecondary expectations when their children are young, such as understanding the postsecondary landscape and competitive admission process. Since the mid-1980s, these parents have become painfully aware of the stratification in the postsecondary system and the importance of test scores in admission decisions (Alon, 2009) These opportunities position
higher SES students at a distinct advantage over the low income students when it comes to educational attainment. It is the higher SES students that normally have an academic roadmap in place for post-secondary education achievement. The lower SES students are likely to be “encouraged” to pursue post-secondary education but often attempt to do so without a road map because of scarce funding and/or lack of family guidance (Goldrick-Rob, 2006).

When low versus high socioeconomic status is examined it is normally divided into urban, suburban, and rural communities with the rural and urban population designated as low income and the suburban population designated as high SES. There is substantial literature on urban poverty and how it impacts educational attainment. Most of these studies focus primarily on the African-American and Latino populations. However, the research on rural poverty and its impact on educational attainment are scarce compared to the urban population. The research available on rural poverty and educational attainment primarily focuses on Caucasian students in severely depressed rural areas and rarely includes any racial diversity. According to Harde and Crowson (2009), rural poverty and its impact on education is an important topic that “needs more in-depth and expanded” research to bring to light the issues that truly exist in rural America.

It is evident that current research supports the belief that students from high SES backgrounds are more likely to attend and succeed in post-secondary education compared to students - specifically minority students- from low income backgrounds. In their recent study, Ou and Reynolds (2012) examined early determinants of college attendance and degree attainment for economically disadvantaged minority youth. Ou and Reynolds found that racial and class gaps in high school completion are closing but the gap is increasing at the post-secondary level. If this is the situation for minority youth in low income environments, can the same hold true for minority youth in a higher SES environment?
There has been some research conducted on the topic of minority youth, specifically African American youth, in middle to upper SES environments and academic achievement. Most of what has been published examines the attitude of African Americans towards education and their perception of what is acceptable behavior within their social group as it relates to educational achievement.

There is a strong debate centered on academic achievement and academic attitude among middle class African Americans. In 2003, an anthropologist, John Ogbu, published *African American Students in an Affluent Suburb: A Study of Academic Disengagement*. The book was the result of a study he conducted in Shaker Heights, Ohio, an affluent Cleveland suburb. Ogbu was brought to the school by concerned parents and the community because it was publicized that the African American students were not performing as well academically as the Caucasian students. The study compared the academic achievements and attitudes of African American students and Caucasian students. Ogbu focused mainly on why the African American students appeared to be academically disengaged. In his study, Ogbu applied Oppositional Culture theory which contends that African Americans born and raised in the United States compare their condition with that of the white majority and feel a sense of resentment and pessimism that helps to foster a reactive, oppositional culture (Ferguson, 2005). Ogbu believed that the African American students at the Shaker Heights school were academically underperforming to set themselves apart from their Caucasian peer group. They were concerned that other African American students would view them as acting white or selling out to the Caucasian culture. According to Foley (2004) Ogbu makes a critical distinction that the African American students’ attitude towards academic achievement are adaptations and not inherent
cultural traits. They lower their aspirations to achieve at a high academic level and lower their expectations to be socially mobile in order to not conform to the “white” lifestyle.

Ogbu’s theory and Shaker Heights study is embraced by many who believe the findings are a legitimate reason for academic underachievement by African Americans in higher SES environments. However, there are others that view Ogbu’s findings as flawed and other research has brought to light shortcomings of the Shaker Heights study. One major flaw is that other studies that looked at racial, ethnic, and class differences in school performances were ignored. According to an article by Berlowitz, Hutchins, Jenkins and Mussman (2006) research such as the work of Ainsworth-Darnell and Downey was ignored even though it found that high achieving African Americans students were popular among their peers. The study also found that being a good student as an African American contributed more to your popularity within that group more so than among whites in their group. Foley (2005) adds to the list of research issues when he challenges Ogbu’s stance that “race” is to blame for academic disengagement not social class. Foley continues, “unfortunately, the Shaker Heights study still chronicles more of what middle-class African American families do wrong than what they do right” (Foley. 2005). To many this was Ogbu’s fatal mistake, and it leaves his study open to challenges and discussion.

**Traditional Students**

According to Wilcox (2001) billions of dollars in aid are awarded to students each year to provide access to higher education, reasonable choices among alternative institutions, and financial ability to persist until graduation. Traditional college students are forced to manage a varied array of academic assignments in varied subject areas. Some students may have to manage their time between studying for multiple tests, completing homework assignments,
reading assignments, and completing papers and projects, on top of all of their extracurricular activities. Vaughn (1995) alludes to the fact that open-access colleges face even more difficult challenges as the gateway to higher education for traditional students without the academic background to enter most four-year colleges and universities.

A collaborative study was conducted by Brown and Yang from the University of North Carolina General Administration (2008) These researchers analyzed the enrollment patterns of students from the UNC colleges and universities and the North Carolina open-access colleges that encompassed ten years of cohort data from 1997-1998 to 2006-2007. The researchers concluded that the traditional first-time freshmen enrollment in North Carolina open-access colleges increased 81.2% from 12,891 in 1997-98 to 23,364 in 2006-07. For the past ten years, the proportion of females enrolled in NCCCS has been steady at 54%, with male enrollment at about 46%. American Indian enrollment, between 1 and 1.5%, was slightly higher than that in UNC system. Asian students increased about 2.5% from 1.6% in 1997-98 to 4.1% in 2006-07. African Americans gained a 1% increase, and Hispanic enrollment remained about the same, 2%, over the ten years. The "other" category increased about 3%. Similarly, white students' enrollment decreased 7% from 75% to 68% in the past ten years.

Institutions have been grappling with how to enhance student achievement, satisfaction, and graduation rates for decades. Yet, according to Brahm (2006) despite programs and services designed to help first-year students make the transition to college, graduation and retention rates have not measurably improved for many institutions. All open-access colleges face the difficult challenge of finding solutions to attract, retain and graduate students and the problems associated with attrition. Every year, a substantial number of college students join the growing ranks of students who fail to complete their college education. According to St. John (2000), attrition is
believed to be caused by an extremely complex interaction of a multitude of variables, not just academics. Jones' (2002) findings state that students at open-access colleges are four times more likely to leave school due to non-academic reasons than for academic reasons.

The challenge for open-access colleges is to increase the number of first-time students and returning students (re-enrollment) without establishing costly, labor-intensive programs. Jones' (2002) article titled, *No Magic Required: Reducing Freshman Attrition at Open-access colleges*, suggested calculating the students who have dropped out of the last four freshmen classes. This figure included both full-time and part-time students for not only lost tuition funds, but also formula funding revenues as well. By placing a dollar value on attrition, many faculty and staff become more committed to retention strategies and programs. Colleges need to recognize that simply having retention programs in place does not automatically increase student persistence levels. Programs must be delivered in a timely manner and with appropriate attitudes if retention programs are to succeed. Vaughn (1995) was clear in regards to the amount of activities on students’ schedules. His contention is that students must possess the skills needed to set goals, complete these goals, and avoid procrastination of these goals while meeting schedule demands. When colleges try to attribute low retention rates to one variable, efforts usually fail. Attrition may occur in a variety of manners, including those students who "flunk out," those who transfer to other institutions, those who switch courses within institutions, those who withdraw, and those who significantly reduce their workload.

Race

Of the 557,000 degrees conferred at two-year colleges in the United States in 2009, the vast majority were awarded to Caucasian students. Only 11% were awarded to African
American students, 10% to Hispanic students, 5% to Asian students, and a mere 1% to Native American/Alaska Native students (Snyder & Dillow, 2010). Open-access colleges currently enroll the highest proportion of minority students, yet their graduation rates are not proportional to rates of enrollment.

