3-31-2009

Effects of student-faculty interactions on persistence of underprepared community college students.

Deoraj Bharath
Florida International University

DOI: 10.25148/etd.FI14051141

Follow this and additional works at: <https://digitalcommons.fiu.edu/etd>

Part of the [Higher Education Commons](#)

Recommended Citation

Bharath, Deoraj, "Effects of student-faculty interactions on persistence of underprepared community college students." (2009). *FIU Electronic Theses and Dissertations*. 1671.
<https://digitalcommons.fiu.edu/etd/1671>

This work is brought to you for free and open access by the University Graduate School at FIU Digital Commons. It has been accepted for inclusion in FIU Electronic Theses and Dissertations by an authorized administrator of FIU Digital Commons. For more information, please contact dcc@fiu.edu.

FLORIDA INTERNATIONAL UNIVERSITY

Miami, Florida

EFFECTS OF STUDENT-FACULTY INTERACTIONS ON PERSISTENCE OF
UNDERPREPARED COMMUNITY COLLEGE STUDENTS

A dissertation submitted in partial fulfillment of the

requirements for the degree of

DOCTOR OF EDUCATION

in

HIGHER EDUCATION

by

Deoraj Bharath

2009

To: Interim Dean Kingsley Banya
College of Education

This dissertation, written by Deoraj Bharath, and entitled Effects of Student-Faculty Interactions on Persistence of Underprepared Community College Students, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this dissertation and recommend that it be approved.

Leonard Bliss

Janice Sandiford

Prathiba Natesan

Glenda Droogsma Musoba, Major Professor

Date of Defense: March 31, 2009

The dissertation of Deoraj Bharath is approved.

Interim Dean Kingsley Banya
College of Education

Dean George Walker
University Graduate School

Florida International University, 2009

© Copyright 2009 by Deoraj Bharath

All rights reserved.

DEDICATION

To Boskie, Mitty, and Huck-Mudge, my dearmost lifelong companions. And to Bhar and Piyarie, who surely would not understand the meaning or significance of this, but who nonetheless did their best and laid the foundation.

ACKNOWLEDGMENTS

I would like to express my deepest gratitude to Dr. Musoba, my major professor, who guided me, nurtured my critical thinking and writing skills, and went over countless drafts of this work. Rigorous scholarship, thoughtful criticism, and encouraging words are the hallmarks of her leadership. Thank you Dr. Musoba.

I would also like to pay special recognition to Dr. Bliss and Dr. Sandiford, both of whom have had a profound impact on my intellectual development. Dr. Bliss is a brilliant, forgiving, and kind professor, who has instilled in me an analytical mindset with his research methods and quantitative courses, ultimately allowing me to appreciate the importance and beauty of variability in our natural world. And Dr. Sandiford, who is so committed to excellence, engaging, interactive, and full of compassion; one who genuinely cares for the well being of her students, has taught me all I need to know about community colleges and the U.S. higher education system. I offer my heartfelt thanks and gratitude to both Dr. Bliss and Dr. Sandiford. And lastly, special thanks also to Dr. Prathiba Natesan who joined my committee at a critical juncture and provided valuable guidance on the study's methodology.

A special thanks also to the coaching faculty, administrators, and students who participated in the study. I am especially grateful to the faculty, who sent in their weekly coaching logs, and to the students, who gave their candid and honest opinions about their first semester and coaching experiences.

Finally, I will always be grateful to my dear wife Debie, my wonderful children, Dimitri and Nikki, and my eternal friend Paramatma, all of whom patiently supported and encouraged me during difficult times.

ABSTRACT OF THE DISSERTATION

EFFECTS OF STUDENT-FACULTY INTERACTIONS ON PERSISTENCE OF
UNDERPREPARED COMMUNITY COLLEGE STUDENTS

by

Deoraj Bharath

Florida International University, 2009

Miami, Florida

Professor Glenda Droogsma Musoba, Major Professor

The high concentration of underprepared students in community colleges presents a challenge to educators, policy-makers, and researchers. All have pointed to low completion rates and caution that institutional practices and policy ought to focus on improving retention and graduation rates. However, a multitude of inhibiting factors limits the educational opportunities of underprepared community college students.

Using Tinto's (1993) and Astin's (1999) models of student departure as the primary theoretical framework, as well as faculty mentoring as a strategy to impact student performance and retention, the purpose of this study was to determine whether a mentoring program designed to promote greater student-faculty interactions with underprepared community college students is predictive of higher retention for such students. While many studies have documented the positive effects of faculty mentoring with 4-year university students, very few have examined faculty mentoring with underprepared community college students (Campbell and Campbell, 1997; Nora & Crisp, 2007).

In this study, the content of student-faculty interactions captured during the mentoring experience was operationalized into eight domains. Faculty members used a log to record their interactions with students. During interactions they tried to help students develop study skills, set goals, and manage their time. They also provided counseling, gave encouragement, nurtured confidence, secured financial aid/grants/scholarships, and helped students navigate their first semester at college.

Logistic regression results showed that both frequency and content of faculty interactions were important predictors of retention. Students with high levels of faculty interactions in the area of educational planning and personal/family concerns were more likely to persist. Those with high levels of interactions in time-management and academic concerns were less likely to persist. Interactions that focused on students' poor grades, unpreparedness for class, or excessive absences were predictive of dropping out. Those that focused on developing a program of study, creating a road map to completion, or students' self-perceptions, feelings of self-efficacy, and personal control were predictive of persistence.

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION.....	1
Background of the Study	2
Research Problem and Purpose.....	4
Research Questions	7
Theoretical Framework	7
Significance of the Study.....	16
Delimitations of the Study	17
Definitions of Terms	18
Summary.....	19
II. REVIEW OF RELATED LITERATURE.....	22
Spady's Model of College Student Dropout.....	23
Tinto's Model of College Student Dropout.....	26
Tinto's Recent Research: Post 1997.....	32
Effect of Institutional Practices on Student Persistence	34
Astin's Involvement Theory	42
Persistence of Developmental Students at Community Colleges	44
Bean and Metzner's Model of Student Attrition.....	47
Faculty Mentoring.....	49
Summary.....	54
III. METHODS	56
Research Questions	57
Prediction Study	57
Faculty Mentoring Responsibilities and Practices	58
Population and Sample.....	61
Setting.....	62
Instrumentation	63
Reliability and Validity of Mentoring/Coaching Instrument.....	63
Pilot Testing of Coaching Datasheet.....	64
Operational Definition of Variables.....	67
Procedure	69
Data Treatment and Analysis.....	69
Summary.....	71
IV. ANALYSIS OF DATA AND FINDINGS	72
Demographics Characteristics of Participants	72
Descriptive Statistics and Sample Means	82
Impact of Student-Faculty Interactions on Retention	84
Summary of Regression Analysis	94
Student-Faculty Mentoring Experiences in the Content Areas.....	95

Summary.....	103
V. DISCUSSION.....	105
Summary of the Study.....	105
Impact of Faculty Mentoring on Student Retention.....	109
Faculty Mentoring in the Content Area of Educational Planning.....	110
Faculty Mentoring in the Content Area of Academic Concerns.....	111
Faculty Mentoring in the Content Area of Time-Management.....	112
Faculty Mentoring in the Content Area of Personal/Family Concerns.....	113
Impact of Success in College Prep Courses.....	113
Limitations of the Study.....	114
Implications for Theory and Literature.....	116
Implications for Practice and Suggestions for Future Research.....	118
REFERENCES.....	124
APPENDICES.....	129
VITA.....	138

LIST OF TABLES

TABLE	PAGE
1. Coaching Domains: Abbreviations and Descriptions	65
2. Race/Ethnicity of Participants	73
3. Gender of Participants.....	74
4. College Placement Test Scores by Race/Ethnicity	75
5. Age, Household Income, Enrollment Status, Financial Aid, First Generation Status, Dependents, and Employment Status	76
6. Major Sources Used to Pay College Tuition.....	77
7. Primary Reasons for Attending College	78
8. Parents' Educational Level.....	79
9. Possible Reasons for Withdrawing/Dropping Out	81
10. Competing Demands of Students	82
11. Sample Means for Variables in the Model.....	83
12. Description of Determinants Tested by Logistic Regression.....	85
13. Logistic Regression Results of the 5 Models used in the Analysis	87
14. Logistic Regression Analysis Predicting Retention 2 Years Later.....	91

CHAPTER I

INTRODUCTION

Community colleges are open door institutions. They provide access for large numbers of low-income, minority, first-generation, and underprepared students, who would otherwise be unable to attain a college education. The question of access, however, has recently shifted to one of persistence and attainment. Educators, policy-makers, and researchers have shifted their focus to the low completion rates of community college students and caution that institutional practices and policies ought to focus on improving retention and completion (Tinto, 2006).

Student retention at community colleges is an important issue. A national longitudinal study found that only 31% of all students who enter community college with the intention of earning a degree accomplish this goal at *any* college or university within a 6-year period (National Center for Education Statistics [NCES], 2002). No doubt, this is due in part to the fact that many students who enter community colleges are unprepared for college level work. Also, many such students are more likely to have one or more “risk factors” associated with low persistence in higher education. These include delaying college at least a year after high school, not having a regular high school diploma, being financially independent from their parents, having children, being single parents, or working full-time (NCES, 2002).

This study examined whether a mentoring program for underprepared community college students would lead to higher retention for those students. There were two research questions to the study. The first sought to determine the extent to which retention can be predicted by the *overall frequency* of student-faculty mentoring

experiences. The second sought to determine the extent to which retention can be predicted by *specific types* of student-faculty mentoring experiences. These questions were answered by examining the frequency and content of student-faculty interactions that occurred as a result of a mentoring program that was initiated during the fall semester of 2005.

Background of the Study

The problem of student retention has been an enduring one for higher education, especially for minority student populations. Only 17% of African American and 18% of Hispanic students admitted to 4-year institutions earn a bachelor's degree within 5 years (Wirt, Choy, Rooney, Provasnik, Sen, & Tobin, 2004). The problem is more acute at community colleges. A mere 8% of all students enrolled in community colleges earn a bachelor's degree within 5 years, even though a majority of community college students indicate that their educational goal is the attainment of an undergraduate degree (Arbona & Nora, 2005).

Perhaps the most important reason for the low persistence and completion rates of community college students is their lack of academic preparedness. McCabe (2000) found that over 1 million students, not prepared for college-level study, enter higher education every year, the vast majority going to community colleges. For some community colleges, as much as 90% of the student population may be enrolled in remedial courses (McCabe, 2000). It is estimated that more than half of these students will leave within the first year. Data from the NCES (2003) showed that 47% of all students from public 2-year colleges leave within the first year. The dropout rate of African American and Latino students within the first year is even higher, especially

those in developmental/remedial education courses, a rate that can reach as high as 70% (McCabe, 2000).

