

VARIABLES THAT AFFECT GRADUATION IN  
A COMMUNITY COLLEGE

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by

Cathy Jean Alsman

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## COMMITTEE MEMBERS

Committee Chair: Kand McQueen, Ph.D.

Assistant Professor of Educational Psychology

Indiana State University

Committee Member: Tonya Balch, PhD.

Associate Professor of Counseling

Indiana State University

Committee Member: Debra G. Leggett, Ph.D.

Interim Chair & Associate Professor of College of Behavioral Sciences

Argosy University

## ABSTRACT

This study examined whether the use of variables—age, sex, remediation, and financial aid—could be used to predict persistence to graduation in a community college sample. The study also asked if these same variables could be used to predict number of semesters completed in this sample. Archival data were gathered from a community college with multiple campuses and a single state-wide accreditation from the Higher Learning Commission of the North Central Association of Colleges and Schools. Logistic regression, ordinary least squares regression, and Pearson  $r$  correlation were used to analyze data. Results suggested overall model significance in the logistic regression with the variables of age and remediation identified as significant predictors of persistence to graduation. The ordinary least squares regression was not significant, but the individual variable of age was significant, albeit at a level that provided no practical application. Correlational analyses revealed a significant positive relationship between age and remediation and a significant positive relationship between financial aid and remediation. Discussion centered on how these findings could be used to design interventions to increase student persistence to graduation in community colleges.

## DEDICATION

To my teachers, tutors and classmates who never gave up on me,

To my colleagues who listened to me whine and alternately encouraged me and kicked me in the behind as needed,

To my children, Erin and Katie, and grandchildren Eli and Leah who grew up forgiving me for not always being there.

For my Heavenly Father, who has blessed me in so many ways,

And for my husband:

The love of my life who encouraged me, ate cereal for dinner, and who told me that the guidance counselor who said I was not college material was wrong. For you, Rod: The moon is still over your shoulder.

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## CHAPTER 1

### INTRODUCTION

As the economy of American society has changed, the choices for people in rural communities have also changed. The American dream that hard work breeds success has transformed into the belief that hard work *with the proper education* breeds success. These and other factors are prompting more students to seek higher education. However, many of these students do not have the proper preparation for college (Bailey et al., 2004). They planned a life after high school that did not involve more education. They lack the means financially to shoulder the burden of education. They did not prepare educationally for college. Whether these students used community colleges as occupational education or as a spring-board to other higher education (Miller, Pope, & Steinmann, 2005), community colleges exist to meet the needs of this and other at-risk populations. However, retaining these students to graduation is a problem that educators need to answer.

Of central importance to the community college system, as well as to the profession of counselor educators, is the question of student success. Why do some students face obstacles and overcome them? Why are other at-risk students unable to persist? The ability to retain these students not only fulfills the mission of the community college, but also benefits those that the educators are trying to help. As more counselor educators find employment in the community college system, providing information regarding retention at this level is important to the

counselor education profession. It is difficult to predict which students will complete their programs of study in higher education. If the factors for academic success could be identified, educators could provide more specific assistance for the student at risk. It can then be assumed that the number of graduates could be increased.

An *at-risk* student is one who is less likely to persist to graduation than other students. Jamilah (2005) defined the term at risk as it applies to community college students and then assessed the prevalence of risk predictors in the population. At-risk students were identified as those who were enrolled in remediation courses and had delayed entry into college after high school. The National Center for Education Statistics (NCES) defined at-risk students as those who (a) delayed post-secondary enrollment, (b) were high school drop-outs or earned General Education Development (GED) certificates, (c) enrolled part time, (d) were financially independent, (e) had dependents other than a spouse, (f) were single-parent students, and (g) were employed full time (U.S. Department of Education [USDOE], 2003). The NCES found 70% of students enrolled in community colleges in 1995-1996 had at least one of these risk factors; more than 50% had more than one. That was compared to the 72% of students in traditional universities that had none of those risk factors (USDOE, 2003). Likewise, Jamilah reported that community college students were three to four times more likely to fit into four or more of these at-risk categories than their university counterparts.

Non-traditional students are certainly at-risk students (Rao, 2004). Non-traditional students often have outside responsibilities that by necessity take priority over their educational tasks. They are more likely to have a GED certificate than a high school diploma. At times, students who did not go directly from high school into higher education have started a family that takes their time and resources. Women who are the head of their households have complex

needs of balancing education with childcare and finances (Miller et al., 2005). Non-traditional students may also choose to enroll part time in order to work full time to support their financial needs. The longer a student prolongs his or her course of study, the less likely he or she is to persist to graduation as many things, including burnout, may interfere. First-generation students have unique struggles to overcome because the culture of academia is foreign and unsupported by their families of origin. Older students may also find that culture very foreign and intimidating because they have not associated themselves with school in a long time (Adelman, 2004).

Students attending community colleges often have unique financial needs. Financial aid is interwoven into almost all aspects of education for many students, and this is also true for students in community colleges. These students, who are usually less wealthy than their university counterparts, often struggle to meet their existing financial responsibilities in addition to tuition (Jamilah, 2005). One of the most utilized modes of financial aid for low-income students is the Pell Grant (USDOE, 2010). This is an income-based, federal program designed to make higher education accessible to members of society who do not have the economic means themselves. Grant funding does not require repayment as do student loan programs, so students who receive grants have access to education without the burden of repayment when the education is complete. These grant-based funds are given in an attempt to combat the risk of attrition in low-income students. Although one aspect of the mission of community colleges is to equalize access to education, some studies suggest that it is the middle class student who reaps the biggest benefit. Low cost and transferability attract these students, and they are the group who most often graduate. Although the community college system was conceived to

democratize access to education, it seems that educational success is still often linked to higher levels of economic status (Goldrick-Rab, 2010).

Apart from the financial difficulties, at-risk students often begin their college careers with academic deficits that hinder their educational goals. In order to meet the needs of these at-risk students, community colleges are typically *open-door* institutions. Rao (2004) defined this open-door policy as not turning away any student who has a high school diploma or passed the GED. Community colleges set their criteria for admission as less stringent in order to be more inclusive. This may enable students who do not have the financial means for private tutors and enrichment programs to begin their education even if they have academic deficits. A sizable percentage of students accepted into community college programs require remediation in reading, writing, and math prior to enrollment in college-level courses. In fact, more than 60% of first-time community college students take at least one remedial course, compared to 29% of first-time students in public four-year institutions (Levin & Calcagno, 2008). Although remediation addresses the deficit that some at-risk students bring to their educational experience, it raises other problems, such as increased time to completion and financial burden.

Although many community college students might not qualify for private or even state supported universities academically, the open door is not the only reason that students choose the community college system. In this setting, the course of study can be designed to help students who cannot fit a traditional college schedule into their lives. Financial assistance is available for students who meet the income guidelines. The remediation that is needed to address academic deficits can be provided. However, it may be important to examine how these variables interact to enable some students to succeed and others not to.

## Statement of the Problem

The community college population is an under-researched population. At-risk students in traditional college settings have been studied (Adelman, 2004; Astin, 1993; Murtaugh, Burns, & Schuster, 1999). However, the community college population is noticeably different from traditional college and university students in age, socioeconomic status, and type of financial aid received. Community college students are typically older and less wealthy than their traditional college counterparts, and a larger percentage of these students receive financial aid (Sorey & Duggan, 2008). This population is also commonly in need of remediation courses in reading, writing, and math (Bragg & Durham, 2012).

Educators' concern about student success is often related to demographic factors such as age and sex. Educators may be interested in examining how these situational variables relate to persistence to graduation. Determining which characteristics are most positively correlated with persistence to graduation could be helpful. Student-support programs could be developed that might increase the likelihood of success for at-risk students or those in disadvantaged categories. Whether this support takes the form of mentorship or more tangible assistance such as financial aid making these services available can make a substantial difference for an at-risk student (Ness, 2003). For many students, paying for education is a constant concern. Whether they do so by working part time, taking out student loans, or using the Federal grant program, students must find a way to finance their higher education. Even though many community college students qualify for financial assistance, these programs often come with an additional set of frustrations. For example, although remediation is required for students who score below identified levels, federal assistance programs will not fund remediation until the students reach a level labeled *ability to benefit* (USDOE, 2006). These scores can be as much as 19 points higher

than the scores on the placement tests that are accepted for admission to the community college. Therefore, some students who choose to attend a community college must pay for the initial coursework to remediate them to a level where the federal system is willing to invest in their education. For some students, this requirement is the barrier that makes postsecondary education impossible (Bragg & Durham, 2012).

Because universities have admission standards that exceed minimal ability-to-benefit standards, fewer students in the university setting are affected by these policies. However, community colleges lose many potential students because the prospective students cannot afford to pay the up-front cost of remediation. Thus, the responsibility to investigate and advocate for financial aid policy changes needs to come from those educators interested in the specific needs of the community college student population (Rao, 2004).

One thing that has been done to meet specific needs of at-risk students is to set academic admission requirements at a level that would include more students than traditional universities—often referred to as an open-door policy. However, although the open door appears to be inclusive, there are academic standards that must be met before students can benefit from the financial aid needed. Without proper academic training to give them access to federal grants, the door is not truly open to all. Students who arrive at the community college with academic deficits (specifically math, reading, and writing) need to have these areas strengthened quickly and efficiently. When students are unable to complete remediation courses successfully, they are faced with the choice of trying again or giving up on their educational goals. Additionally, unsuccessful remediation prolongs the period before students qualify for assistance (Ingram & Morrissey, 2009). Data associated with successful remediation may be valuable to the development of student success.

In the community college setting, many students come from situations that are not conducive to college success, yet they still succeed. Many struggle to pay for higher education but find ways. Others arrive with academic deficits that are remediated. Some at-risk students succeed and others do not. Whether one factor influences student success more than others, or whether there is an interaction between demographic, financial, and remediation variables, is difficult to determine. Identification of the variables that enable students to persist to graduation would help educators address the deficit and retain students to graduation.