There are several reasons for this disparity. Many minority students are academically under-prepared for college. They are more likely to have attended secondary schools in high-poverty areas, which results in a lack of academic and financial resources available to the school (Seidman, 2005). Tinto (1982) indicated that commonly identified retention variables had different effects on minority students than on white students. Charles (2007) revealed that African American students typically have "significantly lower levels of pre-college preparation than white students, are less academically integrated, have less satisfaction with their universities, experience more interfering problems, and have less well-developed study habits" than their white peers. For African American students entering predominantly white universities, success in college was dependent mainly on their motivation and goals. Levin and Levin (1991) reported that (a) academic preparedness, high school grade point average and class rank, (b) enrollment in college preparatory courses, (c) adaptability, and (d) commitment to educational goals are student characteristics that have the largest impact on at-risk minority student persistence. For example, O’Gara (2009) found that African American students generally hold less lofty educational and occupational goals than do other students. Levin (2008) noted that SAT scores, student satisfaction, peer relationships, and other intrusive problems had different predictive validity for the retention status of African American and white students. SAT scores, in particular, were not as strong predictors for African American students. Longden (2006) found self-concept, realistic self-appraisal, and preferences for long-range goals were particularly good
predictor variables for retention of minority students. In contrast, Park (2010) found that African American students emphasized the short-term goal of quick entry into the job market more than their white counterparts.

However, Eimers & Pike (1997) reported in the late 1990’s that the academic performance of minority students did not help predict intentions to stay at the institution. More current research by Bailey (2009) insisted that many minority students experience a variety of personal, environmental, and institutional barriers in college. The research by Bailey found that students of color also may find it more difficult to transition into the college setting. Factors such as cultural values and upbringing define the way in which students experience college. They enter college with different value and belief systems, which may result in feelings of alienation and social isolation.

Students of a particular ethnic minority also may lack familial encouragement and community support. The expectation that they obtain a college education is not as great for these students. These factors, combined, with the fact that students of color often have little confidence in their ability to succeed in higher education, frequently lead to withdrawal. Without a strong peer group or mentoring relationship, students of color may struggle with the pressures to assimilate the experiences of racism and harassment, and the pull between the campus culture and their own (Bettinger, 2009). There are studies that have found that many ethnic groups have a much higher dropout rate than average (Hawley & Harris (2005); Cofer & Somers, 2000; Zhai & Monzon, 2004).

The research of Zhai and Monzon (2004) studied the open-access college student retention and discovered that students of African American or Hispanic decent had a much lower
persistence rate than the general student population. Cofer and Somers (2000) researched retention using a sample of 7,500 students at open-access colleges and also observed lower persistence rates among minority students. Cofer and Somers’ work was confirmed by Hawley and Harris' (2005), they examined the predictors of attrition among open-access college students. Hawley and Harris found that meaningful relationships were a key strategy to increase retention among minority students.

Additional current research that adds to the literature concerning race and academic attrition had similar results. Scoggin’s (2005) study investigated the factors related to withdrawal from open-access colleges, and observed that African American students had the highest rates of attrition among any group. Bailey, Jenkins, and Leinbach (2005) reported similar findings.. In their research on minority open-access college students in the United States, they found that African American students had the lowest completion rates at 37%, followed by Hispanic students, who graduated at a rate of 42%. In comparison, over half of all white students persist until degree completion at these institutions. Clark's (2004) study of within-year retention (withdrawing from college during the first year) at an open-access college also revealed lower persistence rates among minority students.

**Gender**

In addition to race, research shows that there is a link between gender and retention. Colleges throughout the United States have experienced increases in female enrollment. Concerned that women have been historically marginalized within the academy, researcher Combs (2010) examined how the educational environment and, in particular, faculty interactions, institutional culture, and the curriculum can affect the manner in which women learn. Combs
noted that the use of certain textbooks and teaching styles reinforce gender stereotypes and ultimately affect the success of female students. Another issue is the cost of higher education. Combs found correlations between retention and family income. In some instances, women will leave school only to return and work to contribute to the family income. The issue of divorce has also forced women to leave college and enter into the workforce. Often, these women struggle going from a dual income household to a single income household. (Peltier, Laden, & Matranga, 1999).

Results of studies conducted on the gender differences in persistence have been mixed. Hagedorn (2010) analyzed the withdrawal patterns of 2,906 students at a large research university. The results of the study found that graduation rates for female students were 20% higher than that of male students. Nippert's (2001) study of open-access college students also found gender to be significant, with females persisting at higher rates. Chen and Thomas (2001) looked specifically at the gender differences in persistence for vocational and technical school students. Again, females were found to persist at higher rates. Similar studies have also found women exhibit higher persistence rates (Boyer, 2002; Freer-Weiss, 2005; Johnson, 1999). Higher persistence rates in women can be attributed to the finding that they interact more with peers while on campus, which increases their level of social integration (Boyer, 2002). Other studies have established that female students achieve significantly higher grades than male students (Grimes, 1997; Weissberg, Owe, Jenkins, & Harbug, 2003). Grimes' (1997) study revealed that the average grade point average of women was 3.0 versus 2.2 for male students. The researcher found that men exhibited more academic difficulties and lower interest in college courses, which may put them at an increased risk for attrition.
To counter the idea that women persist at a higher rate there is some evidence that argues that men persist at higher rates. Bradburn (2002) conducted a study that examined the student background characteristics associated with departure at two- and four-year colleges and found that women were more likely than men to leave their institutions. Zhai and Monzon (2004) conducted a study in which over half of all female students withdrew during their first semester of college, a much higher rate than for males. In Mohammadi's (1996) study of open-access college students, retention rates were also found to be significantly higher for males than for females. Other researchers have ascertained the same results (Grimes & Antworth, 1996; Scoggin, 2005). The higher rates of attrition among women could be attributed to women more likely to withdraw from college due to personal or family reasons (Bradburn, 2002). According to Bradburn women withdraw because of social forces rather than academic forces. Bradburn found that females were twice as likely as males to report experiencing family or personal problems during enrollment. Women have also reported lower levels of self-esteem and higher degrees of test anxiety while in college, which may make them a higher risk for attrition (Grimes, 1997).

Other studies have examined the impact that gender has on attrition and have discovered no significant difference between the retention rates of males and females (Cambiano, Denny, & Devore, 2004; Leppel, 2002). According the National Center for Education Statistics, males and females were equally likely to have attained a college degree (National Center for Education Statistics, 2005). Bailey, Jenkins, and Leinbach (2005) researched data from postsecondary institutions in the United States and also found no difference in the completion rates of males and females.
Academically Unprepared Students

A level of academic resources has been found to impact student retention at both open-access college and university settings. Cabrera et al. (2006) and ACT (2010) found that among students aspiring to the associate, bachelor's degree, higher levels of academic resources have a positive effect on ultimate retention to earning the degree. Cabrera found that at both the open-access college and the four-year university, the level of academic resources students bring to their educational experience was positively correlated to earning their degree, an event that would be related to retention.

Academic variables such as first-semester grade point average, program of study, date of admittance, enrollment status, and course-taking behavior have all been identified in research as significant predictors of college success. Calcagno et al. (2008), assert that these variables have a significant effect on student persistence, because they impact the manner in which students interact with the institution. Students' academic experiences influence their attitudes about college and, therefore, their intent to persist.

Schudde (2011) studied two- and four-year students at a commuter institution, and found that academic variables such as GPA, major, enrollment status exceeded demographic factors in predicting student persistence. Such factors as race, gender, and SES have been shown to be predictive of a student's academic integration into college. An interesting explanation by Schudde suggests that because of their decreased social integration into the institution, commuter students are more likely to be influenced by these academic factors as opposed to demographic factors.
One variable that has been recognized to have a negative impact on persistence is beginning the admission process late in enrollment cycle. Students who procrastinate and wait to apply may not be totally committed to the institution or be mentally prepared to be a successful student. These students have been found to have lower grades, as well as lower persistence rates (Smith, Street, & Olivarez, 2002). The impact of late admission is not only problematic for the student but for institutions as well. It places a strain on the system when colleges are unable to predict the number of instructors needed for each course (Freer-Weiss, 2005). Open-access colleges are even more prone to this dilemma, due to their unique mission to increase access and enroll as many students each year as possible. These institutions generally do not have strict admissions deadlines, allowing students to enroll regardless of when the student applied. Freer-Weiss (2005) examined the demographic and academic characteristics of 785 open-access college students. The study found that students who apply to the institution later do not perform as well academically and are at higher risk for attrition than students who apply early. It was discovered that students who apply late for admission have a different set of characteristics, do not tend to perform as well academically, and are at higher risk of attrition than those who apply early. It was concluded that these students were probably less motivated and less committed to their education. Of the students who applied three weeks or fewer before the start of the term, 36.9% withdrew that first term, as opposed to 19.7% of the early applicants. Students who apply earlier also have more time to apply for financial aid, attend orientation sessions, receive adequate advisement, and have less difficulty getting into needed classes, which may aid persistence (Freer-Weiss, 2005).
Summary

The review of the literature demonstrates and reveals the current issues that impact student retention, the retention models presently used in post-secondary research, and how retention research is applicable to open-access institutions. This study will provide evidence on the factors that impede retention and is expected to reveal a deeper understanding on how to develop retention improvement programs to help open-access colleges focus attention on those students from a lower socio-economic background. Based upon the literature review, the major factors that impact student retention and academic success are: income level, Race, gender, and the academic preparedness of the student.