This high dropout rate poses a great challenge to administrators and faculty and has implications for the wider society. McCabe (2000) has argued that today's society and the society of the future will demand highly skilled workers who require instruction beyond high school. He has pointed to the decline of the manufacturing sector that previously provided plenty of jobs for unskilled workers and showed how this is being replaced by the knowledge economy that requires jobs with a college-level education. He maintained that today only 15% of American jobs are filled by unskilled laborers, compared to 60% in the 1950s. The number of jobs that were once available to those without a college-level education is rapidly declining. A new population of students, who historically would not have gone to college, is now, through necessity, required to attend community colleges in order to attain the skills needed for meaningful employment. As a consequence, the number of underprepared students at community colleges will continue to increase.

Underprepared students at community colleges often do not receive adequate academic and social support that could positively enhance their abilities to succeed in college (Nora & Crisp, 2007). They also tend to be at a disadvantage with respect to basic knowledge about postsecondary education, such as costs and the application process, and also have a more problematic transition from secondary school to college (Rendon, 1994). Indeed, underprepared students must confront all the anxieties and difficulties of any college students, but their experiences often involve additional social and academic transitions (Rendon, 1994).

In response to the challenges posed by underprepared students, many colleges and universities have established mentoring programs to help students make the transition to college. And even though the makeup of many of these mentoring programs may vary, depending on the type of institution or student population, the underlying goal has invariably been focused on increasing student persistence (Nora & Crisp, 2007). Yet, although the goal of mentoring programs is often quite clear, the underlying conceptualization of student-faculty mentoring experiences that should drive the development and assessment of program activities and interventions has been lacking. Consequently, most mentoring programs are devoid of a substantive framework guiding program activities (Nora & Crisp, 2007).

Research Problem and Purpose

The high concentration of underprepared students in community colleges presents a challenge to educators and policy makers, primarily because underprepared students are more likely to be low-income and disadvantaged (Roueche & Roueche, 1993). Choy and Bobbitt (2000) found that students from low-income families do not enter, or succeed in, college at the same rate as more affluent students. A combination of academic, cultural, and financial factors limit their educational opportunities. They are less likely to receive a high quality K-12 education, and they are also less likely to receive the information and encouragement to attend college from families, teachers, and counselors as do their more advantaged peers (Roueche & Roueche, 1993). And even if they do get the information and encouragement, many, because of financial necessity, often cannot afford to lose the income they must forego to attend college. And even when they attend college, low-income students remain at a disadvantage, for they face more problems, are more

sensitive to the costs of college, and leave without degrees at higher rates than their wealthier peers (Dougherty & Kienzl, 2006).

One way proposed to facilitate student retention is by utilizing Tinto's (1993) model of student departure, which suggests that students should be involved in focused activities that counteract feelings of being socially and intellectually isolated from the institution. Astin (1999) found that social and intellectual isolation can be counteracted by student-faculty interactions, which include career counseling, advising, personal counseling, intellectual discussions, and informal socializing. These activities, according to Astin, contribute to the social integration and satisfaction of students, which in turn lead to greater student persistence. Students are more likely to persist when they view faculty interactions as positive and feel they are integrated into the campus environment as valued members (Rendon, 1994).

One way to promote positive student faculty interactions is through mentoring. Mentoring refers to a situation in which a faculty member maintains a relationship with a student and provides information, support, and guidance so as to enhance the student's chances of success (Campbell & Campbell, 1997). Mentoring has been found to positively impact retention rates of college students. For example, Campbell and Campbell (1997) found that minority students paired with faculty mentors had statistically significant higher grade point averages and were twice as likely to persist as non-mentored minority students. Similarly, Mangold, Bean, Adams, Schwab, and Lynch (2003) found that students who participated in a formal mentoring program were significantly less likely to drop out than non-mentored students.

Mentoring has also been found to be effective with minority and “at-risk” students. For example, in a longitudinal study on the effects of a mentoring program for remedial students, Pagan and Edwards (2003) found that persisting students attributed their success to having a mentor and that mentoring had positive impacts on students’ retention rates and grade point averages.

Despite these positive outcomes associated with faculty mentoring, Nora and Crisp (2007) suggest that a solid conceptualization of mentoring is necessary in order to gain a deeper understanding of how such mentoring is beneficial to college students. They have asked, “What are the many facets of mentoring? How do we conceptualize a mentoring experience? Are those dimensions consistent across different groups and settings?” (p. 342). This study attempts to deconstruct the mentoring experience by examining the specific focus of the interactions between the student and faculty member. Examination of the specific focus of the interactions identifies the underlying domains that comprise the mentoring experiences of underprepared students. Knowledge of the mentoring domains can provide insights into the support functions that should guide mentoring programs for such students.

The purpose of this study, therefore, was twofold. First, it sought to determine whether a mentoring program designed to promote greater student-faculty interactions with underprepared community college students can have an impact on student retention, and second, it sought to identify the underlying domains that comprise the mentoring experiences of underprepared students. Identification of the underlying domains may enable faculty and administrators to obtain a deeper understanding of the support functions that could be used to guide mentoring programs for such students.

Research Questions

The study was guided by the following research questions:

1. To what extent can the retention of underprepared students be predicted by the overall frequency of faculty mentoring experiences?
2. To what extent can the retention of underprepared students be predicted by specific types of faculty mentoring experiences?

Theoretical Framework

The study used Tinto's (1993), Astin's (1999), and Bean and Metzner's (1985) conceptual frameworks of student persistence, as well as the conceptual framework underlining student-faculty mentoring experiences (Nora and Crisp, 2007) to ground this research. The combination of student persistence models and a mentoring construct could be useful to help faculty and administrators understand why students leave prematurely, as both emphasize the importance of students' initial experiences at college (Nora & Crisp, 2007). Moreover, both suggest that students' college experiences which reflect interactions with faculty are key factors in determining persistence.

Several models of student persistence have been developed to provide a theoretical basis for identifying student and institutional factors that influence student persistence. The best known of these models includes Tinto's (1993) Model of Student Integration, Astin's (1984) Student Involvement Theory, and Bean and Metzner's (1985) Student Attrition Model. At the same time, research on student-faculty mentoring have focused on the impact of mentoring programs on student outcomes and have identified many factors that overlap between mentoring and persistence research (Nora & Crisp, 2007). For example, student-faculty interaction, student involvement, student

engagement, and validating students in and outside the classroom are applicable both to mentoring and persistence research.

Tinto's Model of Student Persistence

Tinto's (1993) model of student persistence suggests that student involvement matters, especially during the first year of college. "The more academically and socially involved students are – that is, the more they interact with other students and faculty – the more likely they are to persist" (Tinto, 1998, p.168). The key elements of Tinto's (1993) model revolve around the concepts of academic and social integration. These two constructs, more or less, index the degree of an individual's social and intellectual experiences within the institution. Retention is postulated to be a function of the number and quality of those experiences.

Tinto's (1993) integrated model of student persistence was developed on Spady's (1970) application of Durkheim's theory of suicide, which suggested that suicide was more likely to occur when individuals were not sufficiently integrated into society. Suggesting that college could be viewed as a social system, Spady theorized that the same factors that could determine or predict suicide, which is lack of integration into society, could also be applicable to studying student dropout. The key feature in Spady's model focused on the social integration of students within the college or university.

Tinto (1993) suggested that the greater the degree of integration into the academic and social systems of the college, the greater would be the degree of the student's commitment to the college and to the goal of graduation. He defined academic integration around the formal education of the student and suggested that activities in the classrooms, laboratories, and interactions with faculty and staff belonged to this domain. His model

suggested that social integration revolved more around the daily life of the student and focused on interactions with peers, faculty, and staff outside the classroom, while academic integration occurred primarily through meeting the academic standards required by the college or university.

According to Tinto's (1993) model (see Figure 1), students arrive at college with differing background characteristics, individual attributes, and pre-college schooling experiences. Background characteristics include such variables as socioeconomic status, parental education, parental expectations, and other family dynamics. Individual attributes include ability, personality features, and gender. Pre-college schooling experiences include past educational experiences, such as performance in high school and characteristics of an individual's high school.

These background characteristics, individual attributes, and pre-college schooling experiences lead to initial student commitment to the institution and to the goal of college graduation. Grade performance and intellectual development affect academic integration, while peer-group and faculty interactions affect social integration. These two types of integration, along with initial institutional and goal commitments, have direct effects on later goal commitment and later institutional commitment. Later institutional and goal commitments subsequently have a combined effect on the decision of the student to persist or to drop out.

Tinto (1993) emphasized the importance of the fit between the student and the institution in his model of persistence and suggested that it was important for students to have a sense of belonging. He maintained that when students do not experience sufficient academic or social integration, feeling of alienation may evolve.

Figure 1. Tinto's (1993) Revised Model of College Student Dropout.

According to Tinto (1993), interactions with faculty of an academic nature, such as discussion of grades, course material covered, class readings, or project guidelines, would be examples of academic integration. Other examples may include interactions and engagement with the staff in the library, the learning labs, the tutoring centers, and other academic units of the institution. However, according to Tinto (1993) model, for academic integration to occur, it seems that students must be able to understand the college's cultural and institutional norms and must also be able to navigate their way through its physical and virtual space. Yet, the question could be asked, to what extent do first-time, developmental students have prior knowledge and experiences that will allow them to "fit in" within the institutional culture? Clearly, this will be a challenge for minority or immigrant students who may lack the middle class life experiences that drive both the curriculum and the institutional culture in higher education.

Tinto (1993) described what he believed were the essential characteristics of successful retention programs. He maintained that although they may come in many different types, they share certain commonalities:

1. Effective retention programs are committed to the students they serve. They put student welfare ahead of other institutional goals.
2. Effective retention programs are first and foremost committed to the education of all, not just some, of their students.
3. Effective retention programs are committed to the development of supportive social and educational communities in which all students are integrated as competent members. (p.146)

Tinto (1993) also proposed six guiding principles in the implementation of a retention program:

1. Institutions should provide resources for program development and incentives for program participation that reach out to faculty and staff.
2. Institutions should commit themselves to a long-term process of program development.
3. Institutions should place ownership for institutional change in the hands of those across the campus that have to implement that change.
4. Institutional actions should be coordinated in a collaborative fashion to insure a systematic, campus-wide approach to student retention.
5. Institutions should frontload their efforts on behalf of student retention.
6. Institutions and programs should continually assess their actions with an eye toward improvement.