New changes now require educational institutions to provide more tangible evidence that federal assistance monies are being well spent. Those who delegate state and federal funding have required that institutional reimbursements be tied to graduation rates instead of enrollment rates (Taylor, 2003). This change has led educators to scramble to increase efficiency and reduce attrition.

Since reimbursements are now tied to graduation rates, it has a specific impact on community colleges. In addition to being called *open-door institutions*, community colleges are sometimes called *revolving-door institutions* (Morrow, 2007). This reference calls attention to the fact that in previous funding models—as long as community colleges enrolled students at the same rate they were dropping out—funding remained the same. With new funding based on graduation numbers, clearly more importance than ever is being placed on effectively supporting students who need remediation in order to reduce the dropout rates. These new standards are making student retention more than a student services issue. With these funding requirements, the very existence of the community college system depends on its ability to both attract students to enroll and enable students to persist to graduation.

## **Purpose of the Study**

The purpose of this study was to examine the factors that affect student success in a community college population. The effect of sex, age, receipt of grant-based financial assistance, and completion of remediation or no remediation on persistence toward graduation was examined. Student success was examined in two ways: (a) whether or not graduation occurred within 12 semesters of first time enrollment, and (b) number of semesters completed. Hopefully, this information will be useful in assisting community colleges to design programs to better support at-risk students as they make their way through the academic process.

## **Research Questions**

1. Can age, sex, grant-type financial aid assistance, and remediation predict graduation within 12 semesters of matriculation?
2. Can age, sex, grant-type financial aid assistance, and remediation predict the number of semesters completed?

## **Definitions**

*Grant-type financial aid*, for the purpose of this study, is defined as verifiable receipt of monetary support for education in the form of grants. This variable is measured dichotomously as received aid/did not receive aid.

*Student success* is operationally defined as completion of the attempted degree within 12 semesters of matriculation.

*Assessment of skills for successful entry and transfer (ASSET)* is a testing and advising system for placing students into postsecondary courses. This test is administered via a pencil and paper format. This test determines whether or not a student requires remediation.

*Computer-adaptive placement assessment and support system (COMPASS)* is a computer-adaptive assessment program that enables postsecondary evaluation of incoming students' skill levels in reading, writing skills, and math. This test is administered via a computer program format. Again, this is a measure of whether or not a student requires remediation.

*Remediation* is defined as additional coursework needed to prepare the student for successful completion of college-level work. Any student who scores 43 or below on the reading section, 22 or below on the writing section, or 18 and under on the math section of the COMPASS is mandated to receive remediation. Remediation is also required of students who score 31 or below on the reading section, 31 or below on the writing section, or 28 and under on the math section of the ASSET. As a variable in the following analyses, remediation was scored dichotomously as received remediation/did not receive remediation.

### **Summary**

Post-secondary education is an important key to financial success in U.S. society. Due to the current economic situation, people who did not envision postsecondary education are turning to it. Many of these individuals are not properly prepared for college (Bailey et al., 2004) and are considered to be at risk. Institutions need to answer the question of how to retain these students, not only as an essential funding source for the institution but also as a valuable tool for those students who will embark upon a career in an education setting. Understanding the changing requirements of funding along with the best practices for retention is vital information for the counselor educator. Although much research has been done in the traditional university system, community college students have not received the same research-based attention. More students now are choosing community colleges than in the past. Therefore, it is important that

research is more focused on the specific needs of this population and what institutions can do to help them persist to graduation. Existing research on community colleges as well as the body of research that has focused on the university community has been used to inform the design and interpretation of the current study. This includes research done on persistence to graduation as well as research concerning demographic variables (such as sex and age of student), presence of grant-type financial aid, and remediation.

## CHAPTER 2

### LITERATURE REVIEW

The purpose of this study was to examine the factors that affect graduation rates in a community college population. The study looked at factors that contribute to academic success in a specific Midwestern community college. Success is defined as completion of the student's specific curriculum requirements and graduation within 12 semesters of first time enrollment. Theories of student retention have been examined. Factors investigated included demographic variables of sex and age of student, presence of grant-type financial assistance, and remediation. The following literature review discusses previous research and how it was used to inform the design and analysis of the study.

#### **Persistence Toward Graduation**

Literature addressing retention of students is not a recent development. Counselor educators, among researchers in other disciplines, have explored the theoretical basis for student retention for several decades (Baldo & Softas-Nall, 1997). The theories addressing the reasons that students fail to persist to graduation abound, but most fall into one of five categories. These categories are (a) sociological, (b) organizational, (c) psychological, (d) cultural, and (e) economic reasons (Kuh, Kinski, Buckley, Bridges, & Hayek, 2007).

The sociological theories acknowledge the vital steps of separation from family of origin, hometown, and high school friends. This transition to making new friends and learning to fit

into a new environment (the college society) is the central factor of theories such as those by Astin (1999) and Tinto (2006). College counselors use programs based on these principles to help students successfully transition to the college community.

Organizational theories focus on the factors of the educational institution that can impact student success. Factors such as faculty-to-student ratios and mission of the college can impact student perception of control. Also, location of the institution and how selective the institution is perceived to be, impact student decisions to persist or to withdraw. Most influential theories in this category include the work of Pike, Smart, Kuh, and Hayek (2006).

Theories with a psychological focus place the greatest importance on self-efficacy and locus of control. If a student is highly motivated and feels competent in his or her ability, the student is more likely to persist when faced with challenges of either an academic or social nature. Psychological contract theories posit that students have a perception of what it will be like to attend college. This includes what the social and behavioral rules of the campus culture will be. If that perception is violated, the student may lose trust in the institution and him or herself. When this happens, the student will either readjust their expectations or leave the institution (Rousseau, 2001).

Theorists in the cultural category focus their work on the historically underrepresented groups of students who sometimes have difficulty adjusting their norms of behavior to the campus culture. The biggest issue here is whether or not the student should need to make those adjustments. How fair is it to ask a student to change culturally held beliefs in order to achieve academic success? Rendón, Jalomo, and Nora (2000) argued that students should not be left to navigate this adjustment alone. They, along with Ortiz (2004), see this responsibility as one to be shared by the student and the institution.

Finally, the economic theories focusing on student departure see education as a cost/benefit scenario. Is it *worth* the sacrifices on both a monetary and personal level to persist to graduation? Becker (as cited in Kuh et al., 2007) developed a human capital model that suggested that colleges could retain such students by making them aware of the benefits of completion. These cost/benefits theories are widely used by admissions departments as well as financial aid programs to encourage completion for students. This was also studied by Goldin, Katz, and Kuziemko (2006), who added focus on incentives that explore persistence as a pathway to a higher quality of life. These theories all suggest that financial incentives be in place for student assistance as a way of retaining students. These theories also inform the work of financial aid, admissions, and student success services personnel.

Nearly all theories of student retention are based at least in part on the work of Vincent Tinto, a pioneer in this area of research. It is for this reason that the work of Tinto was the perspective through which the findings of the study were interpreted. Community college students are typically less interested in the social aspects of the post-secondary experience. Specifically, Tinto (2006) suggested that the classroom professor is where the first line of retention effort should lie. Professors who encourage collegial relationships with students and promote learning communities within the classroom increase student retention by fostering a sense of empowerment in the student. These students who feel more a part of the campus community are more likely to persist.

Academic institution personnel, among them counselor educators, rely upon these theoretical frameworks to assume leadership roles in design and implementation of student retention models. It is through delivery of these programs that the potential for success of at-risk students is increased (Hodges, 1982).

It was not until 1987 when Tinto published *Leaving College* that connections were made between the environment in which the student was failing and the act of failure itself. Until this time, students' inability to finish their studies was thought to be due to low levels of motivation, inability to defer gratification, and low student ability. In other words, the lack of retention in the postsecondary setting was posited to be the failure of the student, not the institution. Tinto challenged institutions to provide a setting where more students could be successful.

Tinto and Cullen (1973) did a descriptive study in which they looked at students who did not persist to graduation and at the factors they had in common. This original theory included components of high school success, family background, student aspirations, and institutional experiences. Students' success in integrating their academic and social world was thought to be crucial in their successful outcomes.

In 1987, Tinto advanced his theory of student disengagement by integrating Durkheim's theory of suicide. Durkheim said that social forces are more important indicators of suicide than individual factors. He believed that when people were disengaged from their communities, they were more likely to disengage by committing suicide (Durkheim, 1897/1951). Tinto (1987) posited that students leave college for a similar reason. When they fail to integrate into the social community of university life, they are more likely to disengage from the university community and ultimately leave the academic setting. In his new model, Tinto connected the aspects that create dissatisfaction in the student in the college environment to the dissatisfaction that Durkheim postulated were indicators of thoughts of suicide. Tinto discussed how students who do not successfully integrate into the college community may seek to disengage in much the same way that individuals who do not feel integrated into their environments may seek

disengagement via suicide. He believed colleges needed to find ways to engage their students in order to retain them.

Tinto began looking at ways to integrate students in order to develop their persistence to graduation (Metz, 2002). He thought that beginning students needed rites of passage to help them feel a part of their academic community. Major events like student orientation activities, homecoming, and other big campus activities were thought to help students to develop a student persona. Attending such activities was important during the students' first year.

Over time, additional retention research supported the findings that one of the key factors in retention is the importance of student involvement, most important in that critical first year (Elkins, Braxton, & James, 2000). Supportive services sprang up in the form of college life success courses. These were designed to give students the tools they needed to be more successful at college. Time management, library abilities, and study skills began to be taught in order to help students adjust to their new academic environment and help them feel like a real student (Derby, 2007; Tinto, 1993). In addition, more importance began to be placed on student affairs in order to help incoming students feel a part of a new community. Also, more responsibility for retention began to be placed on student affairs personnel. Helping incoming students to feel a connection with their new academic community was given greater importance. An example of this type of intervention is the policy common to many universities where first-year students are required to live in the residence halls to encourage them to make social connections (Christie & Dinham, 1990). Students were encouraged to be more involved in student organizations, athletic events, clubs, and other university events to integrate them into this community.