There are many approaches to increase retention rates at open-access colleges. What is important to understand is that each college is different and that one particular retention program can’t be applied to several schools with the same outcome. The literature reveals that continuous research must be performed by the colleges individually to develop strategies and programs that are suited to aid their specific student population.
Method

Design

This study makes use of a nonequivalent groups design in that it compares several variables between students from the lowest income group (< $500 EFC) and the higher income categorization (> $7000 EFC). Estimated Family Contribution (EFC) is a measure of the household income that is recorded on the Free Application for Student Financial Aid (FAFSA) form. The EFC is the amount of money the family is expected to contribute towards the college costs of the student applying for financial aid. Many factors such as taxed and untaxed income, family size and benefits (unemployment and Social Security) are reflected in the final EFC amount. Furthermore, hierarchical multiple regression analyses are used to test a model predicting GPA and number of quarters completed. The contributions of specific predictors of income, ethnicity, math placement test scores, and English placement scores are examined.

College Population

The population for this study was comprised of open-access students located at a suburban regional campus of a Research I university in the mid-west. Students commute to the college and most live within 50 miles of campus. Some of the students are currently working on a certificate or an associate degree in order to gain employment upon graduation, 45%. Many students express the desire to transition to the main university from the regional campus to complete a Baccalaureate program, 55%.

The total college population is 5,221 consisting of 62% female students and 38% male students. Nearly half, 49%, of the freshman population are considered first generation college
students. The college attracts students from urban, suburban, and rural neighborhoods which provides both a racially diverse population as well as a diverse socioeconomically population.

74% (3,864 students) applied for financial aid. Of those students, 39% (1,506) were deemed to be in financial need and eligible for federal grant money. 82% of those students eligible for financial aid opted to take out student loans averaging $3850 per loan. The average EFC for the college is 5,955.

Academically, the average incoming high school GPA is a 2.55 and after one academic year the average college GPA is a 1.87. The Students’ average completion rate (percent that complete a degree/certificate) is 31.67%. The average GPA and completion rate of this population are similar to other two-year open-access institutions. Nationally, only 32% of community college students graduate with a degree or certification within five years and carry an average GPA of 1.93 (Horn & Berger, 2004). Thus, this school is similar to other two-year colleges nationally.

Sample

The research sample was chosen from 1000 students. Students were divided into two groups (high income and low income) based upon their Estimated Family Contribution (EFC) from their Free Application For Student Aid (FAFSA) form. Both groups were chosen from the school population based upon their EFC range, either low or high. Low income students were from the lowest EFC range between 0-$500 and the high income students were from a higher EFC category of greater than $7,000.

Only students between the ages of 18–24 were chosen for the sample. Unlike most open-access colleges where the majority of students are older and considered non-traditional students the college at the center of this study has recently experienced a sharp increase in traditional aged
students and a decrease in non-traditional students. The decrease of non-traditional students may be attributed to an increase of other colleges established in the immediate area that offer more attractive programs of study geared towards the adult learner. The traditional age student population has increased due to the direct result of the main campus increasing the admission criteria and referring those students that are denied admission the opportunity to begin at the regional open-access campus. Students that are 19 and younger have increased 66% in the past five years while students 30-39 have decreased 9% in the past five years. This increase has caused a shift in the average age of the student population. In 2005, the average age at this regional campus was 26 years old and in 2011 the average age decreased to 24 years old. The age range for this sample (18-24) was chosen in order to gain a better understanding of the type of student that has increased at the college and to gain insight of their academic performance.

As the average age has decreased, racial diversity has increased. Students of color have increased steadily over the past five years but have recently spiked with an 8% increase over the past year. African Americans represent the largest group with (836 students) 16% of the total population. Hispanics represent the fastest growing minority group with a 32% increase (87 to 107) from 2009.

**Variables**

The research variables for this study were chosen to examine factors that can impact students during their first year at an open-access college. Based upon previous research, particular attention was given to the income background, ethnicity, age, and gender of the students (Padgett et al., 2006). English and Math placement scores were tracked as well as students’ academic performance (GPA, academic action), whether or not they had dependents, and from what type of high school they attended (urban, rural, suburban or GED program). The
variables were used to provide a more detailed picture of the factors that impact both the persistence and retention of open-access college students. A description of the variables follows.

**Race** – Due to the student population shift, it is important to examine ethnicity in this study. Previous studies have found that ethnicity/race to be a significant predictor of the retention of undergraduate students (Astin, 1998; Murtaugh et al., 1999; Peltier et al., 1999). The four major groups included in this sample are: African Americans, Hispanics, Asians, and Caucasians. There was a smaller group of students that identified themselves as “unknown” and did not self-identify with any of the aforementioned Race category. This unknown group, in addition to Hispanics and Asians, were not included in the analyses. Two groups, African American and Caucasian, were used in the analyses. The two groups were chosen due to their percentage size and their ability to provide a rich data source. Table 1 details the race/ethnicity breakdown of the study and Table 2 displays the raw numbers of African American and Caucasian participants.

**Table 1**

*Race of Study Sample by Percentage*

<table>
<thead>
<tr>
<th>Race</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American</td>
<td>36%</td>
</tr>
<tr>
<td>Caucasian</td>
<td>57%</td>
</tr>
<tr>
<td>Asian</td>
<td>4%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>2%</td>
</tr>
</tbody>
</table>

Note. Less than 1% of the sample population identified themselves as *unknown* and did not choose a race.
Table 2

*Number of Participants by Race and Income Level*

<table>
<thead>
<tr>
<th>Race</th>
<th>Low Income</th>
<th>High Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American</td>
<td>316</td>
<td>50</td>
</tr>
<tr>
<td>Caucasian</td>
<td>170</td>
<td>399</td>
</tr>
</tbody>
</table>

**GPA** – As supported by current research and literature, GPA is a leading indicator of both academic persistence and retention (Fletcher & Tienda, 2009). Many studies have linked that a higher GPA normally increases both persistence and retention rates (Conley, 2007). Students are more likely to have developed sound academic habits when they possess a higher GPA (Geiser & Studley, 2002).

**Gender** – Similar to most post-secondary institutions female students out-number the male students at this institution 3,237 to 1,984. From 2000 to 2006, women attending a post-secondary institution increased at a higher rate than for men (King, 2006). According to King, women comprised 57% of the enrollment in higher education in 2006. In this study, gender was examined to see if any external responsibilities may hinder persistence and retention, for example, how does having children or working to support a family impact a students’ college education.

**Persistence** – At an open-access institution persistence can be directly impacted by a change in external responsibilities, financial issues, or academic challenges. Persistence is measured by how many consecutive terms a student is enrolled and has completed successfully.
**Academic Action** - Academic action normally occurs when students fail to meet satisfactory progress in their studies and as a result are placed on probation, suspension or if poorly enough dismissed from the college. A student is placed on academic probation if: 1) The student has a total of 10-49 credit hours and a cumulative GPA is less than a 1.7. 2) The student has a total of 10-49 credit hours and the cumulative GPA is less than a 2.0 and the quarter GPA is less than a 1.7. 3) The student has a total of 50 or more credit hours and the cumulative GPA is less than a 2.0. Student academic suspension is more severe. If a student is suspended, he or she must sit out one academic year before officially returning to the college. A student is placed on academic suspension if: 1) The student has a total of 34-49 credit hours and a cumulative GPA is less than 1.4. 2) The student has a total of 50 or more credit hours and the cumulative GPA is less than a 1.7. 3) The student has received a third probation within three consecutive quarters. If the student returns to the college and meets the criteria for academic suspension a second time the student will be academically dismissed. A dismissed student may not return to the college and take courses. Students who attend open-access institutions are more likely to experience academic action than those that attend a typical four-year college (Moore & Shulock, 2007). According to a study by Moore & Shulock (2007), 20% of community college student experience some form of academic action during their attendance. The presence or absence of academic action was included as a nominal variable.