Astin's Involvement Theory

Astin's (1985) theory of involvement, also useful as a theoretical construct to ground this study, posits that students learn more when they are actively involved in both the academic and social aspects of the collegiate experience. Students' physical engagements (participating actively through observable behaviors) and mental applications (through aspects such as concentration, commitment, and motivation), together compose involvement. Involvement can be measured both quantitatively, by determining how many hours a student spends studying, attending meetings, or thinking about a subject, and qualitatively, by examining a student's comprehension of material, role in group participation (being a member of a group versus being a leader), or depth of

reflection. Students who are involved devote significant energy to academics, spend time on campus, participate actively in student organizations and activities, and interact often with faculty. On the other hand, uninvolved students neglect their studies, spend little time on campus, abstain from extracurricular activities, and rarely initiate contact with faculty or other students (Astin, 1985).

Astin (1999) sought to identify the factors in the college environment that impacted students' persistence. He identified student involvement as the most critical factor and suggested that students must be actively engaged in their environment in order for learning to take place. The environment includes college classes and extracurricular and social activities. He argues, therefore, that faculty interaction both inside and outside the classroom and high quality programs and policies reflective of an institutional commitment to student learning are necessary for student success and growth (Astin, 1999). His theory of involvement has five basic postulates:

1. Involvement refers to the investment of physical and psychological energy in various objects.
2. Involvement occurs along a continuum; different students may manifest different degrees of involvement in a given object.
3. Involvement has both quantitative and qualitative features. The extent of a student's involvement can be measured both quantitatively and qualitatively.
4. The amount of student learning and personal development associated with any educational program is directly proportional to the quality and quantity of student involvement in that program.

5. The effectiveness of any educational policy or practice is directly related to the capacity of that policy or practice to increase student involvement.
(p. 520)

Astin's (1999) work suggests that student affairs professionals and college administrators need to create opportunities for involvement to occur, both in and out of the classroom, to impact student persistence. He suggests that instructors should be encouraged to take the focus off the course content and their own technique and put it on their students. Moreover, he believes that the intended end of institutional and pedagogical practices is to achieve maximum student involvement and learning. To do that, instructors cannot focus solely on technique but must also be aware of how motivated students are and how much time and energy they are devoting to the learning process. According to Astin (1999), student involvement has an advantage over traditional pedagogical approaches because it focuses on the motivation and behavior of the student. Therefore, institutional policies and practices can be judged by the degree of involvement they foster in student.

Persistence and Mentoring Research

The literature on persistence research has indicated that student-faculty interactions, including career counseling, advising, personal counseling and informal socializing, contribute to the social integration of students, which leads to higher persistence (Tinto, 1993; Astin, 1999). It is through these mentoring types of interactions that the relationship between persistence research and mentoring can be found.

Nora and Crisp (2007) posit that research on mentoring over the past 15 years has primarily been focused on assessing the impact of formalized mentoring programs on the

academic success of students. They have suggested, though, that research on mentoring is often fragmented, and unlike research on student persistence, not guided by a theory related to undergraduate students. Consequently, a summary of the current literature on mentoring reveals a limited number of disconnected studies.

Despite the fragmented nature of mentoring research, overall findings indicate that mentoring is positively associated with persistence. For example Campbell and Campbell (1997) found that minority students paired with faculty mentors had statistically significant higher grade point averages and were twice as likely to persist as non-mentored minority students. Similarly, Mangold, Bean, Adams, Schwab, and Lynch (2003) found that students who participated in a formal mentoring program were significantly less likely to drop out than non-mentored students. And, in a study that looked at the effects of participation in a year-long mentoring program for first year students, Rodger and Tremblay (2003) found that mentored students had statistically significant higher persistence rates than non-mentored students.

Mentoring has also been found to be effective with minority and “at-risk” students. For example, in a longitudinal study on the effects of a mentoring program for remedial students, Pagan and Edwards (2003) found that persisting students attributed their success to having a mentor and that mentoring had positive impacts on students’ retention rates and grade point averages.

Nora and Crisp (2007), in a review of the literature on mentoring, identified four constructs that underlie the mentoring experiences between faculty members and students. These constructs (reviewed in greater detail in chapter 2) include: (a) psychological or emotional support, (b) support for setting goals and choosing a career

path, (c) academic subject knowledge support aimed at advancing students' knowledge relevant to their chosen field, and (d) specification of a role model.

These four mentoring constructs provides a good theoretical framework to understand student-faculty interactions in the context of the study, which involves a coaching/mentoring program for underprepared students. In many ways, the coaching/mentoring program, which is the focus of this study, pre-supposes student-faculty interactions that are personal, helpful, and reciprocal.

Significance of the Study

There are many reasons why the study of underprepared students' retention and success at community colleges is an important issue. In today's economy, a college education is critical for social mobility and career success. College graduates have better job opportunities, enhanced working conditions, and higher salaries. Higher levels of education are associated with a decreased reliance on public assistance, increased tax revenues, lower demands on the criminal justice system, and greater civic participation (Carnevale & Rose, 2003). Therefore, testing ways to improve educational attainment is important to students and society.

This study may also contribute to theory and practice. The results of this study may contribute to the literature on student integration and faculty mentoring with underprepared community college students. Measuring the content of student-faculty interactions among underprepared, low-income students at the community college level can provide additional insight into the construct of student integration, a construct which has been the foundation of Tinto's (1993) and Astin's (1999) work, but which has been difficult to measure. In addition, this study adds to the literature on institutional practices

that foster retention among community college students, specifically, practices that promote student-faculty interactions and student involvement with campus resources.

Further, identifying the specific focus of student-faculty interactions will provide knowledge of the underlying domains that comprise the mentoring experiences of underprepared students. Knowledge of the underlying domains can provide insights into the support functions that should guide mentoring programs for such students.

Student retention is also an important consideration in the life of community colleges today. Colleges across the country are experiencing decreases in state funding but increases in governmental and societal demands for accountability. They are being asked to provide clear and acceptable indicators of what they do, and how well they do it. To this end, student persistence is significant for measuring institutional effectiveness and evidence of accountability. Remediation is particularly coming under scrutiny. Colleges now stand to accrue significant benefits for retaining and graduating students.

Delimitations of the Study

The sample ($n=574$) selected for this study came from one large public community college in Florida. This allows for limited generalization. The study is also delimited to first-time community college students enrolled in remedial classes at a large, urban, public, 2-year institution. Finally, the study viewed persisting students as those who were enrolled in the fall semester 2 years after initial enrollment. This may distort the actual retention rate, given the fact that many community college students engage in stop-out options, where they take a semester off but return the following semester. Yet, most remedial students who drop out do so very early in their educational experience, therefore legitimating the focus on 2-year retention.

Definitions of Terms

The following are the definition of terms used for this research:

First-time-in-college-student (FTIC). A student identified in the college's student database as one who is enrolling for the first time and with zero transfer credits from any other institution.

College Placement Test (CPT). A state mandated placement test in reading, writing, and math, administered to all students wishing to enroll in a Florida Community College. Students either have to take the test or present alternative acceptable placement scores such as SAT or ACT scores.

Underprepared student. For the purposes of this study, an underprepared student is a student who has failed all three sections of the CPT, scoring less than 82 on the reading and writing components and less than 72 on the math component.

Achieving the Dream (AtD) student. An FTIC student enrolling in any section of the College Life Skills Course, SLS1000, whose College Placement Test scores showed the need for remediation in all three areas of reading, writing, and math.

Retained student. A student enrolled in Fall 2007, which was 2 years after initial enrollment, or into the sixth possible semester.

Socioeconomic status (SES). A measure of the student SES using self-reported household income and receipt of Pell grant or not.

Race/Ethnicity. Student self reported ethnic identification found on their college application that can be either White non-Hispanic, Black non-Hispanic, Hispanic, Asian American or Pacific Islander, American Indian or Alaskan Native, or not reported.

Student-faculty interaction. Any meeting between an identified underprepared student and a faculty member inside or outside of class where the topic of discussion was an issue pertaining to or impacting the student's success at college. In this study, the interactions were recorded by the faculty member.

Content of student-faculty interaction. Broad classifications of the issues, needs, and concerns of underprepared students relating to their success at college. Content, as recorded in faculty logs, is grouped into eight domains, which include: educational planning (EP), academic concerns (AC), career counseling (CC), time-management (TM), personal/family concerns (PFC), financial concerns (FC), health concerns (HC), and other concerns (OC).

Summary

Much of the early research on student retention, and much of the contemporary work also, have stressed the importance of student integration, or student involvement, especially during the critical first year. One way in which students can become integrated into the academic and social life of the institution is through faculty mentoring. A good student-faculty mentoring relationship is likely to engender positive self-perceptions and a sense of being valued and respected by faculty and other students.

Evaluation of most mentoring programs, however, have focused on students' perceptions of the program or looked at the relationship between the mentoring program and student outcomes and have focused less on identifying the key mentoring constructs that are inherent in the mentoring experience (Nora & Crisp, 2007). Further, even fewer have examined a developmental student population. This study attempted to address this

gap by looking at the content of student faculty interactions with developmental students in order to gain a deeper understanding of the many facets to the mentoring experience.

Moreover, Patton, Morelon, Whitehead, and Hossler (2006) suggest that while research exists on student academic and social integration of students on college campuses, there has been very little research that has examined the effects of interventions on persistence. This problem is particularly true for interventions that deal with academically underprepared community college students. Braxton, McKinney, and Reynolds (2006) have echoed this sentiment suggesting that in spite of the heavy emphasis on retention in higher education, there have only been a few well-designed studies that have evaluated the effects of institutional interventions. More research, therefore, is needed to examine the effects of institutional interventions on student retention.

The purpose of this study was to investigate whether a mentoring program for underprepared community college students involving intentional student-faculty interactions leads to higher retention. Further, the study examined the extent to which specific types of mentoring activities were predictive of retention for underprepared students. Identification of specific types of mentoring activities may reveal the underlying domains that comprise the mentoring experience, and knowledge of these underlying domains can provide insights into the support functions that could be used to guide mentoring programs.

In order to frame the study in the prior research, in chapter 2, I review the empirical research on student attrition, paying special attention to community college students and underprepared students in particular. In chapter 3, I describe the quasi-

experimental prediction study, faculty mentoring responsibilities and practices, the setting, sample, instrumentation, data treatment and analysis. Results and findings from the analysis are presented in chapter 4, and chapter 5 focuses on a discussion of the findings, conclusions, implications for current practice, and suggestions for further research.

CHAPTER II

REVIEW OF RELATED LITERATURE

Student persistence is one of the most widely studied areas in higher education. An extensive body of literature, now spanning more than four decades, is available, and a review of this literature reveals a distinct evolution into more sophisticated models and frameworks for understanding the dynamics that shape student leaving and persistence (Tinto, 2006). When the issue of student retention became prominent about 40 years ago, student attrition was viewed primarily through a psychological perspective. Individual student attributes, skills, and motivation were thought to be the key factors impacting persistence. The focus was on students, not the institution or practices within the institution. Students who dropped out were thought to be less able, less prepared, less motivated, or poorly matched with their institution (Tinto, 2006).