Tinto (1989) suggested that there were three roadblocks that institutions faced in retaining their students. The first was that all of the responsibility for retaining students was placed on the student affairs staff. Second, faculty may not see student retention as part of their primary responsibilities. This is a problem because the more engaged the students are with the faculty, the more likely they are to persist to graduation. The final roadblock is that universities see academic failure as the most likely indicator that students will not persist to graduation. In reality, academic failure accounts for only one-third of the attrition. There are many reasons that students leave college, and more effort needs to be focused on engaging students in their academic community.

Involvement affects persistence to graduation (Tinto, 1997). This involvement needs to occur not only outside the classroom, but inside it as well. Students who are involved with their peers and faculty both learn more and are more likely to graduate. Unfortunately university and college professors are trained as neither educators nor student affairs experts, but instead as experts in their field (Tinto, 2006). These faculty need to make connections with students to keep them in school, but they are unprepared for that role because they do not have the training that would help them. Tinto (2006) recommended that institutions provide faculty development to enrich their abilities in these areas to promote student retention.

Tinto (2006) found differences between the institutional settings of the four-year university versus the two-year college. Involvement was still a key component, but for community college students, most interaction takes place in the classroom. They often have no time for involvement in campus life. Their only real contact with the educational community was through the faculty person in class. Therefore, it is more incumbent on the professor to create an integrated student atmosphere than on university campuses where campus life staff can

work to engage students. The connections that community college students need in order to persist to graduation must be made in a way that is accommodated by their unique life needs.

### **Demographic Variables**

Although community college students comprise 60% of all postsecondary students in the United States (Bailey et al., 2004), they are not necessarily the traditional college student. These students are slightly more likely to be female, from a minority population, and first-generation college students. Other variables that qualify these students as nontraditional are that they (a) have delayed entry into college by at least a year after high school, (b) are age 25 or older, (c) are enrolled part-time, (d) are single with a dependent status, (e) have financial independence, or (f) have a lower income. They may also be using the community college as a transfer tool, seeing these institutions as a stepping stone instead of a final goal (Miller et al., 2005).

Community colleges are also often the first choice for the older student. Houser (2006) defined the differences in traditional and nontraditional students using age as the benchmark with students aged 25 years and older being defined as non-traditional. Traditional students under the age of 25 were more likely to have attended college immediately after high school. Nontraditional students are more likely to have other obligations that affect their priorities regarding schoolwork. Children, employment, and finances are most often cited as obstacles to education (Kim, 2002). These important differences between the traditional and nontraditional student populations emphasize the divergent needs of the two.

Kim (2002) took an in-depth look at nontraditional students at the community college. She argued that use of the term *nontraditional* was too broad to be helpful. When several characteristics were considered together, it became too generalized to design programs that would help the students succeed. After considering the three traditional criteria for defining the

non-traditional student (age 25 and older, background characteristics like ethnicity, and at-risk behaviors), Kim urged researchers and educators to look at specific subsets of background characteristics. In this way, educational leaders would be able to design programs that best meet the students' specific needs. Age, employment, sex, and family responsibilities should not just label students but inform educators to develop best practices to enable students to persist to graduation (Kim, 2002).

In order to meet the needs of community college students, it is important to know who is attending these institutions. Miller et al. (2005) wanted to generate baseline demographic data regarding students who attended community colleges. In the fall and spring semesters of the 2002-2003 academic years, they surveyed 272 students enrolled in introductory math classes at six different community colleges. They discovered that 51% ( $N = 140$ ) self-reported as male students and 48% as female students ( $N = 132$ ). When they examined the age of these introductory students, 40% ( $N = 109$ ) were 18-19, 26% ( $N = 72$ ) were 20-21, 13% ( $N = 36$ ) were 22-25, and 20% ( $N = 56$ ) were 26 and over. From this information, they concluded that the typical community college student is getting younger and becoming more similar with the traditional college freshman.

Although community college students are becoming more similar to the traditional freshman in age, life experiences continue to set them apart from their university counterparts. When Bailey et al. (2004) looked at enrollment patterns, they found that community college students perceived themselves differently from those who pursued a university education. University students saw themselves as students who worked, identifying their primary role as that of student. Community college students saw themselves as workers who also went to college. This difference of role identification meant that many of the community college

students did not see themselves as a student first and foremost. When the primary role of worker is assumed, the role of student is given less importance. Thus, many of the programs designed to encourage student retention are focused on getting students to see themselves primarily as students (Tinto, 1993). Therefore, there is a lack of connection between how successful students need to see themselves and how they perceive themselves.

Student characteristics have been examined in multiple studies in an attempt to determine variables that can predict student academic outcomes. Researchers have examined social support and involvement in campus life and found these to be predictors of persistence to graduation (Astin, 1999; Bank, Biddle, & Slavings, 1992; Ness, 2003; Sorey & Duggan, 2008; Tinto, 1993). Other researchers have focused on demographic variables such as gender (Astin, 1993), ethnicity (Murtaugh et al., 1999), and parental education (Elkins et al., 2000). These reports linked student persistence to graduation with the factors studied and postulated that support programs designed with these demographic factors in mind will increase student retention.

However, many of these support programs may not be heavily attended by nontraditional students. Although academically accomplished students are less likely to choose community colleges, so also are students who are more interested in college as a social experience (Ness, 2003). Nontraditional students are less likely to be financially supported by parents and more likely to be juggling full-time employment (Rao, 2004). Therefore, community college students often miss the social aspects of the university experience, resulting in nonattendance of many of the programs designed to increase their chance for success.

Although community college students are unlikely to attend social events, social integration is still important for student persistence (Sorey & Duggan, 2008). The responsibility to integrate socialization within community colleges falls upon the faculty member. Sorey and

Duggan (2008) surveyed 68 traditional students and 55 nontraditional students at a diverse community college. Data were collected regarding factors that contributed to persistence to graduation. Eighty-five percent ( $n = 58$ ) of traditional-aged students persisted to graduation; 80% ( $n = 44$ ) of the nontraditional students persisted. After performing descriptive discriminant analysis on the Likert-type survey data, they uncovered the relationship that social integration had with persistence to graduation, especially for the nontraditional students. For nontraditional students, social integration was more highly correlated with persistence to graduation (.512) than for traditional students (.050). From these results, they encouraged faculty to create content that generated social integration in students, such as group projects and discussion forums. These exercises encourage students to engage both inside and outside the classroom to help them make connections and create a collaborative learning environment. In this way, one of the roadblocks to community college retention can be overcome.

### **Grant-Type Financial Assistance**

Another roadblock for many students who go to college is the issue of funding (St. John, Paulsen, & Carter, 2005). Whether the tuition is paid by parents, grants, scholarships, or loans, cost is often a factor in selection of educational institution. Community college students chose this route to education as opposed to the university setting for a variety of reasons (Fike & Fike, 2008). Some are testing the waters of academia and feel more comfortable in a community college setting. Others appreciate the flexible scheduling and smaller class sizes that are hallmarks of community colleges. For almost all students, the researchers found that the more affordable tuition in the community college is a significant factor. Additionally, Fike and Fike (2008) found that receiving financial aid is a positive predictor of student retention.

In this study, grant aid was examined as a form of financial assistance. Grant aid is based on economic need of the student and is an indicator of the income level of the student (USDOE, 2010). This form of financial assistance is awarded to students with no responsibility to reimburse the funding source, as long as the terms for administration are carried out. These terms typically include responsibility for successful completion of the funded courses, maintenance of a minimum grade point average, and completion of the declared program of study within the defined time period.

A form of grant-based financial aid is the Pell Grant. Established by the Basic Education Opportunity Grant in 1972, the program was renamed in 1980 to honor Senator Claiborne Pell, who was instrumental in creating the program (USDOE, 2010). It was originally designed to remove the financial barrier that the cost of education placed in the way of less wealthy Americans. The funding system has undergone several changes since its beginning. Pell Grants are awarded to low-income students who may use the funds at any of the approximately 6,000 participating postsecondary institutions. The money does not have to be repaid, and the amount awarded is based on several factors, such as the costs of the educational institution, the expected family contribution, and whether the student is attending full time or part time. The monies are paid directly to the educational institutions, who then can distribute remaining funds to the student. The Pell program is administered by the government (USDOE, 2010).

Unfortunately, Pell Grants are losing their purchasing power (Chen & DesJardins, 2008; Dowd, 2004). Students and their families are being forced to finance larger portions of their education through loans (Chen & St. John, 2011; Dowd, 2004), once again placing the low-income student in a position where achievement of educational goals is more difficult. The original purpose of the Pell Grant was to remove the barrier that put the student from a lower

socioeconomic group at risk of being unable to achieve his or her potential. Because low-income students are required to provide more of the funds for their education that original purpose is in danger of being diminished (Dowd, 2004). The goal in offering Pell Grants to promote equity in higher education for all income groups is not being met.

Community colleges are an option for students who cannot rely as fully on Pell Grants to finance the cost of traditional universities. Since federal funding applies to the community college system as well as to the universities, the comparable value of the community college fees makes the choice fiscally attractive. In addition, many community colleges have articulation agreements with local universities to act as a *feeder system* for the most successful of the community college graduates (Rao, 2004). These articulation agreements are official documents between educational institutions that approve coursework completed at one institution to be substituted for required coursework at another institution. This type of cooperation between educational institutions allows for more seamless transfer of students from one system to another. These agreements help students achieve their educational goals without needing to find financial assistance for the full cost of a traditional university.