**Dependents** – Previous studies suggest that attending college as a married or single parent is stressful and can have a negative impact on post-secondary education performance and retention (Porchea, 2010). Students with parental responsibilities in addition to their academic workload are more likely to miss class or struggle with persistence due to outside obligations.
The presence or absence of dependents was included in this study as a nominal value.

**Placement Test Score—English** – Nationally, approximately 35% of incoming open-access college students test into remedial English (Attewell, 2006). In 2011 at this college, 53% of the students that were administered the English placement test at the college in this study placed into remedial English classes. This skill is crucial for persistence and retention because many upper level classes require strong writing and reading comprehension skills. The English placement test is a 75 minute test that measures both reading comprehension and writing ability. Placement scores range from 1-5. If a student scores a 1 or 2 they are placed into the most remedial English class that incorporates reading and writing skills. Students that score a 3 or 4 are placed into a higher level remedial class just under college level material. All students that receive a 5 are placed directly into a college level composition class.

**Placement Test Score—Math** – Similar to English, Math is essential for upper level studies especially in science, computer studies, and engineering. Most students that begin at open-access colleges test well below college level math. Approximately, 62% of community college students place into a remedial math class (Johnson, 2009). Students must take several developmental classes to get them to college level instruction. Taking several remedial courses can slow academic progress and impact persistence and retention. 69% of the freshman student population in this study that were administered the math placement test were placed into remedial level math. The math placement test is comprised of an online test that leads a student through a battery of mathematical equations and concepts. The higher the student’s mathematical skill-level the more difficult the problems become and the duration of the test is lengthened. Upon completion if a student scores below a 435 they are placed into a remedial math course. If
students score above a 435 they are considered to possess college level math skills and are placed into the appropriate class that matches mathematical ability.

**High School Type** - Four specific types of schools are examined in this study. The categories are divided into urban, rural, suburban, and GED programs. The high school type was categorized based upon the location of the high school in relation to a local metropolitan city. The high schools closest to the downtown metropolitan area (0-10 miles) were categorized as urban. Those high schools furthest from the downtown metropolitan area (30+ miles) were categorized as rural. The remaining high schools that were 11-30 miles from the downtown metropolitan area were categorized as suburban. The fourth group was categorized as GED students because they did not graduate from an area high school and completed a local GED program. Like most open-access colleges the regional college in this study attracts students from each type of high school. The study was comprised of 16% rural high school students, 12% GED students, 72% urban high school students and 50% suburban high school students. It is important to understand where the students attended high school because it helps to gauge their academic preparedness.

**Procedure**

Before the research was conducted, the researcher obtained IRB approval. All names and student ID numbers were deleted in order to protect students’ anonymity.
Results

Overview

The purpose of this study was to examine the demographic factors and academic success of open access college students from low income and high income backgrounds. Particular attention was focused on the academic performance of the students. Four questions guided this study:

1. Do low income and high income students differ in their academic success (i.e. GPA, quarters completed, academic action)?
2. Do race and gender predict academic success? If so, do they predict independently of income?
3. Explore how placements tests contribute to predicting academic success.
4. Explore correlations of demographics with placement tests.

In this study, the relationships among these variables were examined: (a) student demographic characteristics – age, race, gender, high school attended, household income level (EFC), (b) academic performance – grade point average, academic action, English placement test, and math placement test, and (c) number of quarters attended, and (d) transfer/graduation rate. Each of the variables was measured to track the academic success of the students with the goal of discovering challenges that interfered with successful academic performance.
1) Socioeconomic Background and Academic Success

Research question one investigated the difference between students from low and high socioeconomic backgrounds on their academic success, specifically, their college GPA, academic action status, and the number of academic quarters they completed. The main effects of income were examined from a 2(Race: Caucasian/African American) X 2(Income: High/Low) ANOVA on GPA and quarters completed. A chi-square test examined the relationship between GPA and the dichotomous variable of academic action which was recorded as yes or no.

The mean college GPA for low income students was 1.12 ($SD = .08$) The mean GPA for high SES students was 2.47 ($SD = .09$) The difference between students’ GPAs from low and high socioeconomic backgrounds was significant, $F(1, 931) = 315.41, p = .0001, \eta = .5$.

The impact of socioeconomic background carried over to academic action (measured as a dichotomous yes/no variable) as well. Out of the 1,000 students in this sample, 334 were placed in some form of academic action status (including probation, suspension, or dismissal). Out of the 334 placed in academic action status, 230 (68.8%) were categorized as low income students and 104 (31.2%) were categorized as high income students. A chi-square comparing low and high income students on their academic action status showed that action dependent on income significantly, $\chi^2(1) = 71.371, p < .001$. Figure 1 depicts that for low income students, 46% of them ended up in academic action status, whereas, only 21% of high income students were placed in academic action status.
Figure 1. Percentage of students grouped by income level and academic action status.

In addition to GPA and academic action, the researcher also examined the number of quarters completed by income. Students from the high income cohort completed more college than those students from the low SES cohort, \( F(1, 931) = 228.14, p < .001, \eta = .443 \). Figure 2 shows that higher income students complete more quarters than low income students.

Figure 2. Number of quarters completed based upon income level
In addition to GPA, academic action, and quarters completed by income the transfer/graduation rate was also examined. There was a significant relationship between the transfer/graduation rate and income. Students from the high income cohort experienced a higher transfer/graduation rate than those students from the low income cohort, \( \chi^2(1) = 166.67, p < .001 \). Figure 3 shows that higher income students transfer/graduate at a higher percentage rate than low income students. These values underestimate the success of students at the college because a number of students transfer to institutions that aren’t tracked, or other students do not have as their goal to earn a degree, but are simply interested in taking classes within a program. Nonetheless, this error in the measurement would only make it less likely to find a difference by income, so it is still notable that income matters, even with this incomplete measure of student success.

Figure 3. Percentage of students by income that transfer/graduate successfully
In sum, in answer to question one, students do differ on their academic performance by their income level. Low income students have lower GPAs, are more likely to be in academic action, and complete fewer quarters of college.

2) Gender, Race, and Academic Success

Research question number two addresses the interaction between two specific demographic variables on academic success—gender and race. The main effects of race and gender, and the interaction effects from a 2(Gender) X 2(Income: High/Low income) ANOVA, and a 2(Race: Caucasian/African American) X 2(Income: High/Low income) ANOVA on the three variables of academic success address this question. The measures included college GPA, quarters completed, and academic action.

Gender. In terms of a main effect of gender on academic success, females were more successful than male students in this sample. The GPA for females was significantly higher than for males (M = 1.93 (SD = 1.104) versus M = 1.67 (SD = 1.09), F(1, 996) = 5.87 , p < .02 , η =.01. Women completed more quarters (M = 3.08, SD = 1.39) than men (M = 2.82, SD = 1.24), F( 1,996 ) = 3.66, p <.09   , η = .054 but this difference was only marginally significant. Although men were slightly more likely to be in academic action status (35% of men) than women (31% of women), this difference did not achieve statistical significance, $\chi^2 (1) = 1.36, ns$. Women were significantly more likely to transfer or graduate (27%) than men (17%), $\chi^2 (1) = 14.40, p < .0001$.

There is a significant interaction between gender and income on quarters completed, $F(1,996) = 4.18, p = .04, \eta = .06$. Figure 4 shows that for those in low income, males and females perform similarly low. For those in higher income, females slightly outperformed the
higher income males. The interaction effect, though significant, is small, and the main effect of income on quarters completed is more important.

Figure 4. Number of quarters completed based upon income level and gender.