Early studies showed that students with strong academic backgrounds and a rigorous high school curriculum experienced less attrition than those with less robust academic experiences (Pantages & Creedon, 1978). Attrition and personality factors were found to be related. Motivation, educational goals, parental expectations, and involvement with an academically-oriented peer group were found to contribute to the decision whether to withdraw from college. Socioeconomic background was also a key predictor of student attrition. Much of this early work, however, was ex post facto studies, and Pantages and Creedon (1978) suggested that more longitudinal and cohort studies were needed. Pantages and Creedon cautioned that student attrition was not consistently defined and that attrition could not be adequately researched without a conceptual framework on which to base hypotheses.

Spady's Model of College Student Dropout

Spady (1970) was one of the first to attempt a conceptual framework for studying college student attrition. He based his model on Durkheim's theory of suicide, which suggested that suicide was more likely to occur when individuals were not sufficiently integrated into society. Adopting this notion and suggesting that college could be viewed as a social system, Spady theorized that the same factors that could determine or predict suicide, or lack of integration into society, could also be applicable to studying student dropout. The key feature in Spady's model focused on the social integration of students within the institution.

Spady's (1970) model thus took into account the role of the environment, in particular the institution, in determining students' decisions to stay or leave. This was a clear departure from the earlier emphasis on the characteristics of the student. Spady sought to make the connection between the environment, which in this case was the social system of the institution, and the degree to which students were integrated into this system. The essential elements of Spady's model are presented in Figure 2.

In his model Spady (1970) suggests that family background influences the student's academic potential and congruence with the norms of the institution. Academic potential in turn influences grade performance and intellectual development, while congruence influences intellectual development and support from friends. Grade performance and friendships affect the student's satisfaction with college, which in turn influences his or her commitment to the institution and decision to continue or drop out. Central to Spady's model was the concept of integration and the patterns of interaction between the student and other members of the institution.

Figure 2. Spady's Model of College Student Dropout (Spady, 1970).

In his model Spady (1970) suggests that family background influences the student's academic potential and congruence with the norms of the institution. Academic potential in turn influences grade performance and intellectual development, while congruence influences intellectual development and support from friends. Grade performance and friendships affect the student's satisfaction with college, which in turn influences his or her commitment to the institution and decision to continue or drop out. Central to Spady's model was the concept of integration and the patterns of interaction between the student and other members of the institution.

Spady (1971) tested the validity of his model on a sample of 683 freshmen students at the University of Chicago. He operationalized each of the components of the model and employed multiple regression to test the relationships among these components. Social integration was assessed by using eight questionnaire items that asked students about their sense of belonging at the university. Institutional commitment was measured by questionnaire items asking students how important it was for them to graduate from the University of Chicago, and dropout was measured by whether or not students returned to school the following fall semester.

The findings from that study, in general, supported the model. However, the model was found to be somewhat different for men than it was for women. For men, grade performance and institutional commitment were the key factors related to dropout. For women, it was institutional commitment followed by grade performance. Also, for women, previous social relationships were more important than prior academic performance in determining integration. Spady (1971) concluded that greater student

commitment can be generated by providing students with meaningful social experiences rather than by attempting to modify the academic reward structure.

These were several limitations to Spady's (1971) model, chief of which revolved around the fact that it was validated on students at a highly selective 4-year institution. This meant that the key variable (i.e., students' background experiences) had limited application in the study of alternative student populations, such as developmental 2-year students. Moreover, the concept of social integration was difficult to operationalize and measure and the study failed to examine the quality of students' social experiences. In addition, although Spady, being the forerunner to Tinto, laid the groundwork and introduced the importance of environmental factors in student persistence, his work is old. As a result, I looked to Tinto's work to inform this study.

Tinto's Model of College Student Dropout

Tinto (1975, 1993) was one of the pioneers in the study of student persistence and his model of student integration has been extensively used over the last 3 decades. Building on Spady's (1971) work, Tinto focused on the application of Durkheim's theory of suicide to college student persistence and developed a model that defined two distinct types of integration necessary for college persistence: academic integration and social integration. Tinto (1975, 1993) suggested that the student's social and intellectual experiences within the institution had a direct bearing on the degree of integration, which determined whether the student persisted or dropped out. This perspective implies that institutions could develop programs and activities that can foster greater intellectual and social engagement among college students, thereby impacting student persistence.

According to Tinto, students arrive at college with differing background characteristics, individual attributes, and pre-college schooling experiences. These background characteristics, individual attributes, and pre-college schooling experiences lead to differing levels of initial student commitment to the institution and to the goal of college graduation. Subsequently, student commitment to the institution and to personal goals influences the extent of academic and social integration, which then influences the student decision to persist or drop out.

Tinto defined academic integration around the formal education of the student and suggested that activities in the classrooms, laboratories, and interactions with faculty and staff belonged to this domain. His model suggested that social integration revolved more around the daily life of the student and focused on interactions with peers, faculty, and staff outside the classroom, while academic integration occurred primarily through meeting the academic standards required by the college or university. Faculty interactions with students played a key role in both types of integration. Interactions of an academic nature, such as discussing grades or course content, led to academic integration, while interactions of a social nature, such as discussing personal issues or campus activities, led to social integration.

Although Tinto's model resonated with educators and generated substantial interest, empirical analysis has been difficult, primarily because the central concepts of academic and social integration are difficult to define and measure (Nora, 2001). Moreover, some researchers, for example, Borglum and Kubala (2000) and Nora, (2001), have highlighted the problem of inferring causality to academic and social integration. They have contended that while research on 4-year colleges do show that students who

participate in student organizations or interact with faculty graduate or persist at higher rates, it is inappropriate to assume that graduation or persistence rates will increase if every student joins a student organization or interacts with faculty.

Pascarella and Terenzini's (1980) study of student attrition and patterns of social and academic integration was one of the first study to test the validity of Tinto's (1975) model. The purpose of their study was to test whether social and academic integration were related to student attrition, and if so, what the relative contributions of each towards the prediction of attrition were. Their research involved 500 freshmen students at Syracuse University and sought to determine whether social and academic integration were related to student attrition. Grade point average and perception of the academic program were used as measures of academic integration. The number of extracurricular activities, the number of informal interactions with faculty, and respondents' perceptions of non-academic life at the university was used as measures of social integration. Persistence was defined as whether or not a student returned to the university for his or her sophomore year.

Completed surveys were subjected to a factor analysis that yielded five academic and four social factors. A discriminant analysis on these factors revealed both academic and social integration was statistically significant in differentiating between dropouts and persisters. Students' levels of interest in their academic programs and, to a lesser extent, practical appeal of those programs were the key academic factors related to dropout. The number of informal contacts with faculty and the demands/challenges of non-academic life were the key social factors. The authors cautioned that their sample was drawn from a

single institution, so the generalizability of their results to other types of institutions may not be applicable.

In another study, also based at Syracuse University, Pascarella and Terenzini (1983) looked at prematriculation characteristics as predictors of persistence. The purpose of their study was to determine the relative importance of different types of academic and social integration on attrition on different types of students. Surveys were mailed to a sample of students in the summer before entry into college. Another survey, measuring academic and social integration, was mailed in late March to the same students. Responses to questions about grade point average, student satisfaction with their intellectual development, and the practical value and challenge of their academic program were used to measure academic integration. Social integration was measured by the reported number of informal contacts with faculty, participation in extracurricular activities, and student satisfaction with their personal development.

The authors used a discriminant analysis to analyze their results and found that measures of academic integration were the strongest predictors of persistence followed by measures of social integration. Because their results also revealed that prematriculation characteristics accounted for little of the variance in persistence, they concluded persistence is more a function of what occurs to students after they arrive on campus, rather than the characteristics they bring with them.

To explore the validity of Tinto's (1975) model on different types of institutions, Pascarella and Chapman (1983) used a sample of 2,326 students from 11 different institutions encompassing 4-year residential, 4-year commuter, and 2-year commuter institutions. The general validity of Tinto's model was supported but differing results

were obtained when the institutions were disaggregated by type. Institutional commitment had a stronger effect than goal commitment in 4-year institutions, while goal commitment had a stronger effect in 2-year institutions. Differences were also observed in terms of academic and social integration. In residential institutions, social integration was a statistically significant predictor of persistence; academic integration was not. In commuter institutions, however, academic integration was statistically significant; social integration was not.

The importance of fit between the student and the institution was highlighted in that study. Younger students were more socially integrated in 4-year residential institutions than in 4-year commuter institutions. Older students demonstrated greater social involvement in 4-year commuter colleges and had more faculty interactions in 2-year colleges as opposed to 4-year colleges. Students from lower socioeconomic backgrounds showed more faculty interactions in 4-year commuter colleges, while higher socioeconomic students had more faculty interactions in 4-year residential institutions.

Voorhees (1987) drew attention to the lack of a conceptual model for student persistence at the community college level and examined the effect of informal faculty contact among community college students. Using log-linear analysis, he tested the validity of Tinto's model with a sample of students from a suburban community college. Academic integration was measured by the frequency of informal contact with faculty, grade point average, and number of hours spent studying each week. Social integration was measured by the number of extracurricular activities and interactions with peers outside of class. Background variables included gender, race/ethnicity, part-time versus full-time status, purpose for enrolling, intent to return, and satisfaction with the role of

being a student. Persistence was conceptualized as re-entry in either the following spring or fall semesters.

Findings revealed that the number of informal interactions with faculty was statistically significant in predicting persistence, as was grade point average, and the number of hours spent studying each week. Gender differences were also statistically significant, with women being more likely to persist. Also statistically significant were purpose for enrolling and intent to return. Part-time versus full-time status was unrelated to persistence, as was race/ethnicity and satisfaction with the role of a student.

The lack of statistical significance for social integration prompted the author to caution that community colleges are primarily commuter institutions, a characteristic that make their students less likely to interact socially outside of school hours. As such, flexible scheduling, convenient transportation, diverse course offerings, and availability of daycare may be more important to community college students than participation in student organizations. Even though Voorhees conducted his study at a community college, he looked at all students and not the underprepared student population.

The study of persistence in community colleges has revealed not only the importance of external events on student lives, but also the importance of faculty involvement with students both in and out of the classroom (Tinto, 1998; 2006). Tinto (2006) states that “the classroom is, for many students, the one place, perhaps the only place, where they meet each other and the faculty, if involvement does not occur there, it is unlikely to occur elsewhere” (p. 4). This paradigm shift characterized much of Tinto’s later work in which he emphasized the importance of student-faculty involvement or engagement.

Tinto (2006) suggests that faculty actions, both in and out of the classroom, are critical to institutional efforts to increase student persistence. For community college students, especially those who have multiple obligations outside the college, the classroom may be the only place where they can interact with faculty, where education in the formal sense is experienced. For such students, the classroom is the crossroads where the constructs of academic and social integration are played out. If academic or social integration or involvement is to occur, it must occur in the classroom (Tinto, 2006).