For students who qualify for financial aid, there may be a difference in success rates associated with the different funding sources. Findings on this research are contradictory and difficult to generalize. For example, Paulsen and St. John (2002) found that aid has a negative effect on persistence among poor students but not among higher-income students. Titus (2000) found that aid is not sufficient to promote the retention of low-income students. However, Bettinger (2002) concluded that the positive effects that the Pell funding system has on retention of students and their persistence to graduation are underestimated. In general, research has indicated that any type of financial assistance increases the likelihood that an individual will

enroll in postsecondary education. Differences still exist, however, in rates of persistence related to racial and income differences even for students who receive the same types of funding.

Chen and DesJardins (2008) examined the effect of financial aid on persistence to graduation across different income groups. They examined data from 6,733 first-time attendees of four-year institutions to see which students dropped out within six years. Pell Grants were awarded to 72% of low-income students, 17% of middle-income students, and .1% of high income students. Although they found that aid types such as work-study and loans did not have a significant effect on the retention of low-income students, the presence of Pell Grants impacted the retention of low-income students differently than middle-income students. If middle-income students received Pell Grants, they were more likely to drop out than if they had not ( $p = .250$  with Pell Grant;  $p = .153$  without Pell Grant); on the contrary, low-income students were less likely to leave the institution if they received Pell Grant funding ( $p = .208$  with Pell Grant,  $p = .566$  without Pell Grant). They concluded that although low-income students were more likely to drop out than middle-income students, Pell Grants should be emphasized in order to reduce the retention gap between individuals of different socio-economic backgrounds.

Likewise, Alon (2005) investigated the impact of financial assistance on persistence to graduation and found results that ranged from positive to negative and inconclusive. To separate the impact of financial assistance on college performance from the effect of eligibility for aid, Alon developed a model to tease out the impact of type of aid received as well as eligibility. Students are eligible for aid if their income is low enough. However, there are many steps involved in the application process that hinder some students from making application (USDOE, n.d.). Alon's results confirmed that the interrelationship between eligibility and graduation masks the positive impact of financial aid and its relationship to persistence. In short, financial

aid eligibility has a negative effect on persistence while an increase in dollar amounts is positively related to college success. In this study, grant dollars were found to be the most effective type of funding tied to college graduation.

Financial aid is one of the most important considerations that students must face because how they fund their education influences how they will approach both their education and their future afterwards. Community colleges are a sound fiscal choice for many students because they are a good value for their education dollars. It is also a good investment for the federal government since those who are awarded Pell Grants can progress further toward their educational goals before reaching their funding cap. Understanding that they will not be burdened by heavy loads of debt often is a motivator that leads low-income students to persist to graduation and into the workforce. Although the earnings gap between individuals who have achieved a diploma and those who have not has diminished, higher education still pays (Doubleday, 2013).

### **Remediation**

Another factor thought to be tied to academic success is remediation. Grubb (1999) defined remediation as “a class or activity intended to meet the needs of students who initially do not have the skills, experience or orientation necessary to perform at a level that the institutions or instructors recognize as regular for those students” (p. 174). Community colleges often are viable options for those who did not always see higher education in their future. Students who did not see themselves as college bound often did not approach their secondary education with the goal of gaining post-secondary education (Bailey et al., 2004). They do not arrive at college with the academic preparation necessary to succeed. Therefore, remediation is a necessary component of the community college system. Students who have not prepared for postsecondary

education are more likely to choose community colleges. In fall 2000, 42% of incoming students nationwide at two-year public institutions were enrolled in at least one remedial course. This number compares to 12% to 24% of students nationwide at other types of educational institutions during the same time period (USDOE, 2006).

In a study conducted with data from the Ohio Board of Regents, Bettinger and Long (2005) examined the role that public two-year colleges play in remedial education. Nearly 13,000 students were tracked over a period of five years to explore the characteristics and outcomes of those who enrolled in remedial-level courses. When they compared students with similar characteristics, Bettinger and Long found that community college remediation has both positive and negative effects. Placement in remedial courses can send a negative message to the student and suggest that he or she does not belong in college. However, those who overcome those emotional obstacles and complete their remedial coursework have the same or better chance of persisting to graduation than those who are never enrolled in remediation. Based on these findings, Bettinger and Long suggested that although remediation can have a positive effect on community college students, there is much room for improvement.

Atwell, Lavin, Domina, and Levey (2006) reported in their study that those who are enrolled in remediation are not less likely to persist to graduation than their peers. They proposed it is the *need* for remediation caused by poor high school preparation that is correlated with lower rates of graduation for those who are placed in remediation courses. Adelman (2004) studied the factors that affect graduation rates and time to degree. When looking at the remediation of reading, writing, and math, Adelman found reading to be especially vital for student persistence. If students required remediation in reading, they were less likely to persist to graduation than those who needed remediation in other areas. If students could not be

successful in their reading skills, they were unable to be remediated in other areas of academic deficiencies. Adelman also concluded that enrollment in any remediation course was not totally conclusive to persisting to graduation. Those who enrolled in remediation and completed it had a significant rate of persistence to graduation.

Students can sometimes be frustrated by the need to take remedial classes before they can enroll in program coursework. Some have to enroll in and pay for one or two full-time semesters of simple remediation that do not apply toward their degrees. Although this can happen, the idea that there are large numbers of community college students taking multiple semesters of remediation is simply not true. In fact, Atwell et al. (2006) reported that at two-year colleges, 42% of students took no remediation, 44% took between one and three courses, and only 14% enrolled in more than three remedial courses. Miller et al. (2005) demonstrated that 51% ( $N = 137$ ) of students in an entry-level math class in community colleges had enrolled in a developmental or remedial course. Of those students, 62% ( $n = 84$ ) had taken just one remedial course, while 22% ( $n = 30$ ) had taken two, 10% ( $n = 14$ ) had taken three, and 5% had taken 4 ( $n = 7$ ).

Still, the percentage of students in community college needing remediation is greater than that of traditional colleges. One reason is that community colleges' admission requirements are less stringent than those of universities, creating an open door (Rao, 2004). The open admission policies of the community college are often an attractive aspect to students who are less confident in their scholastic ability or who have experienced academic setbacks. Remediation provided at community colleges can be a path to the university system. Rao (2004) concluded that without the community college's open-door policy, many nontraditional adult learners would not have access to postsecondary education. The open-door policy coupled with remedial

education creates a successful learning environment for those who have basic skill needs.

However, Rao suggested that although the open-door policy is a commendable goal, community college systems need to take care not to open the door so widely that students are admitted who have little chance for success. The small percentages of students who are unsuccessful in their remediation to college level need to be identified early in their academic career. Such work to identify students unlikely to be successful will prevent federal funds from being allocated to students who will not be able to persist to graduation.

In sum, whether students are successful or not in it, there is no doubt that remediation is expensive. The Associated Press (2008) reported in *Education Week's* question for the editor that the average cost of remediation per student in the California State University system runs to as much as \$2,000 in community colleges and \$2,500 in four-year universities. Students must find ways of paying for it, whether from their own funds or through financial aid. When students complete their required remediation and go on to persist to graduation, paying for education is understood to be money well spent. Due to their open doors, community colleges have a high percentage of students who must complete remediation. Those who did not prepare for postsecondary education or have been out of the academic environment for several years can complete remediation and persist to graduation.

### **Persistence to Graduation in Community Colleges**

Student involvement in campus life increases persistence to graduation (Elkins et al., 2000). However, most community college students do not come to campus to socialize. The importance of the link between socializing and becoming part of the education community seems to be borne out as Baum and Ma (2007) looked at students enrolled in a community college in 1995 who had the intention of entering a bachelor's program. Six years later, the study found

that 23% of these community college students had not accomplished the goal of graduation from the community college and enrollment in a bachelor's degree program. Additionally, 39% of these students had not yet earned a degree or certificate from the community college and were no longer enrolled there. This statistic is of particular concern because community colleges enroll more than 40% of all college students. This can be illustrated in this way: One hundred students wanted to get a university education. Forty of these students enrolled in a community college with a goal of completing a certification or degree and then transferring to a university. Six years later, we went back to check on these students. Of those 40 students, 23% of them (9 students) were still enrolled, but had not yet finished the certification or degree program that they had chosen. Of our original 40, 39% (16 students) had fallen out of the education system altogether. When only 15 students of that 40 student group reaches their goal of enrollment in a university after beginning at the community college, this translates into losses. Lost dollars spent on remediation, lost funding for grant-eligible or loan-eligible students, and the greatest loss of all: lost human potential. The problem remains of how to increase student retention in these institutions.

Increasing student involvement is tied to retention, but most of student participation in college life occurs in the classroom (Tinto & Russo, 1994). Tinto and Russo (1994) sought to answer the problem of how to meet the social needs of the students in community college settings. They surveyed 121 students in an integrated studies program where multi-disciplines were taught with a unifying theme. In this program, the faculty and students became a learning community due to extensive interaction. These students were compared with 166 students who were not in the integrated program. In a longitudinal study, they surveyed both groups at two times. Institutional records were obtained to look at grade point average and student persistence

from semester to semester. Three qualitative interviews asked students the meaning they attributed to their experience. Observational data were also included in the research. Faculty who were involved in the integrated programs were also interviewed. These data helped the researchers interpret the results.

Qualitative data were reviewed via QALOG to identify emerging themes and analyzed through factor analysis and simple comparisons (Tinto & Russo, 1994). The results of the survey analysis showed that students in the integrated program reported being substantially more involved in campus activities ( $m = 3.05$  for program students;  $m = 2.46$  for control group,  $p < .05$ ; higher numbers indicating more involvement) as well as experiencing more effective learning ( $m = 5.8$ ;  $m = 5.01$ ,  $p < .05$ ) than the control group. Program students were retained by the institution at 84% ( $N = 121$ ) for the spring semester and 67% for the fall semester as compared to the control students ( $N = 166$ ) who were retained at 81% and 52%, respectively. These results were statistically significant ( $p < .05$ ) for both semesters.