However, this pattern did not hold for GPA. There was not a significant interaction between gender and average GPA, $F(1,996) = .89$, $ns$. Figure 5 shows that income is the main variable that matters for GPA.

Figure 5. Average GPA grouped by gender and income.
This gender effect is somewhat surprising given that our female students are more likely to care for dependents. Thus, this variable was examined as an additional predictor of academic success. A comparison of the GPA mean, academic action mean, quarters completed mean, and transfer/graduation rates mean shows that for GPA and quarters, having dependents decreased GPA and quarters significantly. Table 3 shows these findings by dependents. There was no significant relationship with academic action and dependents, \( \chi^2 (1) = .73, \text{ns.} \) Nor is there an effect for transfer/graduation rates with dependents, \( \chi^2 (1) = .42, \text{ns.} \)

Table 3

*Academic Success with Dependent Children vs. No Children*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Dependent Children</th>
<th>No Children</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( M ) (( SD ))</td>
<td>( M ) (( SD ))</td>
</tr>
<tr>
<td>GPA*</td>
<td>1.35 (1.05)</td>
<td>1.82 (1.10)</td>
</tr>
<tr>
<td>Academic Action</td>
<td>38%</td>
<td>33%</td>
</tr>
<tr>
<td>Quarters*</td>
<td>2.58 (1.35)</td>
<td>2.96 (1.31)</td>
</tr>
<tr>
<td>Transfer/Grad Rate</td>
<td>18%</td>
<td>22%</td>
</tr>
</tbody>
</table>

Note.* t-tests are statistically significant, \( p < .05 \).
All participants traditional age < 25 years students only
\( \chi^2 \) tests showed no significant relationships for Academic Action and Transfer/Grad rate.

For GPA and quarters completed, the study shows that females without dependent children significantly outperformed students without children. The t-tests results were females without dependents for GPA \( t(998) = 3.90, \ p < .001 \) and for Quarters completed \( t(998) = 2.64, \ p < .01 \)
Race. Because our largest groups at the college include African American students and Caucasian students, these were the only racial groups included in the analysis. Main effects of race for all three success variables were examined. There was not a significant main effect of race on GPA, $F(1, 931) = .20$, ns. Similarly, there was not a significant main effect of race on quarters completed $F(1,931) = 2.33$, ns. However, there is a significant relationship between race and academic action, $\chi^2(1) = 62.93, p < .001$. In this sample, 49% of African American students were on academic action, and only 24% of Caucasian students. By examining income, next, this provides a fuller picture of the factors affecting success.

There is a significant interaction between race and income level on GPA, $F(1, 931) = 4.44, p = .04, \eta = .07$. Figure 6 shows that income matters more than race, and the lowest performing group is the low income African American students. For quarters completed, the interaction between race and income was not significant, $F(1, 931) = .83$, ns.

![Figure 6. Average GPA based upon income level and race. African Americans on high income group had highest GPA average.](image-url)
There is a significant relationship between race and transfer/graduation rate, $\chi^2 (1) = 55.51, p < .001$. Only 9% of African American students transferred or graduated, and 30% of Caucasian students transferred or graduated. However, what must be understood is that race does not show the entire picture, because when income is also considered, the transfer/graduation rate changes dramatically for higher income African American students. Figure 7 shows the impact of race and income on the transfer/graduation rate.

![Figure 7. Transfer/Graduation rate by race and income.](image)

Figure 8 shows the relationship of academic action by race and income.

The relationship between the variables is significant, $\chi^2 (1) = 62.93, p < .001$, and the pattern shows that for African American students, income seems to matter more than for Caucasian
students. For African American students, those with high income are at lower risk for academic action than the Caucasian students, but those with lower income are at higher risk.

![Bar chart showing % in academic action by race and income level]

Figure 8. Students grouped by race and income impacted by academic action.

In sum, in answer to question two, race and gender can impact academic success. However, to completely understand the effect of these demographic variables, income must be an important consideration. Additionally, when examining the success of female students, having dependents is an important consideration.

3) Placement Tests and Academic Success

Research questions three and four examined the impact of placement test results and academic success. Figure 9 and Figure 10 show that income is a prominent predictor of placement test scores. Correlations between placement tests and academic success were significant. The following is the correlation for the math placement score and GPA, quarters...
attended, and academic action. For math and GPA the correlation was $r (1000) = .32, p < .001$.

In reference to math placement and quarters attended the correlation was $r(1000) = .25, p < .001$. The correlation for math/academic action was similar $r (1000) = .18, p < .001$. The correlations with the English placement test had similar findings. In reference to the English placement test score and GPA, $r (1000) = .29, p < .001$. With English placement and quarters attended the correlation was $r(1000) = .24, p < .001$. Finally, the correlation between English placement and academic action was $r (1000) = .16, p < .001$. The correlation between the math and the English placement tests was significant, $r(1000) = .64, p < .001$.

Figure 9. Average math placement scores by income level.
Effects of High School Type

Figure 11 and figure 12 show performance on English and math placement tests by type of high school—suburban, urban, rural, or GED. There is a main effect of high school type on math placement scores, $F(3, 996) = 82.73, p < .001, \eta = .45$. Suburban schools outperform the other three categories. Similarly, there is a main effect of high school type on English placement scores, $F(3, 996) = 84.27, p < .001, \eta = .45$. For English, suburban and rural schools outperform urban and GED students.
Figure 11. Average English placement test score by high school type. A score greater than 4 indicates placing into college level English. Scores lower than 4 require remediation.

Figure 12. Average math placement scores based on high school type. A score below 300 indicates placement into lower level remedial math classes. Scores over 400 indicates placement into intermediate remedial math classes. The cut off for college level math is 430.
Not only does high school type affect placement test scores, it also affects success when students are in college. Figure 13 shows that suburban students have higher GPAs ($M = 2.46$, $SD = .91$) than the three other groups ($M$'s $< 1.24$), $SD$'s $= .81$ to $1.91$ $F(3, 996) = 201.21$, $p < .001$, $\eta = .614$. Figure 14 shows that there is a similar pattern with quarters completed, $F(3, 996) = 123.67$, $p < .001$, $\eta = .520$.

![Figure 13. Average college GPA based on high school type](image-url)
In terms of being placed in academic action, 22.5% of students from rural schools ended up in academic action, 53.7% of students from urban schools, 29.8% of students with a GED, and 20.8% of suburban students. This relationship is significant, $\chi^2 (3) = 107.66, \ p < .001$.

**Overall Models Predicting Academic Success**

Table 4 shows the results of a stepwise regression analysis for college GPA as well as quarters completed in which income is entered in the first step, ethnicity is entered in the second step, and placement tests are entered in the third step. This regression analysis reveals that all three predictors uniquely and significantly affect the predictive power of the models. Math placement contributes to GPA significantly, but not to quarters completed. English placement scores do not uniquely add to the models. However, both combined do contribute to significantly predicting both college GPA and quarters completed.
Table 4

*Hierarchical Multiple Regression Analyses Predicting Number of Quarters Completed and GPA from Income, Race (Caucasian or African American), and Math and English Placement Scores*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>GPA</th>
<th>Quarters Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ΔR²</td>
<td>β</td>
</tr>
<tr>
<td>Step 1</td>
<td>.19***</td>
<td>.157***</td>
</tr>
<tr>
<td>Income</td>
<td>.31***</td>
<td>.32***</td>
</tr>
<tr>
<td>Step 2</td>
<td>.05***</td>
<td>.014***</td>
</tr>
<tr>
<td>Race</td>
<td>.19***</td>
<td>.09**</td>
</tr>
<tr>
<td>Step 3</td>
<td>.02***</td>
<td>.012***</td>
</tr>
<tr>
<td>Math Placement</td>
<td>.13**</td>
<td>.06</td>
</tr>
<tr>
<td>English Placement</td>
<td>.03</td>
<td>.07</td>
</tr>
</tbody>
</table>

Analyses included 933 participants. *p < .05. ** p < .01. ***p < .001.