Using a multi-method quantitative and qualitative study, Tinto (1998) examined the efforts of one community college, Seattle Central Community college, to alter the experiences of first-year students through the use of learning communities and collaborative learning strategies, both of which entailed more student-faculty interactions. The purpose of that study was to ascertain to what degree these strategies enhanced student persistence and learning. The two research questions sought to determine whether the program made a difference and, if so how?

A random sample of 4 classes that participated in the program were selected and matched with 11 companion classes that were not a part of the program. Care was taken to ensure that program participants and non-participants were similar in regard to demographic, academic, and other student attributes. Questionnaires were administered by faculty at the beginning and end of the fall quarter. The first questionnaire collected information on a range of student attributes, prior education, current life situation (e.g., family and work responsibilities), educational intentions, learning preferences, perceptions of ability, and attitudes regarding education. The second questionnaire

collected information on a range of classroom and out-of-classroom activities, estimates of learning gains, perceptions of the institution, and expectations regarding subsequent enrollment.

A total of 517 usable questionnaires were obtained, 210 and 307 from the treatment and control groups respectively. In the following fall semester, information was obtained from the institutional research office about students' earned credits, grade point averages, and semester to semester persistence. First descriptive and then logit regression analysis were employed to analyze the data. For the qualitative component of the study, participant observation, interviews, and document review were employed to understand, from the students' points of view, how participation in a collaborative learning program influenced their learning experiences.

Results showed that students who participated in the program reported greater involvement in a range of academic and social activities and greater perceived developmental gains over the course of the year than did students in the control group. Program participants also reported more positive views of the college, its students and faculty, its classes and climate, and of their own involvement in college. Given these data, it was not surprising that students in the program persisted to the following spring and fall quarters at a statistically significant higher rate than similar students in the control group. Further, differences in persistence in the following fall quarter were considerably greater (66.7% versus 52.0%) than those for the spring quarter (83.8% versus 80.9%). And differences were greater still when transfer to 4-year institutions were included in the measure of persistence.

Five variables proved to be statistically significant predictors of persistence among program participants. These were participation in the program, college grade point average, hours studied per week, perceptions of faculty, and degree of involvement with other students. The qualitative analysis revealed that participation in the program enabled students to develop a network of supportive peers that helped them to make the transition to college. Many students saw participation in the program as an important part of being able to manage the many struggles they faced in getting to and participating in class.

In the conclusion of that study, Tinto (1998) suggested that the results of the study showed that participation in a collaborative or shared learning group in which interactions with faculty and students are encouraged and supported “enabled students to develop a network of support and become more fully engaged in the academic life of the institution, which led to greater persistence” (p.174). These findings reaffirmed the importance of student involvement and provide insights into the ways in which classroom experiences with faculty and other students shape student persistence. Specifically, it suggests that important relationships, with faculty and other students, involvement, and quality of student effort are key factors that influence persistence.

Effect of Institutional Practices on Student Persistence

Even though the majority of research in the academic literature has been concerned with testing various theories of student persistence, another genre of research has focused on the effects of institutional practices on student persistence. Do students who participate in a particular type of program or activity persist or graduate at higher rates? And even though the majority of such research has been centered on 4-year institutions, three large categories of program activities at community colleges were

identified in the literature. These include student services such as advising, counseling, and mentoring; learning communities; and developmental education.

Colleges have been experimenting with various types of advising and student services for decades (Muraskin, 1997). The most common and most consistently effective program format for 4-year institutions is the first-semester freshman seminar that meets as a regular class with an assigned instructor. For community colleges, the freshman seminar may be known by different names such as, success skills, strategies for success, or study skills. The purpose of this particular class is to orient the student to the institution and its programs and to teach important academic survival skills.

Student Support Services (SSS), a federal TRIO program that provides counseling, mentoring, and academic support services (e.g., tutoring, group study, supplemental instruction, and developmental instruction) to low-income, first-generation students and students with disabilities is perhaps the most widespread student services initiative. An evaluation of the program in the mid-1990s found positive effects for retention and success, which increased with more SSS activities (Muraskin, 1997).

The primary focus of Muraskin's (1997) study was to estimate the impact of the SSS program on participants in terms of the grades they received, the number of credits they earned, and their retention in college. Descriptive information about the operation of the SSS programs and the characteristics of the students who participated were also obtained. The study looked at 2,900 SSS participants and 2,900 comparable non-participants 3 years after entering college. A total of 47 higher education institutions, some with SSS and some without, participated in the study. Students were selected and tracked over 3 years. They were surveyed in the first and third years to determine their

attitudes, characteristics, and progress in college. Service records were maintained to monitor their participation in SSS during the freshmen year, and college transcripts were collected to monitor their academic progress over 3 years. Multivariate analyses were performed to statistically adjust for other factors that were related to student outcomes, including student demographic characteristics, student attitudes, and differing levels of participation in SSS.

Findings from Muraskin's (1997) study revealed that SSS participants showed a small but positive and statistically significant effect for all three measures of student outcomes. The greatest impact occurred during the first year, when the most SSS services were received, but some SSS services received in the first year showed persisting impacts in later years, and some services received in later years also showed positive and statistically significant impact. Students' college GPAs increased by a mean of 0.15 in the first year, resulting in a mean of 2.29 on a 4-point scale. In the second year, the mean increase was 0.11, and over the course of the first 3 years combined, the increase was 0.12. The number of semester credits earned increased by a mean of 1.25 in the first year, 0.79 in the second year and 0.71 in the third year. Over the 3 years combined, the mean increase was 2.25. Retention was increased at the same institution by 7% for retention to the second year and by 9% for retention to the third year.

The SSS evaluation study (Muraskin, 1997) found that the average impact was small because most students received only a modest level of services and the size of the impact depended on the degree to which students participated in SSS, with greater levels of participation resulting in greater impact. The estimated impact of SSS also varied based on which particular services each student received. Instructional courses that were

exclusively for SSS students were associated with increased retention to the second and third years and programs that provided a home base on campus that blended SSS and non-SSS services were also associated with increased retention and higher GPAs.

Even though this comprehensive evaluation study provided empirical evidence of the effectiveness of institutional programs, such as advising/counseling and peer-tutoring, it failed to identify the specific components of the program that were most effective. Moreover, the evaluation study neither captured data pertaining to the college experiences of program participants nor identified the specific issues or concerns of this unique population. Thus, it was unclear to what extent students needed specific types of services such as advising/counseling or tutoring. Further while these students would be labeled “at risk”, they were not necessarily students in need of remediation.

Another example of institutional practices aimed at cultivating student-faculty relationships that have been found to be statistically significant was the Undergraduate Research Opportunity Program at the University of Michigan (Nagda, Gregerman, Jonides, von Hippel, & Lerner, 1998). This program is designed to help students form relationships with faculty through workshops, mentoring, peer advising, and workshops.

The impact of the program on student retention was evaluated using a stratified sample of 1,280 first-year students who were matched with a control group of 1,456 students through matched random assignment. To ensure that the participant and control groups were similar on the randomized selection criteria, several student *t*-test analyses were performed comparing the two groups on high school GPA and composite SAT and ACT test scores. Results verified that both groups exhibited no statistically significant differences on pre-college academic aptitude measures.

After the sample was sorted into subgroups based on Ethnicity, SAT/ACT scores, and high school grades, an experimental group of 613 students who participated in the retention program was obtained. This group was matched with a control group of 667 students. Demographic data including students' Ethnicity, gender, enrollment status, GPA, credits completed, and enrollment status by term was obtained from the Registrar's Office. Since retention was defined as students' persistence through graduation and attrition as departure prior to graduation, some students who may have transferred to another institution would have been counted among the non-persisters.

Analysis of the data was performed through the use of chi-square analyses which compared the attrition rates of participants in the program and in the control groups. Separate analyses were performed comparing African American, Hispanic, and White students to their respective control groups. African American participants had a withdrawal rate of just over half that of African American participants in the control group (10.8% versus 18.3%), which was statistically significant. White students also showed a lower attrition rate (3.2% versus 6.1%), but this difference was not statistically significant. Hispanic students in the program had a statistically insignificant higher attrition rate than their control group (11.6% versus 11.3%).

In their conclusion, Nagda et al. (1998) suggested that regular faculty contact provided an engaging, one-on-one relationship for students to foster academic competency (computer literacy, critical thinking, and team-work) and academic integration. It also provided students with opportunities for continued discussion of intellectual issues outside the classroom by virtue of the tasks they shared with their faculty sponsors. More importantly, the authors pointed out that the effects of the

program documented in their study could help strengthen the case for related programs at other institutions. They counseled that students should be integrated into the core mission of the institution through challenging, rather than remedial activities, and that “intervention has to be multi-dimensional and include both faculty and student mentoring, active engagement, skill-building activities, and career enhancing tasks” (p. 63). Moreover, they suggested that the overarching goal should be to help students to “find academic and social niches where they can feel they are a part of the institution’s life, where friendships can be developed, and where faculty role models can be observed and emulated with regards to college adjustment” (p. 68).

While that study provided a good example of an institutional intervention that increased students’ persistence through the use of faculty in a mentoring or supportive role, it failed to identify the unique contribution of the specific program activities (workshops, mentoring, peer advising, and career-enhancing tasks), nor did it provide any indication of the intensity or quality of student-faculty interactions. Thus it is unclear whether students engaged primarily in workshops, mentoring, peer advising or career enhancing tasks and the degree to which they had meaningful faculty interactions.

An example of the effectiveness of counseling and advising services at community colleges comes from the Community College of Denver (Roueche, Ely, & Roueche, 2001). At this community college, counseling and academic support services are organized in a comprehensive unit called the Academic Support Center. An evaluation study of the effectiveness of the Center, utilizing class participation of the Center’s services, revealed that the class withdrawal rate for students receiving support from the center was 7.8% while the overall campus withdrawal rate was 12.4%. Even

though encouraging, the study did not include information that would allow a judgment about the comparability of students receiving support and those who did not, nor did it specify the frequency or give a quantitative measure of the support provided to students.

Summers' (2003) study of the effectiveness of counseling and other student support services provides another example of the effect of institutional practices on retention. Summers (2003) looked at the impact of counseling, enrollment, and registration behaviors on persistence and found statistically significant differences between student who persisted and those who dropped out. The sample ($n=1,365$) for the study included first-time students seeking a certificate or associate degree who matriculated at a small community college in the southeast in fall 1994, fall 1995, or fall 1996. The purpose of that study was to investigate the relationship between student persistence and use of college services (counseling, academic advising, registration, testing) and registration behaviors. Both multiple linear regression and logistic regression were employed in the analysis of data.