Three themes emerged from the qualitative data (Tinto & Russo, 1994). First, associations and friendships formed within the program were important to students' college experience because they gained a supportive community of peers which integrated them into college life. Second, the program provided students the opportunity to participate in a shared learning experience, enabling them to meet both their social and academic needs. Finally, students reported feeling in control of their own learning through the integrated program. Through these learning communities, student involvement was fostered and student retention was increased (Tinto & Russo, 1994).

Karp and Hughes (2008) wanted to discover how integration into the college community influences retention among community college students. They randomly selected 44 second-

semester students to interview about their feelings of integration into their college. Thirty-one of the students reported feeling integrated into the campus community. Thirteen reported feeling that they were not integrated. Four students were lost over the course of the study, with the enrollment status of 40 students being noted at the beginning of the second year. Using Tinto's (1993) theory of integration, the researchers predicted that students who reported more integration into campus life would be more likely to persist to their second year. In fact, nearly 90% of the students who reported feeling as though they belonged in the campus culture were retained from the first to the second year. Of those students who reported feeling not integrated, only 60% returned. This supports Tinto's theories regarding the importance of feelings of belongingness for retention of students even in community colleges.

Mendoza, Mendez, and Malcolm (2009) studied first- and second-year full-time students enrolled in associate degree programs in Oklahoma community colleges who had completed the FAFSA ( $N = 48,292$ ). They examined the presence of different types of financial aid as predictors of persistence from the first year to the second year. Only 17% ( $N = 8,065$ ) of the students surveyed transitioned from first year to second year within one academic year. Using sequential hierarchically well-formulated logistic regressions, they demonstrated that the presence of Pell Grants was a significant predictor of persistence ( $p < .000$ ). In fact, when examining only White students with yearly incomes above \$40,000, Mendoza et al. revealed that students who received the Pell Grant were 3.5 times more likely (and the effect was greater among minority students) to advance to second-year status within the academic year than students without any financial assistance. Therefore, grant-type financial aid is an essential component of student success among those who attend community college.

Whether it is demographic, financial aid, or remediation issues that need to be addressed, understanding more about the factors affecting graduation rates will help educators design programs to support at-risk students. The purpose of this study was to examine the factors that affect graduation rates in a community college population.

## CHAPTER 3

### METHOD

The purpose of this study was to examine the factors that affect graduation rates in a community college population. This quantitative study assessed, in retrospect, the following variables as predictors of persistence to graduation: sex, age, presence of grant-type, financial aid, and need for remediation. Data were gathered by extracting information from the nation's largest postsecondary system with a single accreditation. The relationship of these variables to graduation was examined using a two-fold approach. First, a logistic regression was conducted to see if the variables could predict graduation success. Logistic regression was appropriate because the outcome variable was dichotomous (graduation within 12 semesters of first enrollment/no graduation). Then, an ordinary least squares (OLS) regression was conducted to determine if the exogenous variables could predict the number of semesters completed.

#### **Sample**

Archival data were analyzed for first-time attendees in the incoming cohorts for fall 2008, spring 2009, summer 2009, and fall 2009 semesters at a single region of the selected community college. The cohorts studied consisted of degree-seeking students who entered in a centrally located region of the institution. Having never before been enrolled in a college setting, these students were thought to be the best representatives of the particular characteristics of interest. With no previous failures, or the disillusionment that can sometimes accompany institutional

transfers, these first-time attendees were examined to look at characteristics of sex, age, financial aid, and remediation. The data were drawn from a variety of sources, including the Office of the Registrar, the Office of Admissions, and the Office of Student Financial Aid. The period of time for which data from the selected cohorts were tracked allowed students a minimum of 12 semesters (or four full calendar years) to complete a course of study and graduate.

### **Institutional Description**

The institution the sample was drawn from was a Midwestern community college. It is also the largest public postsecondary institution in its home state, serving more than 130,000 students per year. It offers degrees that enable students to be employed or transfer these credits to four-year colleges and universities. The stated mission of this institution is development of the local workforce which enables citizens to be more employable and to attract businesses to its state to make use of this well-trained workforce. This community college is accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools which is recognized by the Department of Labor.

### **Variables**

Independent variables considered in the study were as follows: demographic variables of sex and age, whether or not the student received grant-type financial aid, and the presence of remediation. Variables were selected in an effort to use this information to create interventions that address the needs of students who enroll with these risk factors.

Concerning age, students who reported being between the ages of 18 and 24 have been addressed in the supporting literature as being traditional students; students who report being age 25 and over when they enter the college environment have been referred to as nontraditional. For the purposes of this study the continuous variable of age was used, with the understanding

that student age is only one variable of inclusion into the group of *traditional* or *nontraditional*. Receipt of grant-type financial aid was measured as a dichotomous variable of grant aid received or no grant aid received. Remediation was also dichotomous consisting of the categories of student received remediation or did not receive remediation.

### **Procedures**

Approval was first obtained from the community college institution to access archival data. The college protects the participants used in this type of study by requiring institutional review and permission for use of human participants in research. Applicants must certify that they are familiar with the procedures consistent in the Code of Federal Regulations that governs the protection of human participants and their ethical treatment. This application was submitted for review and approval to the Office of Institutional Research. This process helps to ensure that all participants are protected from invasion of privacy and exploitation. After gaining IRB approval, data were retrieved through the offices of the Registrar and Financial Aid at the regional level.

### **Statistical Analysis**

The first research question examined the relationship between successful graduation and demographic variables of sex and age of students, presence of grant-type financial aid, and need for remediation. This question was addressed via logistic regression; the dependent variable was whether or not students persisted to graduation. Students were considered to have successfully persisted to graduation if they had completed their chosen course of study within 12 semesters. Conversely, students who did not complete within 12 semesters were categorized as failing to persist.

The second research question asked whether each of the variables of sex, grant-type financial aid, or remediation could be used to predict the number of semesters students had completed. This question was addressed with an OLS regression; the criterion variable was the number of semesters completed. The same predictors from the logit were used in the OLS regression (i.e., sex, age, receipt of financial aid, and receipt of remediation).

### **Data Interpretation**

The framework for interpretation of the data was based on the classic work of Tinto (1987) who developed a model of how the combination of academic and social integration factors influences student persistence and success. Much scholarly research has been done on this model and has provided evidence to support its predictive ability (Berger & Braxton, 1998; Christie & Dinham, 1990; Engstrom & Tinto, 2008; Liu & Liu, 2000; Metz, 2002).

Tinto's (1987) model supports the assumption that students are products of their academic as well as their social environments. Peer support, teacher involvement, and structured learning communities encourage students to return semester after semester even in the face of personal difficulties (Engstrom & Tinto, 2008). Based upon these findings, it is postulated that delivering these supportive services in a student-centered setting will promote increased rates of graduation. Because community colleges are often the choice for students who feel less academically competent or socially capable, empowerment is an important component in these learning communities. Determining which components are most closely linked to student success (and conversely, lack of success) may enable development of programs that provide a synthesis of the most supportive academic and social environments. Specifically, Tinto's work provides a perspective through which to view the data collected and a platform on which to build risk-reducing interventions.

## Limitations

There are some limitations to this study. The first is that the sample is limited. Although this college has 14 regions and more than 75 sites that offer classes, data were examined from a single campus with a population of approximately 6,700 students per semester. Because the sample was from a single location, the students may have some characteristics that are not shared by all community college students, thus limiting the external validity. However, although this study was done with archival data from a single campus of a community college, it seems reasonable that themes from this research can be extrapolated and used to inform study in similar institutions and with similar populations.

In addition, the use of an existing database of student information limited the depth of information that may be acquired regarding factors and the role that each plays in student success. Had interviews or specific questionnaires been provided to students, data with rich detail about academic experiences and the struggles in persisting to graduation could have been gathered.

A further limitation is in the definition of traditional and nontraditional students. Most previous research has defined traditional students as those less than 25 years of age and the nontraditional student who is older. There is much overlap when an arbitrary line such as this is drawn. The experiences of a student who is 24 years 11 months old may not be substantively different from a student who is 25 years old. There may be a segment of the community college population which can be designated the *not quite traditional* student (NQT). This designation could more properly describe those students who do not neatly fall into the previously defined categories. Examples include the 35-year-old single person who is not financially independent from his or her parents and comes to college after being laid off from work to train for a new

career. Another example would be the 18-year-old student who has parenting and financial responsibility for two children. For this reason it is thought that these previously designated categories of traditional and nontraditional are too limiting and that by gathering the specific age of the student and analyzing it as a continuous variable, more meaningful results can be obtained.

Finally, it might be that remediation serves a purpose beyond academic. If the remediation coursework serves generally to empower as well as academically enrich students, the process of separating that effect of remedial course work from the effects of other variables would require additional statistical methods beyond the scope of this study. This certainly suggests further research that would more closely examine the predictive ability of remediation regarding persistence to graduation.

## CHAPTER 4

### RESULTS

The initial sample contained 821 students and only 33 (3%) persisted to graduation. Because the number of students who persisted to graduation was so small, simply predicting the mode (i.e., that all students did not graduate) predicted with 97% accuracy. As such, there was not enough variability on the outcome variable to conduct any meaningful analysis. Therefore, steps were necessary to obtain a sample with more variability on the outcome. This was accomplished by removing from the sample all students who dropped out of school before the third semester. This increased the number of students who persisted to graduation to 16% ( $N = 316$ ), thus allowing more variance for analysis. For this reason, the sample was modified from the proposed cohort of all students who were first time attendees to those students who had completed three or more semesters. A listwise deletion of missing data resulted in full data for 301 people, which served as the final sample.

The new sample of 301 individuals were the same students who had enrolled in college for the first time for the fall 2008, spring 2009, summer 2009, or fall 2009 semesters; however, this number included only those students in the group who had persisted to the third semester. This total included 63% female students ( $n = 188$ ), 38% male students ( $n = 113$ ), and 13 students who did not respond. Of the new sample of 301 individuals, 206 required remediation (68%),

and 95 individuals (31.6%) did not. One student did not complete this question. A total of 184 students (61.1%) received grant-type financial aid and 117 (38.9%) did not.