Looking at questions three and four, the data supports the finding that placement test scores do successfully predict academic success. Higher placement test scores yielded higher GPAs, more quarters attended, and less cases of academic action. Furthermore, both income and the type of high school attended had a significant impact on placement test scores and academic
Discussion

The purpose of this study was to investigate the academic success of low income students compared to high income students at a Midwestern open access institution. Specific environmental predictors such as income, gender, Race, type of high school attended, academic performance and entrance placement tests were used to measure academic success, persistence and retention. The context in which this study was conducted reflected the lack of research directly related to open access institutions and in particular the lack of research examining student characteristics as factors determining overall academic success, persistence and retention. This type of study, although similar in nature to studies conducted for traditional four-year institutions, is rare and is largely absent in the open access college research literature.

While it is understood that most higher education research focuses on four-year private and public colleges/universities, the fact remains and must be stressed that there is a trend that demonstrates that more students are choosing open access colleges in the U.S. instead of traditional colleges or universities. There are approximately 6.6 million students (43% of U.S. college students) enrolled in 986 open access colleges in the United States (Blaime, 2010). As a result, over the past thirty years, open access college enrollment has more than doubled and continues to expand at a rapid pace. Due to this increase in student population and the increased popularity of post-secondary education it is important to discuss how the open access college landscape has changed since the mid-twentieth century and that further research is needed on the mission and success of open access education.

When the open access model was first implemented on a large scale the main purpose was to give soldiers returning from war and the middle class an opportunity to engage in
a post-secondary education opportunity (Cross, 1974). In the 1960’s, the Civil Rights movement provided an avenue for African Americans and other minorities into post-secondary education via the open access college (Landry, 2011). By design, the curriculum of the open access institution during that time was firmly grounded in remedial education and the cost of education was affordable (Cohen and Brawer, 2010). The locations of these open access colleges were centrally located and easily accessible by public transportation thus helping the population of students to grow. In the early1970’s and well into the mid 1980’s the post-secondary education boom had started and the spreading of these open access colleges began. As inner city population began to take flight to the suburbs, the open access colleges followed the trend and began to establish campuses in the suburbs as well (Karen, 2002). It was also during this time of flight to the suburbs that the cost of education began to increase.

During the 1980’s the cost of education started to outpace inflation. It was during this decade that more students began to rely on student loans as opposed to using 100% grant money to cover their tuition cost (Chen, 2008). The new open access colleges had to offset such expenses as building costs, increased faculty/staff, and the groundwork for computer technology (Tierney, 2009). As a direct result, it was the student that experienced an increase in tuition cost as well as more financial aid responsibilities. What must stressed here that even with this increase of tuition on the open access institutions they were still, by far, more affordable than traditional public universities and private colleges at that time but they were not immune to the inflation experienced by other higher education institutions.

Open-access colleges continued to grow in the 1990’s and into the early 21st century. It was during this time that proprietary open access schools and online post-secondary options became more popular. Beach and Grubb (2011) describe this movement as an “explosion of sub-
During this time, these types of educational opportunities began to siphon off students from the traditional higher education path and even the open access college path. These education markets generally target low-income, working class youth and adults by promising them easy access and accelerated formats. In his work, *Digital Diploma Mills* (2001), David Noble views online colleges as agents of erosion to the landscape of higher education. Along with many scholars, Noble was not fooled by the corporate tactics aimed at poor and working class people of the United States. Rather than new opportunities for students, Noble argued that online universities represent new opportunities for investors to profit. Similar to Noble, Wilson (2010) has the same opinion of proprietary schools and explains that they pressure low income and often first-generation students into an educational agreement that is heavily dependent upon massive amounts of student loans and grant money. According to Wilson, students from proprietary institutions borrow more than students in other sectors of higher education, and have the largest student-loan default rates. Cellini (2010) adds to Wilson and Noble by stressing the point that despite the high cost and the amount of financial aid required to obtain a degree from proprietary institutions; those institutions enroll about 7 percent of the nation’s college students.

As can be seen the open access college mission and original purpose has evolved and changed into something more complex. The road to post-secondary education has more avenues to choose from than ever before. Many students who have earned a four-year degree find it necessary to begin at an open access institution as a means to enhance academic knowledge or acquire the necessary job skills for future career goals. Still, others from working class and low income backgrounds that may not be accepted to a traditional college or university due to elevated admission standards are forced to rely on the open access path for a chance at post-

secondary education. The need for open access research is evident and must be conducted on a wider level. Thus, this study is important because it looks specifically at variables that impact the academic success of two year open access students. It is paramount to include open access data and statistics to current retention and academic success research because so many students are choosing the open access college route and the research on open access retention and success is limited.

The remainder of this chapter is divided into four sections. The first section will discuss the overall findings of the research. The second and third sections will address the limitations of the study as well as recommendations for further research. The final section of this chapter is the conclusion, and it will discuss recommendations for best practices.

**Findings**

The results produced by the research strongly suggest that a student’s socioeconomic background plays a major role in their college academic success. The data also reveal that other predictors such as gender, race, placement test scores and the type of high school attended can impact both retention and academic success. The psychological and sociological impact of these factors are echoed in existing retention research that has been conducted by Vincent Tinto (1993), John Bean (2003), and Alexander Astin (1993). The nature of their research centered on the academic success and retention of students in a four year college/university environment. They each examined sociological factors and experiences that contributed to the decision of a student leaving or remaining in college. Tinto and Bean emphasized that the sociological factors and psychological attributes shaped by pervious experiences are what triggers how long a student remains enrolled at a college or university. Astin stressed that a student’s involvement in the
college community was just as important as positive involvement in the classroom to the academic success and retention of the student.

Similar to the research findings of Tinto, Bean, and Astin, this study shows the importance of a number of pre-existing factors like demographics, placement scores, and high school type on successful retention. In this study, students who scored higher on placement tests, entered the college from a more rigorous high school curriculum, and had a higher household income persisted at a higher rate and had higher college GPAs than those that scored lower on their placement test scores, entered college from a less rigorous high school curriculum, and had a lower household income. These findings are consistent with previous research, for example, according to Glynn (2003), the retention theories of Tinto, Bean, and Astin stressed that both academic success and retention were mainly dependent upon incoming social factors (race, income, gender, high school) and the ability to connect socially and academically with college faculty/staff and peers. It was found that those students that successfully established meaningful connections with the college community and had positive pre-college social experiences were more likely to achieve academic success.

Although this study did not research the college social connection with faculty, staff, and collegiate peers found in the studies performed by Tinto, Bean, and Astin, results were consistent with their findings concerning the impact of race, gender and socioeconomic background on academic success and retention. There were significant relationships between the academic successes of the students and their socioeconomic background as well as race and gender. The remaining portion of this section will discuss the impact of income, gender, and race on academic success.
Income. In terms of GPA, when the average college GPA was studied it was found that the students from a low income environment had an average GPA of 1.11 (4.0 scale). In comparison, it was discovered that students from a higher income background achieved a higher GPA. These findings were not only limited to GPA. When the aspects of academic action, quarters completed, and transfer/graduation rate were examined similar findings were revealed. In reference to academic action (suspension, probation, continued probation, and suspension), a similar pattern was discovered. Lower income students in this study were more than twice as likely to be placed on academic action as lower income students. Similar to GPA and academic action, retention was impacted by socioeconomic background. Students that were from a low income background had an average quarter completion rate of only 2.25 quarters which is less than one academic year. Less than 5% of this group managed to either transfer or graduate. The higher income students performed better with an average quarter completion rate of 3.61 (more than one academic year) and a transfer/graduation average of 38.4%. The statistics for this low income group was truly shocking and placed them at a disadvantage both emotionally and financially. Emotionally, they had to deal with academic failure and self-esteem issues as well as the feeling of a lost opportunity. Financially, many of these students relied on financial aid funding in the form of grants and student loans to pay their tuition, fees, books, and living expenses while enrolled. For those students that secured student loans they must begin to start the re-payment of those loans with or without employment. This undoubtedly will place strain and stress on their lives as they struggle to pay for a missed educational opportunity.