Overall, Summers (2003) found statistically significant differences between students who persisted and those who dropped out. Students who registered early for classes and met with a counselor or academic advisor were more likely to persist than students who did not. The logistic regression model that predicted student attrition revealed that the odds of persistence increased by 18% for each additional counseling or advising session a student had. Moreover, students who enrolled earlier for their classes, made fewer changes, and had fewer drops than students registering during the last week prior to the start of the semester. Findings also showed that for each additional one-point

increase in fall semester GPA, the odds of enrolling in the following spring semester increased by 45%.

In his conclusion, Summers (2003) suggested that the findings validated the importance of the student behaviors and support services in increasing student persistence. However, as in the previous studies, the impact of the use of specific college services on student persistence was not examined nor was there any indication of the intensity or frequency of use of counseling or advising services. Further, Summers did not focus on developmental students.

Another study that examined students' experiences with college support services was Heverly's (1998) study entitled "Predicting Retention from Students' Experiences with College Processes." That study was conducted at a community college in a suburban location in the northeast. A random sample of new, on-campus students was surveyed by telephone to assess satisfaction with critical features of key college processes. A telephone survey was chosen in order to maximize the response rate and was timed to occur soon after the students' experiences with the services, when the experiences would be more easily recalled. When retention data became available the following semester, analyses were conducted to identify which process characteristics differentiated between returning and non-returning students.

A random sample of 250 students was drawn from the population of 2,117 new, on-campus students during the fall semester 1995. Valid phone numbers were available for 220 students, and 104 were contacted for a contact rate of 47%. Statistical comparisons between the students who were contacted and those who were not contacted

showed that the two groups did not differ on sex, race/ethnicity, age, full/part-time status, or day/evening status.

Results showed that 54% of the sample persisted through the following spring semester and 46% did not. Comparisons between returning and non-returning students revealed that returning students were more satisfied with several types of interaction reflecting positive involvement with faculty. Questions concerning or reflecting these sentiments included “My instructors show respect for me as an individual”, and “My instructors seem concerned with my success.” While the findings from that study affirmed Astin’s (1999) quality of student-faculty interactions, which suggest that student orientation to the faculty is a statistically significant predictor of retention, it failed to depict the specific types of faculty interactions that are predictive of retention nor did it provide a quantitative measure of the depth or intensity of the student-faculty interaction. Again, the focus was new students, rather than developmental students.

Astin’s Involvement Theory

Astin's (1999) theory of involvement posits that students learn more the more they are involved in both the academic and social aspects of the collegiate experience. Students who are involved devote energy to academics, spend time on campus, participate actively in student organizations and activities, and interact often with faculty. On the other hand, uninvolved students neglect their studies, spend little time on campus, abstain from extracurricular activities, and rarely initiate contact with faculty or other students (Astin, 1999).

According to Astin (1999), the quality and quantity of the students’ involvement influences several educational outcomes including cognitive learning, satisfaction with

the college experience, and increased rates of student retention. Astin posits that for a student to be deeply involved in the learning process, she or he must invest energy in academic relationships and activities. The amount of energy a student invests in these types of activities will vary based upon the student's interest, goals, and other commitments. Astin (1999) argues that instructors should use involvement theory to maximize student learning. He therefore emphasizes the importance of faculty interaction, both inside and outside the classroom, as necessary for student success and growth.

Astin's (1999) work suggests that student affairs professionals and college administrators need to create opportunities for involvement to occur, both in and out of the classroom, to increase student persistence. Faculty can facilitate a supportive learning environment where the students feel comfortable to contribute to on-going discussions, debate competing points of view, and ask questions. Instructors should refer to their students by their first names, refrain from using intimidation or belittlement, and challenge their students while offering the kind of support students need to be successful.

Utilizing Astin's (1999) theory of involvement, House (2000) examined both class related experiences and out-of-class experiences and showed that student involvement was related to the drive to achieve in college, mathematical ability, and writing ability. Participants were 2,134 college freshmen enrolled at a large public 4-year university in the fall semester. Students completed the Cooperative Institutional Research Program Annual Freshman Survey during an on-campus orientation. Data were collected on the number of hours per week spent doing the following four activities in the previous year: (a) Talking with teachers outside of class, studying, or doing homework; (b) reading for

pleasure; (c) doing volunteer work, and (d) participating in student clubs and groups.

Results indicated the following statistically significant findings:

1. The number of hours per week spent reading was positively related to self-perceptions of writing ability, $r(2132) = .218, p < .01$.
2. Students who spent more hours reading the previous year had lower self-perceptions of their math ability, $r(2132) = .116, p < .01$.
3. Students who spent more hours per week during the previous year studying and doing homework had higher levels of drive to achieve, $r(2132) = .124, p < .01$.

Although these findings supported the relationship between student involvement and attainment, they focused less on the interaction with faculty and failed to capture the richer nuances and greater impact that is inherent in a more engaging and meaningful relationship with faculty. Moreover, the study participants belonged to a selective 4-year institution with characteristics distinctly different from underprepared students at community colleges. This study addresses these issues and especially looks at the content of the student-faculty interaction to understand the experiences of underprepared community college students.

Persistence of Developmental Students at Community Colleges

Remedial programs at community colleges have been shown to positively impact persistence of underprepared students. Batzer (1997) found that underprepared students who completed remedial coursework at a community college in Indiana achieved greater academic success and persisted longer towards their goal than underprepared students who did not complete remedial coursework. Similar findings were obtained from a study

of 21 public community colleges in Minnesota where it was found that students who completed a developmental course sequence persisted at their college at a higher rate than underprepared students who were not remediated (Schoenecker, Bollman, and Evens, 1996). Additional evidence of the relationship between remedial education and persistence is provided by research conducted at Sinclair Community College in Dayton, Ohio, where cohorts of developmental students were found to persist at higher rates than non-developmental students (Easterling, Patten, & Krile, 1998). These studies focused on remedial coursework and did not assess faculty student interaction.

Analyses of exemplary developmental programs reveal three essential components that keep underprepared students persisting in community college: appropriate teaching and learning techniques, mandatory assessment and placement, and active institutional outreach (McCabe & Day, 1998). Appropriate teaching and learning strategies for developmental students should utilize developmental theory, which help students to move from one level of knowledge to another.

Classrooms employing developmental theories of learning are learner-centered and are characterized by their supportive, encouraging, and challenging atmospheres (Miglietti & Strange, 2002). Miglietti and Strange (2002) suggest that learner-centered classrooms for underprepared students are conspicuous by the use of personalized instruction and the use of students' personal experiences to understand and guide course material. These authors found that adult underprepared students in learner-centered classrooms achieved higher grades than similar students in teacher-centered classrooms.

Rendon (1994) found that underprepared students in community colleges persisted when they felt validated in the classroom. She suggests that validation occurs

when faculty and staff let students know that they are capable learners and are valued by the institution. In a validating classroom, faculty partner with students to create a supportive learning environment, use students' life experiences as a basis for learning and emphasize active learning techniques such as group work, collaboration, and field trips (Rendon, 1994).

Mandatory testing and placement of underprepared students in appropriate developmental classes is the second feature of developmental programs that have been found to be effective. McCabe (2000) found that fewer than 10% of students who needed remedial education, but did not enroll in remedial classes, persisted at the community college. After Miami-Dade College demonstrated that mandatory testing and placement resulted in higher persistence and completion rates, many community colleges followed suit (McCabe, 2000).

Institutional outreach strategies are the third component of successful developmental programs with high retention rates. Rendon (1994) contends that while K-12 schools and community colleges are united by their common purpose of assisting students in attaining their educational goals, there is often a sizeable gap between the requirements needed for high school graduation and college admission. One way of addressing this problem, she suggests, is by promoting stronger collaboration between high schools and the local community college.

One of the most successful developmental programs for underprepared students is found at Bucks County Community College in the small town of Newton, Pennsylvania near Philadelphia (Klicka, 1998). Developmental education at this college is organized into its own academic unit called Developmental Education Services (DES). This

centralization increases DES visibility on campus and guarantees that the program's educational philosophy is continuous throughout all segments of the program. The key components of DES program include: (a) providing validating classroom experiences by requiring all remedial instructors to also serve as counselors; (b) mandating locally produced assessment tests when students have accrued 16 semester hours; (c) reaching out to county high schools, civic organizations, and businesses. Evaluation of the program found that program completers do as well as non-developmental students in college level classes and was more likely to complete college level work in English and math within 3 years of enrolling than students who did not require remediation (Klicka, 1998). Yet, this extensive of a program is not feasible on many campuses, particularly in difficult fiscal times.

Bean and Metzner Model of Student Attrition

Bean and Metzner (1985) developed a model of student persistence that focused on nontraditional students. A nontraditional student, according to Bean and Metzner (1985), was someone who was one of these: older than 24, did not live in a campus residence, part-time student, or a combination of any of these three factors. They added a nontraditional student is not greatly influenced by the social environment of the institution and is chiefly concerned with the institution's academic offerings (especially courses, certifications, and degrees). They suggested that Tinto's (1975) model did not sufficiently explain the reasons for attrition for older, part-time, and commuter students and advanced a model that focused more on the students' background and external environments. They argued that nontraditional students spend considerable time in the

external environment while enrolled in college, thus environmental variables external to the institution need to be taken into consideration.

Their model included four sets of variables: background, academic, environmental, and psychological outcomes. Background variables included age, enrollment status, educational goals, high school performance, ethnicity, and gender. Academic variables included study skills and habits, academic advising, absenteeism, major and job certainty, and course availability. Environmental variables, those which are external to the institution, included finances, hours of employment, outside encouragement, family responsibilities, and opportunity to transfer. Psychological outcomes variables included usefulness of college education for employment and personal development, satisfaction, goal commitment, and stress.

Bean and Metzner (1985) tested the validity of their model in a study involving 624 part-time, commuter freshmen students in a large, primarily commuter university in the Midwest. A questionnaire was used to obtain all data except registration information, cumulative GPA, and high school class rank, which was furnished by the Registrar's Office. Ordinary least squares multiple regression in a path analytic framework was used to estimate the parameters in the model. Overall, the model accounted for 29% of the variance in dropout. The best predictors of dropout were GPA and intent to leave, followed by the background variable, hours enrolled. The expected effect of the environmental variables on dropout failed to materialize.

Bean and Metzner (1985) cautioned that their study was based on a single sample from a single institution and this was a serious limitation. They urged that future studies should combine data from a variety of institutions because samples of nontraditional

students tend to be heterogeneous and probably differ substantially from university to university. They also suggested that future research focusing on why students leave a particular institution should be done separately from why students drop out of higher education altogether. In this way, institutional and students' perspectives on dropping out can be separated. They argued that this is especially true so for nontraditional students, who often transfer, stop out, or meet their educational goals before graduating. Without taking these differences into account, researchers may miscalculate the attrition rate and fail to identify the different reasons why different types of students leave school. Alternatively, St. John and Somers (1997) argue for institution specific analyses in part for the same reasons about student variability. While Bean and Metzner's findings are applicable because of the commuter nature and other similarities, their focus was not on developmental students or community college students. Yet, their study offers suggestions for control variables in my model.