Ages ranged from 20 years to 66 years ( $M = 31.12$ ,  $SD = 9.84$ ). The finding of such a high average age is a bit misleading. One factor influencing the mean is that the traditional age students who enrolled in the community college right out of high school were not in the sample because they did not have time to persist to the third semester. This explained the mode of 22 years (16.3%,  $n = 49$ ). Additionally, the distribution of ages had positive skew (1.26 standard error of skew = .140) and kurtosis (-.41 standard error of kurtosis = .280). The positive skew was due to the 20% of students over the age of 40 ( $n = 60$ ). A histogram depicting the distribution is provided in Figure 1. Given the skewed nature of the distribution, the median age of 29 provides a better measure of central tendency.

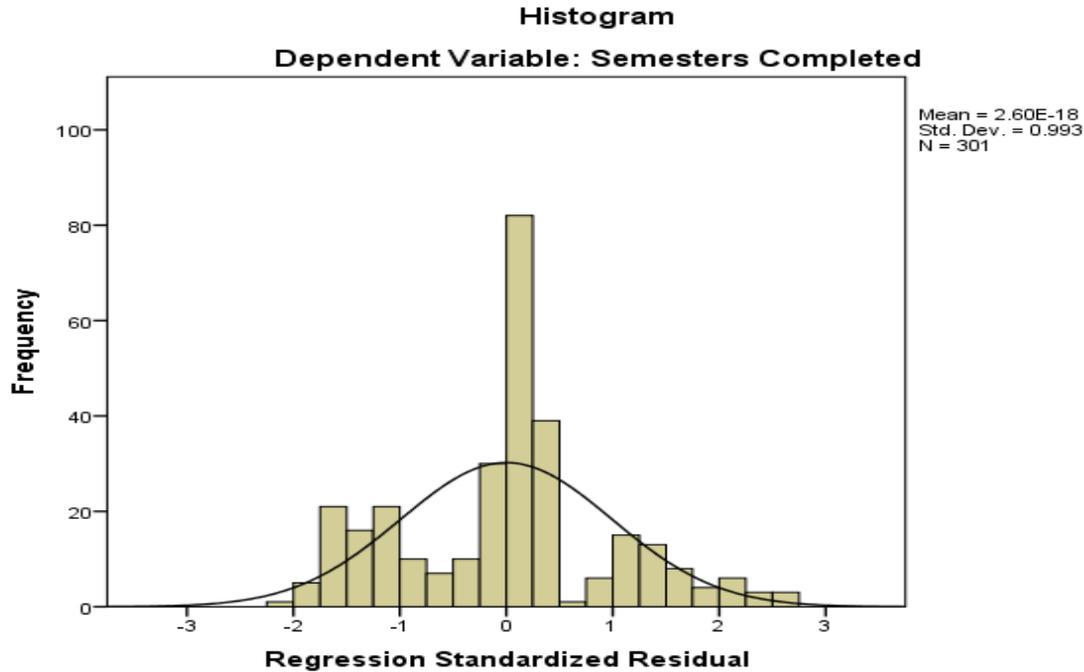


Figure 1. Distribution of student age.

## Ordinary Least Squares Regression

Age, sex, remediation, and financial aid were used in an ordinary least squares multiple regression analysis to predict number of semesters completed. Pearson  $r$  correlational analysis was used to examine the relationships between exogenous variables and the outcome variable of persistence to graduation (Table 1).

Table 1

### *Descriptives of Independent Variables Predicting Persistence to Graduate<sup>+</sup>*

Name	Mean	Std. Dev.	Min	Max	Description
Age	31.12	9.84	20	66	Age in years
Sex	.63	--	0	1	0 = Men; 1 = women
Remediation	.68	.47	0	1	0 = No remediation; 1 = Remediation
Financial aid	.61	.49	0	1	0 = No financial aid; 1 = Financial aid

*Note.*  $N = 301$ . <sup>+</sup>Persistence to graduate has categories: 1 = graduated (16%); 0 = did not graduate (84%).

Correlations were computed among the four demographic variables of age, sex, remediation, and financial aid on 301 subjects. A total of two correlations were statistically significant; the first was between age and required remediation,  $r(299) = .13$ ,  $p = .021$ , the second was between financial aid and required remediation,  $r(299) = .15$ ,  $p = .010$ . All tests were two-tailed. Correlations among the variables are provided in Table 2.

Table 2

*Intercorrelations Among Variables Affecting Persistence to Graduation*

Variable	Age	Sex	Remediation
Age	--		
Sex	.07	--	
Remediation	.13*	.08	--
Financial Aid	.07	.11	.15**

Note. \* $p < .05$ , \*\* $p < .01$ ; all tests were two-tailed.

The ordinary least squares regression model was not significant,  $F(4, 296) = 1.60$ ,  $p = .175$ ,  $R^2 = .02$ , indicating that the model accounted for 2% of the variance in semesters completed. When adjusted for sample size and number of predictors the variance explained dropped to 1% (Table 3).

Table 3

*Regression Analysis Summary for Variables Predicting Semester Completed*

Variable	$B$	SEB <sup>+</sup>	$\beta$
Age	.03	.01	.13*
Sex <sup>++</sup>	-.12	.26	-.03
Remediation <sup>+++</sup>	-.19	.27	-.04
Financial Aid	.23	.26	.05

Note.  $R^2 = .02$ ; Adjusted  $R^2 = .01$ ; \* $p < .05$ , two-tailed; <sup>+</sup>Standard Error of  $B$ ; <sup>++</sup>0 = Male, 1 = Female; <sup>+++</sup> No Remediation = 0, Remediation = 1.

Although the overall model was not significant, age was found to be a significant predictor,  $t(296) = 2.29, p = .023$ , two-tailed. Specifically, for every additional year of age, an additional .03 semesters was expected to be completed holding all other variables constant. Put differently, it would take an additional 33 years of age to gain an additional one semester completed. Given the very small increase in the outcome variable, and the non-significance of the entire model, there was no practical significance to the effect of age.

### **Logistic Regression Analysis**

A logistic regression was conducted to assess whether the four predictor variables—age, sex, remediation, and financial aid—could predict persistence to graduation. The model was significant,  $\chi^2(4, N = 301) = 13.50, p = .009$ , two-tailed, Nagelkerke's  $R^2 = .08$ . Hosmer and Lemeshow's test of goodness-of-fit was not significant,  $\chi^2(8, N = 301) = 9.90, p = .27$ , two-tailed, indicating adequate model fit.

Age was a significant predictor,  $Wald = 4.77, p = .03$ , odds ratio = 1.04. The 95% confidence interval for the odds ratio was 1.00-1.07. Interpretation of the odds ratio revealed that for every additional year of age, the odds of graduating increased by a factor of 1.04, holding all other variables constant. Additionally the presence of remediation was also found to be significant,  $Wald = 7.75, p = .01$ , odds ratio = .39. The 95% confidence interval for the odds ratio was .20-.76. Interpretation of the odds ratio revealed that the presence of remediation decreased the odds of graduating by a factor of .39, holding all other variables constant (Table 4). Neither sex nor financial aid was found to be a significant predictor in the model.

Table 4

*Logistic Regression Analysis Predicting Persistence to Graduation*

Name	<i>B</i> (Std. Error)	Wald	Exp( <i>B</i> )	95% Confidence Interval for Exp( <i>B</i> )	
Age	.03(.02)	4.77*	1.04	1.00	1.07
Sex <sup>+</sup>	-.15(.34)	.21	.86	.45	1.65
Remediation <sup>++</sup>	-.94(.39)	7.75**	.39	.20	.76
Aid <sup>+++</sup>	.66(.36)	3.45	1.94	.96	3.91

Note.  $N = 301$ . \* $p < .05$ , \*\* $p < .01$  (two-tailed); <sup>+</sup>Male = 0, Female = 1; <sup>++</sup>No Remediation = 0, Remediation = 1; <sup>+++</sup>No Financial Aid = 0, Financial Aid = 1; *B* is the unstandardized coefficient; Exp(*B*) is the factor change in odds for a unit increase in the IV.

As an example of the predictive ability of the overall model, consider the case of a 25-year-old female student who received aid and did not require remediation. The conditional probability of persisting to graduation for this individual is .24, as follows:

$$P(\text{graduation}) = \frac{e^{b_0 + b_1(\text{age}) + b_2(\text{gender}) + b_3(\text{remediation}) + b_4(\text{financial aid})}}{1 + e^{b_0 + b_1(\text{age}) + b_2(\text{gender}) + b_3(\text{remediation}) + b_4(\text{financial aid})}}$$

$$P(\text{graduation}) = \frac{e^{-2.511 + .034(\text{age}) - .154(\text{gender}) - .94(\text{Remediation}) + .633(\text{Financial Aid})}}{1 + e^{-2.511 + .034(\text{age}) - .154(\text{gender}) - .94(\text{Remediation}) + .633(\text{Financial Aid})}}$$

$$P(\text{graduation}) = \frac{e^{-2.511 + .034(25) - .154(1) - .94(0) + .633(1)}}{1 + e^{-2.511 + .034(25) - .154(1) - .94(0) + .633(1)}} = 0.24$$

A probability of .24 of graduating indicates a .76 probability of not graduating (i.e.,  $1 - .24 = .76$ ). Another way of looking at this would be to consider the odds of not graduating. Odds of membership in the target group (i.e., persisting to graduation) is equal to the probability of membership in the target group divided by the probability of membership in the other group

(i.e., failing to persist to graduation), in this case  $.76/.24 = 3.17$ . This indicates that this student would be over three times more likely not to graduate than to graduate.