Gender. In addition to income, gender was considered as a predictive factor in academic performance and retention. The data in the study revealed that females outperformed males academically and had a higher retention rate. Males were also more likely to be placed on
academic action for poor grades. The gender data from this study supports what is found in past and current research literature. Mui-Vuong (2009) demonstrated that females outperformed males in average GPA, retention, and graduation rates among first-generation students. Her findings emphasized that female students were more likely to establish a connection both inside and outside of the classroom as opposed to the male students. This connection, according to Mui-Vuong, allowed the females to persist at a higher rate. However, when female students have dependent children, the statistics drastically change. According to Crisp (2010), females with dependent children are nearly three times as likely to withdraw from college compared to female students without dependents. Similar to Crisp, this study found a slight decrease in academic performance when female students had dependent children, but the findings were not as strong. In the categories of GPA, academic action, quarters completed, and transfer/graduation, females who had dependent children did worse than both male students and female students without dependents. One reason for this finding might be that 96.5% of the female students that had dependent children were members of the low income group. Dependent children can have an impact on academic performance. The stress of balancing such things as childcare and the fatigue involved in caregiving can hinder academic performance. Dependent children may also have an indirect impact on income because it may require more work hours and demand on the parent. Based upon the data found, the combination of low income and dependent children are detrimental to female academic performance and success.

**Race.** A third predictive factor analyzed in the study was race. African American and Caucasian students were the largest group within the study. In regard to income and race, the data support the idea that income is more of a factor than race when GPA and quarters completed are considered. In the study, the African American students in the higher income group
academically out-performed the African Americans and Caucasians in the lower income group, as well as the Caucasians in the higher income group. This unique finding is important because it stresses the importance of income in academic performance and success. The finding also challenges the idea that a student’s race solely impacts their academic performance in such a way that students are automatically at a disadvantage.

This significant finding contradicts the research of the late anthropologist, John Ogbu. Ogbu developed one of the most theoretically provocative explanations for racial/ethnic differences in school performance: oppositional culture theory (2003). Ogbu’s theory viewed racial/ethnic gaps in performance as a product of structural disadvantage. The theory suggests that minority groups contribute to their own demise by developing a culture in opposition to education. According to the findings, students in the study had a perception that they were not as smart as the Caucasian students. They also experienced peer pressure and felt that in order to fit into the African American peer group they had to adopt a negative attitude towards academic success. In his 2003 book, Black American Students in an Affluent Suburb: A Study of Academic Disengagement, Ogbu summarized his nine-month research on the educational gap between Caucasian and African-American students in the Shaker Heights City School District located in the upper middle class Cleveland, Ohio suburb. Ogbu argued that these students' cultural attitudes towards academics and the work involved with success hindered their own academic achievement.

Although Ogbu’s theory and Shaker Heights research was widely accepted by many, there have been a growing number of opposing viewpoints. Allen (2012) argues that a growing body of survey, interview, and observational research challenges Ogbu’s widely held belief that African American students are more oppositional towards education than other groups, including
Caucasians. The idea that African American’s pro-school attitudes are restricted to the kind that do not predict achievement turns out to be inaccurate. The best evidence, according to Allen suggests that African Americans are not an “anomalous group” whose presentations to researchers need to be viewed with special skepticism. In addition to Allen, Fryer (2006), in his work, *An Empirical Analysis of “Acting White”* argues that the cultural opposition phenomenon has a statistically significant effect on black student achievement, but only in certain school contexts. Fryer claims that cultural opposition data does not exist in nationally represented samples but instead it exists in concentrated samples found in low income minority schools. Due to this small and concentrated sample Fryer believes that there isn’t enough empirical evidence to support Ogbu’s cultural opposition theory.

Similar to Allen and Fryer the findings in this study do not support Ogbu’s cultural opposition theory and therefore uniquely add to the existing literature. Unlike the sample found in Ogbu’s study, the African American students from the higher income area high schools in this study out-performed both low income African Americans and Caucasians as well as high income Caucasians in college GPA, transfer/graduation rate, and they had fewer cases of academic action. Based upon the academic performance of the higher income African American students in this study it would appear that they did not possess the cultural opposition attitudes that Ogbu found in his sample of the Shaker Heights students.

Like most research studies there were differences that could have contributed to the results. Some possible explanations for these differences are: 1) the structural barriers have decreased for African American students, 2) our sample was different than Shaker Heights, 3) students in this sample had programming in place such as tutoring that the Shaker Heights
students did not, 4) the higher income schools that produced our sample were academically superior to Shaker Heights.

**Placement Tests.** The final predictors of performance and retention measured in this study were of placement test scores. The initial English and math placement test score were positively correlated with grades and quarters completed. The students who tested into both remedial English and remedial math were at the greatest risk for low GPAs, academic action, minimal quarters completed, and the lowest transfer/graduation rate. The students in the low income group were more likely to test into both remedial math and remedial English. This means that they had to enroll in these required remedial courses before they could advance to college level class work. These findings are similar to results found in other studies. Bahr (2011) found that 60% of students from low income backgrounds were placed into at least one remedial class during their first year of college. Melguizo’s (2011) research echoes Bahr and reveals that nearly 2/3 of first time college students place into a remedial math course and that nearly 1/3 of first time college students will test into both remedial math course and a remedial English course.

There are many issues with such a high percentage of students testing into remedial level classes in college. Gilroy (2010) discussed in her research that less than one-half of the students referred to remedial courses actually finish the entire sequence. These students’ exit their remedial courses because they failed or withdrew from the course due to such a steep learning curve. This can lead to frustration and discouragement for the remedial student thus impacting college success. Faculty also struggle with high attrition and low passing rates in their remedial classes because students arrive to their classes so underprepared. As one remedial instructor told Gilroy, “In developmental courses, we teach students the same material they were taught in
high school, except that we do so twice as fast, and then we wonder why our students aren't successful” (p.31).

There has been much debate over who should accept responsibility and expense for bringing remedial students up to college level work. Some professionals have suggested that students should recoup their remedial courses from the high schools that issue their diplomas. But the most promising strategies are not punitive according to Bailey (2009) they revolve around the idea that issues could be solved by improving K-12 education, thus removing the need for remedial courses at the post-secondary level.

**High School Type.** When the type of high school attended was analyzed in the study, an interesting pattern emerges that may hold some clues as to how income matters so much for academic performance. School types were divided into rural, urban, GED and suburban categories in attempt to include both low income and high income students. Most current research supports the idea that suburban school types are generally in higher income neighborhoods and that lower income school types are located in rural and urban neighborhoods. Crosnoe’s (2009) research tied students income level to the type of high school attended and found that those students that attended higher income school types performed much better academically to those that did not. Cronoe’s findings also found that a students’ demographic status (race/ethnicity and income) were linked to academic achievement.

The correlation between income and college academic success is further supported by the research of West-Olatunji (2008) and Bastedo (2011). Both researchers found a significant relationship between income level, retention, and academic success. West-Olatunji looked specifically at retention and concluded that students from low income households were at a much
higher risk (72%) of not returning after their first year of college. Bastedo’s study tracked the academic success of low income students and found that the gap between low income students and high income students continues to grow even though more low income students are attending college than the previous three decades.

West-Olatunji and Bastedo link their findings to the issues found within lower income communities. Issues such as limited income, lack of support, and scarce academic resources combine to sabotage most post-secondary attempts by students from low income areas. Bastedo writes, “children from low income households simply are not afforded the same support to excel in academics as a child from a higher income family”. West-Olatunji’s opinion is similar to Bastedo but she adds that the culture and academic expectations at home must match the culture and academic expectations found at school. Unless the lower income student has these expectations at home the student will experience “limited academic success” and therefore will begin at a disadvantage on the post-secondary level West-Olatunji (2008).