Faculty Mentoring

Much of this review of literature so far has been centered on the theme of quality student-faculty interactions and an examination of the literature on faculty mentoring provides additional support to the importance of student-faculty interactions to the college adaptation process (Campbell & Campbell, 1997). When students view faculty interactions as positive and feel they are integrated into the campus environment as valued members, the more likely they are to persist (Rendon, 1994). Positive faculty interactions may be the kinds that most seem to embody the construct of student integration that characterizes much of Tinto's (1993) work. Yet, for academic and social integration to occur, it seems that students must be able to understand the college's

cultural and institutional norms and must also be able to navigate their way through its physical and virtual space. For first-time, developmental students, this may be a major challenge. A legitimate question that could be asked is, to what extent do first-time, developmental students have prior knowledge and experiences that prepare them to “fit in” within the higher education institutional culture? A culture that embodies the middle and upper class life experiences that drive both the curriculum and the values in higher education.

Perhaps one of the best ways to help students “fit in” within the institutional culture is through faculty mentoring. Nora and Crisp (2007), in a review of the literature on faculty mentoring, concluded that mentoring is generally recognized as a productive way of addressing the college adjustment needs and contributing to a positive experience for students. From their review, these authors believed that students in a mentoring relationship often receive the academic and social support during their enrollment to positively impact their abilities to succeed in college (Nora & Crisp, 2007). Similarly, Campbell and Campbell (1997) found that a good student-faculty mentoring relationship is likely to engender positive self-perceptions, feelings of self-efficacy, personal control, respect for oneself, and a sense of being valued and respected by significant others. This may be especially so for Latino and other minority students who may have difficulty understanding and adapting to the college culture (Rendon, 1994).

The importance of quality student-faculty interactions is not only important for student adjustment to college but also for influencing student outcomes. Campbell and Campbell’s (1997) evaluation study of a university student-faculty mentor program provides a good example of this. The goal of the program was to facilitate personal

contacts between faculty and students, and the purpose of these contacts was to provide assistance to students to help them succeed in reaching their academic goals and graduate from the university. The key research question sought to determine whether students who participated in the mentoring program achieved higher grade point averages, completed more units per semester, and were less likely to drop out of college than students in a comparison group of non-mentored students.

Faculty and students were encouraged to meet regularly throughout the year but were not required to adhere to a particular structure in their mentoring relationship. Faculty kept a log of their contacts with students that included date, duration, and the general content of their meeting. These logs provided documentation that contacts between faculty and students actually occurred. Written data in the form of the mentors' logs recording the date and duration of contacts with students were available for 339 students. For comparison purposes, the mentored students were matched with 339 students who had not enrolled in the program. Each mentored student was matched with a control student who matriculated in the same semester and year, was of the same gender, same ethnic group, same entering class, and same entering GPA.

The authors hypothesized that the number and duration of contacts between faculty and students should have an impact on student outcomes as a result of participation in the mentoring program. The authors tested three hypotheses. The first stated that students in the mentoring program would achieve a higher level of academic performance as measured by GPA and units of work completed. The second stated that mentored students would have a higher retention rate and would graduate at a higher rate.

The third stated that the number of faculty contacts would be positively correlated with GPA and retention rate.

Results showed that all three hypotheses were supported. Mentored students had a statistically significant higher number of completed units per semester, $t(338) = 2.63$, $p < .01$, and earned a statistically significantly higher GPA, $t(338) = 4.38$, $p < .001$, than non-mentored students. Mentored students also had a statistically significant higher retention rate, $\chi^2(1) = 14.56$, $p < .001$, than non-mentored students. Correlations between mean faculty contacts and GPA, $r = .17$, $p < .01$, and retention, $r = .84$, $p < .05$, were also positive and statistically significant. Students who had greater contact with their mentors performed better, as measured by units completed and GPA.

Missing from that study, however, was the content of the mentoring experience. While the authors looked at the number of contacts and the mean time per contact by gender and race/ethnicity, they failed to examine the substantive issue pertaining to the mentoring experience. Further, they considered 4-year university students, not developmental students at a community college.

According to their meta analysis of the mentoring literature, the substantive issue of the mentoring experience could be grouped under one of four constructs (Nora & Crisp, 2007). These constructs include: (a) psychological or emotional support, (b) support for setting goals and choosing a career path, (c) academic subject knowledge support aimed at advancing students' knowledge relevant to their chosen field, and (d) identifying a particular individual to serve as a role model.

Nora and Crisp (2007) suggest that the first mentoring construct, psychological or emotional support, encompasses a sense of the faculty listening, providing moral support,

identifying problems, and giving encouragement to the student. The establishment of a supportive relationship is emphasized in which there is mutual understanding between the student and faculty member. The student is comfortable enough to share personal feelings, fears, and anxieties, and the faculty provides active, empathetic listening and demonstrates genuine understanding and acceptance of student's feelings. This construct most embodies the learning centered classroom that has been found to be effective with underprepared students.

The second construct involves goal setting and exploring career paths. This construct represents the underlying notion that mentoring includes an assessment of the student's strengths/weaknesses and assistance with setting academic/career goals and decision making. This construct may be especially applicable to developmental students who are more likely to be unsure of academic or career goals (Rendon, 1994). Faculty mentoring in this area may take the form of the faculty member requesting information from and offering specific suggestions to the student regarding his/her current plans and progress in achieving personal, educational, and career goals.

The third construct, according to Nora and Crisp (2007) focuses on academic subject knowledge support and the acquisition of necessary skills and knowledge by the student. The faculty member challenges the student academically and employs tutoring skills to target subject learning. Learner centered strategies and opportunities for involvement in learning are provided to deepen student's involvement in the learning process.

Nora and Crisp (2007) identify the fourth construct as a role model, in the form of the faculty member, counselor, advisor, or significant other individual who can have an

impact on the student. The relationship between the role model and the student is reciprocal. The emphasis is on sharing, or self-disclosing, life experiences and feelings to personalize the relationship between the role model and the student.

These mentoring constructs, and the student persistence models described earlier, provide a good theoretical framework to understand student-faculty interactions in the context of my study, which involves a coaching/mentoring program for underprepared students. In many ways, the coaching/mentoring program, which is the focus of this study, pre-supposes student-faculty interactions that are personal, helping, and reciprocal. Yet the duration or intensity of this intervention is scalable to the time and fiscal constraints of the community college.

Summary

Much of the early research on student retention, and much of the contemporary work also, has stressed the importance of student integration, or involvement, in the life of the institution, especially during the critical first year. Much of this research, however, has been focused on 4-year colleges and universities and has measured the effects of multiple layered interventions limiting the ability to distinguish which factors were making the difference (Nora, 2001). Further, measuring the constructs of academic and social integration has been problematic (Borglum & Kubala, 2000; Campbell & Campbell, 1997; Nora, 2001).

One way in which students can become integrated into the academic and social life of the institution is through faculty mentoring. A good student-faculty mentoring relationship is likely to engender positive self-perceptions and a sense of being valued and respected by faculty and other students. This is especially so for Latino and other

minority students who may have difficulty understanding and adapting to the college culture (Rendon, 1994). However, evaluations of most mentoring programs has focused on students' perceptions of the program or looked at the relationship between the mentoring program and student outcomes and have focused less on identifying the key mentoring constructs that are features of the mentoring experience (Nora & Crisp, 2007).

Finally, few if any of the studies of mentoring focused on community college students and more specifically developmental students. The impact of a mentoring program may be different for these underprepared students. This study attempted to address this gap by looking at the content of student faculty interactions with developmental students in order to gain a deeper understanding of the many facets to the mentoring experience. By identifying the many facets to the mentoring experience, insights into the support functions that should guide mentoring programs for underprepared students could be obtained. The prior retention and intervention studies do demonstrate the importance of controlling for prior academic preparation and several student demographic characteristics in any study of student persistence such as this one.

CHAPTER III

METHODS

The purpose of this study was to investigate whether greater intentional student-faculty interaction with underprepared community college students leads to higher retention and success for such students. A 4-year grant from the Lumina Foundation entitled Achieving the Dream (AtD) provided funding for the college at which the study was conducted to explore ways to increase the persistence and attainment of underprepared students. The college used the funding to implement a faculty mentoring program geared towards increasing student-faculty interactions. Faculty members teaching the course SLS1001 also functioned as faculty mentors to students in their classes. The course SLS1001, also known Student Life Skills, is an orientation course designed for students who test into all three college preps. The focus of the course is to help students adjust to college life. Students are introduced to rudimentary behaviors and skills such as, course selection, time-management, note taking, test-taking, etc., that all students must demonstrate in order to successfully navigate the college environment.

The frequency of student-faculty mentoring experiences and the content of those experiences, operationalized into eight domains, were captured to provide insights into the nature of students' experiences at college during their first semester. Faculty members provided assistance and helped students navigate the college in their first semester by giving guidance, directing students to the appropriate offices, and helping students deal with the challenges of college. They were given an additional stipend and required to provide 7 hours of coaching per week to students in their classes.

It was theorized that faculty mentoring would lead to greater student engagement and involvement with the institution. Greater student involvement and engagement have been found to be associated with greater student retention and success. According to Tinto (1998), students who are more attached to and more deeply connect with the institution are more likely to persist, and this connection or attachment to the institution appears to be particularly important in retaining minority students (Nora & Rendon, 1990; Tracey & Sedlacek, 1987). When students view faculty interactions as positive and feel they are integrated into the campus environment as valued members, the more likely they are to persist (Rendon, 1994).

Research Questions

1. To what extent can the retention of underprepared students be predicted by the overall frequency of faculty mentoring experiences?
2. To what extent can the retention of underprepared students be predicted by specific types of faculty mentoring experiences?

Prediction Study

This study was done by examining a retention program designed primarily for underprepared, developmental students at a large, urban, public 2-year college in South Florida. All new First-Time-In-College (FTIC) students are required to take the state mandated College Placement Test (CPT) or show evidence of other acceptable placement test scores prior to enrollment. Students showing the need for remediation in all three areas of reading, writing, and math are required to enroll in the college success course SLS1001. The course SLS1001 is a success skills course designed to introduce students to the college and enhance successful college behaviors.

Faculty members who indicated their desire to participate in the mentoring program were required to enroll and participate in a 3-day success mentoring/coaching training workshop in the summer of 2005, prior to the start of the program in fall 2005. A total of 22 faculty members participated in the mentoring program. All were current faculty members teaching the course SLS1001, and all were paid an additional stipend to act as mentors. In terms of race/ethnicity, 55% were White, 36% were Black, and 9% were Hispanic. In terms of gender, 73% were women and 27% men.