Now consider the same student with the addition of remediation. This individual would have a probability of .11 of persisting to graduation as calculated below:

$$P(\text{graduation}) = \frac{e^{-2.511 + .034(25) - .154(1) - .94(1) + .633(1)}}{1 + e^{-2.511 + .034(25) - .154(1) - .94(1) + .633(1)}} = 0.11$$

A .11 probability of graduating means there is a .89 probability of not graduating (i.e.,  $1 - .11 = .89$ ). The odds of this student not graduating would be  $.89/.11 = 8.09$ , indicating this student would be over 8 times more likely not to graduate.

The presence of financial aid was not significant in this model, Wald = 3.45,  $p = .66$ , odds ratio = 1.94. Interpretation of the odds ratio indicates that students who have some kind of grant-type financial aid are almost two times more likely to persist to graduation than those who do not; this is a large effect. The 95% confidence interval for the odds ratio was .96 to 3.91. The Wald statistic has to be interpreted cautiously because it is not always a reliable test of significance; for example, when the regression coefficient is large, the standard errors become inflated, resulting in the underestimation of the Wald statistic. For that reason, it is important to consider the odds ratio along with the confidence interval (Menard, 1995). In this case, the confidence interval was .96 to 3.91. A confidence interval that goes from less than one to greater than one cannot be significant. Here, the lower end of the confidence interval is very close to one, while the upper end is almost 4, indicating the real possibility of a Type II error, in other words, that the predictor could actually be significant in the population.

Additionally, there was not much variability on the outcome variable given that only 16% ( $n = 48$ ) of the sample persisted to graduation. This lack of variability can contribute to a loss of power. In other words, when there is not much variance, there is little to analyze statistically.

Given the nature of the confidence interval, the size of the odds ratio, and the lack of variability of the outcome variable, it is quite possible that the presence of financial aid actually does hold some predictive ability in the population. As a result, a discussion of the effect of this variable is included in Chapter 5.

### **Summary**

The odds ratio of these two cases dramatically illustrated the effect of remediation on the odds of not graduating. Recall that a 25-year-old, financial aid-receiving, male student who received remediation was much more likely not to graduate than a 25-year-old, financial aid-receiving student who did not receive remediation, specifically 8.09 vs. 3.17. The odds ratio for these two conditions was  $8.09 \text{ (received remediation)} \div 3.17 \text{ (did not receive remediation)} = 2.55$ , indicating the student who received remediation was over two and a half times more likely not to graduate than the student who did not receive remediation.

## CHAPTER 5

### DISCUSSION

#### **Major Assumption of the Study**

Prior to discussion of the implication of this research, it seems appropriate to identify the major assumptions and limitations of this study. The major assumption is that all students who enrolled in the community college during the study period were there with a goal of graduation. Although this assumption seems likely, the possibility of other reasons for enrollment cannot be ignored. Students report going to college for many reasons beyond earning a degree. In Green's (2003) study, students listed reasons such as finding a mate, gaining social status, and having fun. These reasons seem fairly benign when compared with the findings of Baime and Mullin's (2012) study investigating financial aid fraud being committed on community college campuses. This study focused on students who enrolled in courses primarily to secure student financial aid funds rather than to pursue an education. Community colleges are often targeted by this group called "*Pell Runners*" due to the low cost of tuition and fees. Once a student enrolls and all expenses owed the college have been removed, the remainder of the Pell Grant money is released to the student. Certainly, the percentage of students who are perpetrating this scam is small, but even small percentages translate to a great deal of money. This practice can skew graduation percentages, making the community college system seem less capable. Also at issue is the

negative press that this practice receives, decreasing political support for government-sponsored programs at a time when students desperately need the assistance (Baime & Mullin, 2012).

In my study, the graduation rate of 3% during the study period was increased to 16% when students who failed to persist to the third semester were removed. One result of this removal was that any students who might be Pell Runners within the system being studied would have a chance of being eliminated (Baime & Mullin, 2012). It must be stressed, however, that this was not the purpose of reducing the sample. The Statistical Package for the Social Sciences (SPSS) was utilized to perform a listwise deletion of missing data, so those people were eliminated from the sample automatically. This was the result of changing the outcome variable so that there would be more variability on the outcome variable.

#### **Limitation of the Study**

Of the students who persisted to the third semester in the study being examined, 84% failed to graduate. However, it is unknown if these individuals dropped out or moved on to four-year institutions without graduating at the community college. Some of these students might have gone on to be successful in attaining their undergraduate degrees from a university after meeting their community college goal. A variety of reasons that appear as failure to complete in the community college system can be personal success stories for the individual student. Those who attend to take specialty classes and students who enter with the goal of transfer were not tracked. Inability to follow these students is another limitation of the study.

This study was implemented to explore the possibility that the presence of certain factors might be used to predict graduation for community college students. The logistic regression model was found to be significant overall with further examination revealing that the two significant predictors in the model were age and remediation. This means that for every year of

life, the odds for graduation increased by a factor of 1.04 holding all other variables constant. However, the addition of remediation had a huge negative impact on chances of persisting to graduation, with the odds of a student who received remediation persisting to graduation decreasing by a factor of .39 for each additional semester holding all other factors constant.

### **Implications**

What is it about remediation that works against a student that one is trying to assist? Bragg and Durham (2012) speculated that this could be linked to frustration by students who are required to take classes (and sometimes entire semesters) that do not apply toward graduation. Bettinger and Long (2005) found that being assigned to remediation can send the message to students that they do not belong in college. However, this same study also reported that those students who overcame these emotional issues have an equal or better chance of persisting to graduation as do their peers who did not require remediation (Bettinger & Long, 2005). Atwell et al. (2006) proposed an interesting connection between remediation and graduation. They suggested that it is the *need* for remediation caused by poor high school preparation that is correlated with lower rates of graduation for those who are placed in remediation courses. When data were gathered for students who actually enrolled in the remedial courses, the rate of persistence to graduation went up with remediation serving the desired purpose. This study suggested that the wrong questions are being asked (Atwell et al., 2006). In my study, the data looked only at students who required remediation and who also maintained enrollment to at least the third semester. This was my attempt to ask the right question: What is the rate of retention for students who accepted that they needed the remediation courses and who then took them? This will be explored further in the section for future research.

It is not surprising for the variables of age and remediation to go hand in hand. For many students, additional years past the average age of completion of high school indicates time when the student has not been actively engaged in learning. Brushing up on rusty skills requires remediation. This relationship was also exposed in the correlational study where the relationship of age and remediation was found to have a positive direction. Put differently, both the logistic regression and the correlational study indicated that the older a student, the more likely that the student will require some remediation.

In recent decades, there has been a steady increase in college enrollment for students of all ages. In the decades between 1970 and 2000, growth in traditional-aged students increased by 51%. However, the number of older students increased at three times that rate (Taniguchi & Kaufman, 2005). The human capital theory posits that individuals who consider investing their time in education need to feel that the cost in time, money, and work will pay off for them in future benefits (Becker, 1975). Perhaps this is one explanation for the low levels of completion for students who fall into the category considered nontraditional. The challenge for educators in general, and counselor educators in particular, is to demonstrate to nontraditional students that the investment of time, money, and effort will benefit them in the form of more opportunity and more income.

An additional positive correlational relationship was found to be significant: that of financial aid and remediation. Although data gathered for this study were not specific about student income, the variable of receipt of grant-type financial aid implies individuals with low socioeconomic status who qualified for this type of funding (USDOE, 2010). Bettinger, Long, and Oreopolus (2007) looked at the application process for financial aid and found that the process itself is a significant roadblock to students who need assistance. In fact, they noted that

850,000 students who would have been eligible for federal financial aid in 2000 did not complete the necessary forms to receive such aid. Reasons for this included not knowing about access to funding and difficulty completing the confusing Free Application for Federal Student Aid form.

Another question being investigated was if the number of semesters that the student completed could be predicted using the variables of age, sex, presence of grant-type financial aid, and remediation. Although the ordinary least squares analyses revealed no significance, this does not definitively mean that these variables have no ability to predict number of semesters completed. Perhaps the exogenous variables of sex, financial aid, remediation, and age need to be further linked to additional variables. Addition of more predictor variables might increase the variance explained and perhaps move the model to a significant level. Other researchers have tied variables of ethnicity (Murtaugh et al., 1999) and parental education (Elkins et al., 2000) to programs designed to boost student success. Unfortunately, it seems that community college students are especially resistant to participating in these types of student support programs (Tinto, 2006).

Students in a community college might not seem to have much in common with doctoral students studying to be counselor educators. Like the community college student, many doctoral students attend college part time and sometimes have difficulty in placing their roles of students ahead of their roles of wage earners, spouses, and parents. This shift of perception from worker who goes to school, to student who works, to the emergence of the role of professional is a process that is particularly difficult for part-time students (Taniguchi & Kaufman, 2005). The professional identity of the counselor educator is one that encompasses both the responsibility to provide therapeutic intervention to clients and the responsibility to disseminate that knowledge to professionals in training. Although most counselor educators work in university settings, some

will work in the community college system, making the needs of these part-time students of particular interest to them. As counselors they are empathetic to the emotional needs of these students. As educators, understanding the factors that differentiate this population from their university counterparts is necessary in order to help increase the chance that these students will achieve their educational goals.