This section describes the major challenges that a growing number of students face at open-access colleges. In addition to the challenges rooted in gender, race, and socio-economics, students are also battling increased tuition costs due to budget funding cuts on the state level which leads to student loan debt. This places the student in a battle between the desire to succeed academically and the college’s fiscal challenge of enrolling and retaining enough students to remain profitable. This quickly turns into a question of true opportunity for the student. Does a student facing academic preparedness issues in addition to socio-economic barriers truly have an educational opportunity to succeed at an open-access institution? Furthermore, if a student is more likely to leave after a year of education with thousands of dollars of debt than finish a program of study, is that indeed a true opportunity?
The statistics on the success of unprepared students have emerged from some structural changes in higher education. For the fiscal year 2012, 25 states made large identifiable cuts in funding for state colleges and universities. The state of Ohio cut funding 10% which amounted to 590.00 per student. In addition to the budget cuts, students had to shoulder the burden of an average tuition increase of 7% and increased student fees which were undetermined and uncapped (Williams, Leachman, & Johnson, 2012). At the college and university level, these types of budget cuts and tuition hikes are common and are viewed as a necessity to keep fiscally afloat. Many four-year colleges and universities rely on increased enrollment numbers to offset the budget cuts. For open-access colleges, this leads to a tremendous push in recruiting because similar to public and private four-year colleges recruiting and the enrollment of new students is the most direct approach to counter a loss of funding due to budget constraints. The push for recruiting is seen as less of a challenge for open-access colleges because there are minimal admission standards at open-access institutions as compared to public and private four-year colleges and universities. However, students that are accepted into open-access colleges, who are academically underprepared, face semesters of remedial courses before they can even start to take college level courses. This may seem to be the answer for a short term loss of funding but what eventually occurs is that the push for recruiting underprepared students impacts retention and eventually causes a vicious cycle of recruiting students that fail to stay and complete a college degree.

In addition to the challenges in the classroom, underprepared open-access students also face risks in the financing of their college education. Some of these students may be eligible for federal grant money to offset their direct costs, but an increasing number of students must rely on student loans to pay for the majority of their educational expenses. According to Nguyen (2012),
borrowing at the public two-year institution has increased by 35% since 1990 and this increased amount is worrisome given the increased drop-out rate of two-year college students. This is a major concern because when a student drops out of college he/she must repay their student loans in full or face strict federal repercussions. Based upon Gladieux and Perna’s 2005 study, students who dropped out of college had higher unemployment rates and made less money than those who graduated. The study also found that student borrowers who dropped out were four times more likely to default on their student loans than those who finished a degree program. The research by Nguyen and the studies of Gladieux and Perna clearly demonstrate the concern of those students -specifically two-year college students- that struggle to pay back federal loan money that is owed for an incomplete college education.

Statistics show that over 1/3 of academically underprepared students will not return to an open-access college after their first year (Allen, 2011). With such a high attrition rate and the increased student loan debt incurred by these students, the mission and policies of the open-access institution need to be explored and challenged. Some open-access institutions have implemented admission and financial aid deadlines to ensure that the students are well prepared financially to pay for their education. Other open-access colleges have mandatory First Year Experience (FYE) courses, intrusive academic advising programs, and orientation programs in place to keep students accountable and on track of their academics. No matter the approach, it is paramount that the balance between a fair educational opportunity and a moral business practice is achieved. In the end, a student’s dream of an education should not be used for profit and punished by debt.
Limitations of Study and Recommendations for Future Research

The following are conclusions for consideration within the limitations of this study. Although the methodological approach of this study is replicable for future research, it is important to discuss the limitations of this study in order to improve the external validity of the results.

In addition to the quantitative research approach utilized, the application of qualitative research could further clarify the mechanisms involved in these predictive relationships. Focus groups and personal interviews would allow the researcher to examine data that would enrich the quantitative findings and perhaps reveal the traits of academically successful students from low income backgrounds. The information gained through the qualitative studied could be used to establish peer groups or additional academic support to aid those students from low income backgrounds to become more successful.

The sample in this study purposefully did not include non-traditional students in order to eliminate another variable and to isolate the demographics of interest. As a whole, open access institutions are diverse and comprised of students from different backgrounds. Age was restricted in this study in an attempt to reflect the demographic changes that have occurred over the past 5-10 years. The non-traditional aged student is declining within the population at this college. However, future studies should include age as well because perhaps income, and race may show a different relationship with academic success. Adult students statistically perform better in the classroom and typically have the maturity to handle the stress that comes with college academics. Non-traditional students may also possess certain life experiences that make them more acclimated to learning and academics.
It should be noted that only one college was examined in this research study. Multiple open access institutions could be utilized to provide comparison data and a larger sample size may have decreased concerns of validity. Multiple schools could possibly produce stronger results and have a larger impact on the study. Nonetheless, there is no reason to believe that our findings are atypical.

**Recommendation for further research**

Student's goals and objectives for attending open access colleges are diverse, and their reasons should be taken into consideration when assessing student retention. Non-persistence to graduation may not always be a negative; therefore, persistence rates must not be looked at in a vacuum. There are many different variables when academic performance and retention are examined. Information on student goal attainment may provide additional useful information to the institution. For example in our institution, many students do not officially graduate because they simply transfer to get their baccalaureate degrees. More specific research should attempt to link goal attainment to specific outcomes experienced by the student. Based upon the findings of this study, the researcher recommends the following initiatives for further research:

1) Investigate student involvement and academic success. The major retention models that exist emphasize the importance of student involvement on academic success. The research shows that the more involved or deeply connected the student is with the college community, the higher the retention rate. This may prove to be a challenge, particularly at open access institutions where the majority of students work and attend school

2) Many two-year colleges have started a number of initiatives to increase retention (e.g., cite example here) More research is necessary to determine which retention program
initiatives are most successful with two-year community colleges. Research should be conducted on students who participate in intervention services, to assess the effectiveness of such programs.

3) Further research needs to be focused on retention and persistence by specific major. Given the fact that some majors are more rigorous than others it would be beneficial to gauge the success rate of the student.

4) A qualitative study should be conducted on subgroups of students attending two-year institutions such as students with disabilities, international students, and higher-achieving students, to increase the understanding of why these various subgroups of students choose to persist or leave.

Conclusion

It is clear from this research that the relationship between social predictors and academic success is profound, and the predictors are complex and multi-faceted. This complexity presents a challenge for college administrators who are charged with improving the educational outcomes of students by simply examining student characteristic prior to enrollment. Therefore, given the challenges associated with student retention and persistence, the following recommendations are provided.

1) Implement a financial aid information system that targets students from low income backgrounds and that are considered first generation students. Information should consist of how financial aid is impacted by class attendance, the dropping or adding of classes, and poor academic performance. This type of intrusive financial aid counseling has proven to be effective at community colleges across the country. In some cases it has increased retention 12% - 15% (Hagedorn, 2010)
2) Create an intrusive advising model to monitor academic performance for those low income students that test into one or more remedial level classes. This approach would act as an early warning sign to allow academic intervention to those students that are the most at risk (Kuh, 2008).

3) Mandate a thorough exit interview and official withdrawal process for students that leave the college in mid-term or mid-year. The exit interval should consist of a multi-informational approach with the intent of catching students at multiple points to gather data as to the reason why students are leaving. This type of information can prove to be vital for retention. Braxton (2011) discussed how more colleges are relying on this type of process to gain insight into retention.

4) Create outreach programs to low income high schools and target those students that may be academically challenged or that simply need academic or social assistance such as tutoring, career counseling, or financial aid assistance. These outreach programs will allow students to have access to information before starting college. This approach has been successful for non-profit organizations in rural America (Byun, 2012) to help first-generation students gain insight to the college process.

5) Individual colleges might consider to expand the research to include feeder high schools and the success of their students at the college. Create a profile of these schools and convey the students’ academic performance and retention with high school principal and superintendent. This will create not only a relationship with the high school but will provide useful data to help prepare for academic support.

The research discussed in Chapter 5 examined important factors affecting academic performance and retention. Only institution specific studies can determine whether this is the
case for their student bodies. At this open-access, two year college, this research has determined that significant relationships exist between several demographic and academic factors and student retention. It is critical that institutions conduct research on these factors, and additional ones, in an effort to predict the likelihood that the student will persist or leave, and to design interventions to ameliorate some of the barriers to academic success created by low income. For at-risk students, early, intensive, and continuous interventions should be employed to assist the student in persisting to graduation success. Those students that attended the high school types that yielded higher placement test scores were more likely to achieve academic success.
References


Allen, Q. (2012). "They think minority means lesser than": Black middle-class sons and fathers resisting micro aggressions in the school. Urban Education (Beverly Hills, Calif.),


Kao, G., & Thompson, J. Racial and ethnic stratification in educational achievement and attainment. *Annual Review of Sociology, 29*, 417-442.


McCabe, R. (2000). *No one to waste: A report to public decision-makers and community college leaders*