Counselor educators who are dedicated to the development of a balanced professional identity seek to understand both the needs of students who are at risk and what can be done to support their educational efforts. When Tinto (1987) first studied why students left college, findings began to support the belief that students have a need for a system supportive of their education in conjunction with their other life roles. In university settings, the social aspect of the student experience seems to flourish with little need for intervention by institutional staff. However, in a community college, the educational experience is often focused on work with very little socialization. Many community college students make time for classes on their lunch hours, in the evenings after work, or online after the children are in bed. In this setting, it is incumbent upon the staff of the college to facilitate the social support system that all students needs, but that many community college students are unable to provide on their own. Unfortunately, most of these students do not have time to attend club meetings or college-provided entertainment due to the fact that they do not have spare time to spend at the college. The tight schedule that is common to most community college students leaves little time outside of the classroom that is not consumed by the many responsibilities of the multiple roles these students play. It is for this reason that Tinto suggested that the classroom is the place to facilitate the social experience that is so necessary to student success. In a setting where most professors are not trained educators, but specialists in their field of study, this can be seen by professors as

an overwhelming task. Rather than delegating the responsibility for student retention to the student affairs department or the admissions personnel, Engstrom and Tinto (2008) posited that professors who provide opportunities for students to connect on a personal level have higher levels of retention. Faculty members who assign group projects and encourage peer instruction create a classroom environment where students begin to support one another's efforts. The result of these tasks is successful learning and students who feel a part of the learning community (Jackson, Stebleton, & Laanan, 2013).

Borba (2001) also suggested an institutional strategy that increased the level of interaction between university professors and incoming students. This plan employs a three-pronged approach where the university and faculty become more involved with the community at large. Mentor professors interact and encourage students providing them with role models. University partnerships are developed with corporate America who contribute both funding and expertise to community high schools. Finally, this close relationship provides increased university involvement with the high school accreditation process hopefully making the transition from high school to college a smooth one for incoming students.

Whether the interventions are designed and delivered by individual instructors within the classroom or by entire institutions as part of retention plans, the category of theory behind these acts is the same: sociological. Although universities see academic failure as the biggest reason that students leave college, studies show that this is simply not the case (Astin, 1999; Bank et al., 1992; Ness, 2003; Sorey & Duggan, 2008; Tinto, 1993). In reality, academic failure accounts for only one-third of the attrition (Tinto, 1989). Most students leave college because they are unable to navigate the sociological and cultural differences that come with the changes associated with going to college. As Sorey and Duggan found in their 2008 study, social integration seems to be

more important to the older, non-traditional student than to their younger classmates. Gilardi and Guglielmetti (2011) found that for older students, higher levels of social interaction with both faculty and other students increased the chance these students would remain enrolled.

In a 2013 report, Crosta noted that students who dropped out after the first semester had several characteristics in common, the most significant of these was remediation. Of all risk factors associated with non-completion, need for remediation was consistently the most significant. In study after study, this factor was identified, yet no workable solution to the problem has been found (Atwell et al., 2006; Baime & Mullin, 2012; Bettinger & Long, 2005; Bragg & Durham, 2012).

Using the idea behind Tinto's (1997) learning communities, some community colleges are developing new remediation strategies that link students who need remediation to other students with the same remedial needs. A learning community is a group of individuals (in this case, students), who come together with a common purpose. Key to this experience is shared experiences and an emotional connection (Tinto, 1997). The learning community can be used to address many issues, but some campuses have found that it works well in remediation groups. A variety of delivery systems exist, but an example from the University of the District of Columbia serves as a model for implementation. Students who have graduated from high school but who do poorly on placement tests for college are invited to participate in a special program for incoming students. This program, called Gateway Academic Program is an eight-week pre-college program in which the students take a common set of courses and go through the entire program with a cohort of other incoming freshman. At the end of the session, students are retested and most score high enough to move forward with their incoming class with no restrictions (Stuart, 2009).

Why is this not being done all over the country? The answer is that until recently, community colleges were about access. The door is open, the tuition is cheap, and if you succeed, great! Since community colleges were paid by the number of students who enrolled, helping students to succeed was considered a costly and unnecessary burden (Stuart, 2009). Recent changes in federal funding reimburses community colleges for each student who *graduates*, not for each student who enrolls (Altstadt, Fingerhut, & Kazis, 2012). The scramble to save funding for community colleges has renewed interest in the learning community idea. In this model, students enroll as a cohort, all taking the same courses each semester. They are presented with many group experiences to encourage emotional connections and they are assigned projects that require working together. As documented earlier, increased levels of socialization have been linked to better academic performance. Combining time in the classroom with social experiences may be the answer to giving the community college student the experience that he or she needs to succeed (Tinto, 2006).

### **Future Research**

The logistic regression model reveals areas that suggest further research would be beneficial. Although this study found significance in the areas of age and remediation, the specific area of remediation should be parsed out to discover which remedial course should take priority for students who require remediation in multiple areas. Adelman's (2004) study of factors that affect graduation rates and time to degree found that remediation in reading was especially vital for student persistence. If students required remediation in reading, they were less likely to persist to graduation than those who needed remediation in other areas (Adelman, 2004). Applying this information to an investigative model tailored to the community college student could lead to structural reform in remedial programs. Successful replication of this study

could hold the key to designing new remedial programs in community colleges. In the study by Atwell et al. (2006), remedial students were identified and then the success rate was determined based on those who need remediation. Perhaps future research could be designed around students who test into remedial courses and who then take the class. It seems speculative to assume that all students who were tested and placed in remediation would then enroll and complete the remediation course. Following the success of the student who completes remediation would be an interesting look into how important remediation truly is to student success.

Also, it might be that remediation serves a purpose beyond academic. If the remediation coursework serves to empower as well as academically enrich students, the process of separating that effect of remedial coursework from the effects of other variables would require statistical methods beyond the scope of this study. This would certainly suggest further research that would more closely examine the predictive ability of remediation regarding persistence to graduation.

Although the logistic regression did not find the variable of aid to be statistically significant in predicting the likelihood of graduation, it still warrants discussion. The odds ratio indicated that the presence of financial aid increased the probability of graduation by a factor of 1.94 holding all other variables constant. This means that in my sample, a student who had persisted to the third semester and who had received financial aid was almost twice as likely to graduate as was a student who did not receive financial aid. Since the receipt of grant type financial aid is based on income, students who receive this assistance are members of a group that is considered at risk. Although it seems intuitive that funding would help low income students to succeed, it is in direct disagreement with studies that note low socioeconomic status

as a risk factor for graduation (USDOE, 2003). In this case, the results suggest that by eliminating those students who might be Pell Runners the remainder of the students had twice as much chance of graduating than those students who do not receive this financial assistance (Baime & Mullin, 2012). Using this information as a platform for further research, perhaps a program could be developed for students who receive grant-type aid. This program could address both the financial aid fraud that is occurring on college campuses and the problem of retaining students of low socioeconomic status. If research supported it, legislation might be drafted to design programs where students could attend college part time for the first two semesters without cost of tuition. A special type of student loan could be delivered to these students, enabling them to meet additional school expenses until they reach the third semester. At that time, the student who has persisted successfully is allowed to enroll full time and the college receives the tuition in arrears. The loan money that the student owes is also paid directly to the banking institution. At this point, the student would have earned the right to receive grant-type assistance in its current form. Certainly this is only an idea, but it illustrates the possibilities that could develop from further research in this area.

In spite of the fact that the ordinary least squares analysis performed in this study was not found to be significant, some important information was still gleaned from the process. Although it was true that the ordinary least squares regression in this study explained only 2% of the variance, this does raise questions about the possibilities for future research. Perhaps adding more predictor variables would increase the variance explained and this might move the model to a significant level. Including data on number of hours worked by students, dependability of their transportation, number and ages of children in the home, and need for childcare are just a few of the indicators that might be examined in a future study. Other measures provided by the college

might also be explored in an effort to determine which factors would be helpful in determining how many semesters a student would complete. For example, what if the college provided a free childcare service for students' scheduled tutoring appointments? What if the college implemented a share-a-ride program for students who have transportation issues? There are many interventions that could be placed into the equation.

Another area that would be interesting to research is the role of the professor in charge of remedial classes. Perhaps differences would be revealed in the success rates for an educator who has specialized training in educational pedagogy as opposed to the educator with no such training. Investigation into what happens if all remediation instructors are required to attend workshops that address ways to incorporate sociological learning into the classroom might also be enlightening. Would creating learning communities in remedial classes increase the number of students who successfully completed the remediation? Following success rates of those students might then give us a better understanding in the relationship between remediation and persistence to graduation.

Closely related to remediation is the issue of testing and diagnosis of learning disorders. The staff members at the community college studied are not qualified to diagnose or even to refer for diagnosis students whom they suspect to have a learning disorder, but future research might focus on community colleges who have this service available. Even those students who self-refer for diagnosis of learning disorders soon find that the testing is financially out of reach for most members of this population. Perhaps partnerships with local university programs in psychometrics or with local community clinics could serve as a starting point for meeting this need.

The community college studied has a disabilities services coordinator, but overseeing the faculty to make sure each is providing the accommodations needed for each student is an overwhelming task. Students are required to report any deviation from the requirements set forth by the learning plan presented to the faculty member. Future research into how much training should go into preparing faculty to revise lesson plans to meet the needs of these students might reveal the need for more staff hours devoted to the success of students who learn in different ways.

The positive correlation between financial aid and remediation also begged several questions: Do individuals with lower socioeconomic status have a lower academic achievement, thus requiring more remediation? Do individuals with lower academic achievement have lower socioeconomic status, thus driving them to the community college in an effort to improve their job readiness and increase their family's standard of living? This *chicken and egg* explanation requires further investigation.

Perhaps most importantly, there is a need for more qualitative research on *why* students stop attending college. Although it is fine to measure discrete variables such as presence of financial aid or need for remediation, some variables are not quantifiable. Why did the student decide not to enroll in the remediation class that was required? For the mother who lost her financial aid because her daughter became seriously ill and she missed more classes than the attendance policy would allow, the explanation behind her failure is very important.

### **Conclusion**

It is obvious that community colleges are here to stay. Bettinger, Boatman, and Long (2013) stated that the community college system is the point of entry for 80% of four-year students and virtually all two-year students. In 2004, one-third of the high school seniors who

enrolled immediately in a community college did so with no intention of pursuing any education higher than an associate's degree; however, by 2006, almost 47% of this group had raised their educational expectations to start or complete a bachelor's degree (Provasnik & Planty, 2008). With the community college growing into a feeder system to university programs, it is time all educators took an interest in what is going on there.

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