Faculty Mentoring Responsibilities and Practices

Each faculty member participating in the mentoring program attended three mandatory training sessions on the coding and recording of student-faculty mentoring experiences. These sessions were conducted by the college's Department of Staff and Professional Development that worked in concert with the AtD Committee to develop the training program and the responsibilities of faculty and the expected mentoring behaviors. During the training sessions, the responsibilities of faculty towards students in the program were outlined and included the following:

1. Conduct regular individual meetings with students to assist with academic planning and direct them to appropriate college support services when necessary.
2. Develop and maintain rapport with students throughout the semester with the goal of assisting them to proactively identify potential problems and concerns.
3. Encourage student involvement in all campus events and Student Life organizations to build students' sense of connection with the institution.

4. Work with campus directors and discipline experts, as needed, to facilitate student success.
5. Attend meetings with other coaches, discipline experts, and campus directors to discuss coaching strategies and best practices.
6. Maintain a record of all interactions and interventions with students using the coaching data sheet developed by the Institutional Research Office.
7. Explain the mentoring component, which was a part of the class, to students on the syllabus, including specific times for mentoring and faculty mentoring philosophy.
8. Complete a student profile for each student with complete contact information.

In addition to these responsibilities, faculty members were expected to engage in specific mentoring practices that were highlighted and discussed during the training sessions. While many of these may be general teaching practice, they were specifically emphasized as important in coaching interactions and faculty were expected to engage in additional coaching hours beyond their normal teaching behavior. Some of these mentoring practices included:

1. Help students, during the mentoring sessions, to overcome the apprehension they may have about attending college for the first time.
2. Provide consistent feedback and guidance on how to be successful in college.
3. Schedule an appointment with each student and engage in educational planning so that the student has an educational goal and is aware of the

courses that would be required to accomplish that goal and the time it would take.

4. Listen and provide a supportive non-threatening environment that allows students to discuss the major challenges they face in their attempt to complete a degree or certificate.
5. Help students to identify their academic and career goals and work with them to develop a realistic educational action plan with key milestones and target dates.
6. Have students list three short-term goals they want to accomplish in the near future and agree on a time frame to accomplish each goal. During subsequent meetings with students, discuss the status of the goal(s) and any obstacles that prevented them from achieving those goals.
7. Establish a profile sheet for each student during the first meeting to learn what classes she or he is currently registered for and his or her family dynamics and support.
8. Require students to participate in campus activities (e.g., Multicultural Festival, Career Expo, etc.) and personally take students to the various support services on campus to better connect them to college resources.
9. Discuss with students how to balance their work, family, and leisure time while in college.
10. Highlight any small success of students and emphasize the positive during the mentoring sessions.

11. Make attendance to mentoring sessions a weighted part of the course grade by deducting points if students fail to show up for coaching appointment.

Population and Sample

New students applying to the college for the first time must take a state mandated CPT. Passing scores for the reading, writing, and math sub-tests are 82, 82, and 72, respectively. Students who fail to achieve passing scores on these sub-tests are placed into remediation classes, of which there are two levels in each area.

A total of 5,372 students took the CPT test in fall 2006. Of this total, 85% needed remediation in at least one of the three areas, 26% needed remediation in two out of the three areas, and 32% needed remediation in all three areas of reading, writing, and math. The population for this study included all of the third group: those FTIC students that took the CPT test in fall 2006 and failed all three areas of reading, writing, and math, but with the added stipulation that they also placed at the lowest level in at least two of the three areas ($N=574$).

African American or Black students comprised almost half (46%) of the participants in the study. Caucasians or White students comprised 23%, Hispanic or Latino students made up 27% and Asian Americans and those who were classified as Other made up the remaining 4%. In terms of gender, 53% were men and 47% were women. The mean age of the sample was 22 and 46% were full-time students, which was defined as enrolling in 12 or more credit hours. Approximately 75% of participants were recent high school graduates, which was defined as having graduated from high school within the last six months.

Setting

The study took place at a large urban, diverse, 2-year commuter college in South Florida. It is a multi-campus institution comprising three large campuses and three educational centers. It is the third largest community college in Florida with enrollment, in fall 2005, of more than 28,000 credit seeking students. The college also serves an additional 10,000 students through its non-credit programs. The student population is highly diverse, with students from over 110 different countries. Forty-one percent of the credit seeking student population is White non-Hispanic, 29% are Black non-Hispanic, 26% are Hispanic, and 4% are other. Since 1998-1999, while the Black non-Hispanic population has increased by 38% and the Hispanic by 37%, the White non-Hispanic population has declined by 13%.

Results from the fall 2004 student survey and institutional records revealed the following statistics about the college's student population. In terms of gender, 60% are women and 40% are men. The mean age is 27. More than half (57%) are enrolled in Associate in Arts degree programs, 30% are in Associate in Science program, 9% are in Associate in Applied Science programs, and 4% are in Certificate programs. Seventy percent are part-time students. Approximately 34% have a native language other than English, and 24% are married. More than a quarter indicate they are the first in their family to attend college and more than 80% have jobs. The mean household income is slightly more than \$23,000 and more than two-thirds are part-time students, which are defined as those taking less than 12 credit hours in a given semester. More than 60% indicated that low cost and location were the two most important factors in their decision to enroll in college and more than a third depend on financial aid.

Instrumentation

In order to capture the frequency of student-faculty mentoring experiences/interactions, as well as the content of those interactions, the researcher developed an instrument for faculty. Known as the coaching datasheet, this was a row by column spreadsheet that captured the student's identification, frequency of contact, and type of mentoring experience, whenever it occurred between the student and faculty member. Whenever the faculty member had a mentoring interaction with any student in his or her class, the faculty member would record the interaction on the coaching datasheet and email the datasheet to the researcher the end of the week.

Reliability and Validity of Mentoring/Coaching Instrument

The construct validity of the coaching datasheet, used to define the mentoring domains, was derived from five meetings of a Committee comprised of the following college personnel: two Academic Advisers, two Deans of Student Affairs, the Vice-President of Academic Affairs, the Vice-President of Student Affairs, the Director of Institutional Research, two faculty Counselors, two senior SLS1000 instructors, and the Vice-President of Staff Development. Fifty percent of the Committee possessed doctoral degrees; the rest held master's degrees. The Committee met five times working and reworking the parameters of the mentoring/coaching domains. Drawing on their many years of experience working with developmental students, they defined the mentoring domains in relation to the specific needs and issues pertaining to this population. They used the work of Tinto and Astin and the literature on faculty mentoring to guide their categorization of mentoring experiences. The resultant domains were Educational Planning (EP), Academic Concerns (AC), Career Counseling (CC), Time-management

(TM), Personal/Family/Childcare Concerns (PFC), Financial Concerns (FC), Health Concerns (HC), and Other (OC). Table 1 shows the operational definitions of the coaching domains.

Pilot Testing of Coaching Datasheet

Faculty members who indicated their desire to participate in the coaching program were required to enroll and participate in a 3-day mentoring training workshop held in the summer of 2005 prior to the start of the program in fall 2005. Subsequently, at the beginning of each spring and fall semesters, faculty involved with the program would meet in a retreat where they would share experiences and discuss strategies.

The workshop introduced faculty to the program and focused on the needs and characteristics of the underprepared student population. Counseling and advising strategies were discussed and the curricular content of the student success course were thoroughly explored. More importantly, the coaching datasheet and instructions were introduced to faculty, and a series of possible coaching scenarios with students were played out. The workshops allowed faculty the opportunity to gain practice in using the datasheet to categorize and record interactions (see Table 1 for category descriptions).

At the end of the workshop, all 100% of the faculty indicated they were “extremely comfortable” in using the datasheet. Several mock mentoring scenarios with students were enacted during the workshops and faculty members were asked to code the interactions into one of the eight domains on the datasheet. There was 80% conformity among faculty members in coding the mock interactions. In other words, after observing a sample mentoring interaction, 8-out-of-10 faculty members agreed that the interaction focused on time-management instead of academic concerns or any of the other domains.

Table 1

Coaching Domains: Abbreviations and Descriptions

Domain abbreviation	Domain description
EP	Educational Planning and Course Selection Strategies: Coach worked with students to develop their educational plans and to identify and select appropriate courses. Students were taught how to use web educational planning tools and perform degree shopping functions.
AC	Academic Concerns/Progress/Early Warning: Coach worked with students who received unsatisfactory test grades/scores or had difficulty with or were failing to complete assigned work. The coach addressed academic problems by personally assisting or directing students to tutoring or other support services.
CC	Career Counseling/Goal setting/Advising: Coach worked with students who indicated a need to explore career options and/or required career counseling, goal setting, and advising.
TM	Time-management/Study Skills: Coach worked with students, especially those with full-time jobs and those having to care for dependent(s), giving guidance on time-management techniques and study skills.
PFC	Personal/Family/Childcare Concerns: Coach worked with students who indicated difficulty dealing with personal problems such as domestic problems with spouse/significant other or other family members. This may also include problems with childcare and challenges of balancing school, work, and family.
HC	Healthcare Concerns: Coach worked with students who may have health issues, physical or emotional and/or short-term or long-term. Students may be referred to counseling staff.
FC	Financial Concerns: Coach worked with students who indicated a need for financial assistance, which may relate to loss of income, job, and transportation. Students may be referred to a financial aid advisor.
Other	Other Concerns: Coach worked with students on any other issues that cannot be classified into any of the domains above.

Procedures for Pilot Testing Student Demographic Survey

In addition to the coaching datasheet instrument, an on-line demographic Student Survey was administered to obtain information about students' characteristics, educational goals, competing priorities, possible factors for withdrawal, and attitudes about college attendance. Two randomly selected SLS1001 classes were selected from the universe of 23 such classes. The instructors of the selected classes were asked to administer the pilot survey during one of their lab sessions with students. A lab session in an SLS1001 class occurred when the instructor took his or her class to the computer lab to introduce students to computers, the Internet, and technology, such as student email. The college email addresses for all students in these two classes were obtained by the researcher, and an email was sent to students explaining the purpose of the survey and asking for their participation. The email also explained that participation was voluntary and that responses would be anonymous, so no names or other identifiers would be collected. An embedded URL link in the letter connected students to the survey. When students clicked on the link, they were directed to the student survey that was stored on a secure server in the college. The survey was created using SNAP software, which is a versatile Windows based program for questionnaire design and data collection and analysis for on-line surveys. After students completed the on-line survey, they clicked the "submit" button and the survey answers were sent to a secure database in the college IT department.

Response Rate and Results of Pilot Study

Thirty-three completed on-line surveys were sent to the secure server. This represented a 76.7% response rate (seven students were absent on the day the on-line

survey project was done and three other chose not to participate). When asked whether the instructions were clear, 31 of the 33 respondents (93.9%) responded “Yes.” One student responded “No”; the other did not respond. Overall students’ comments indicated that survey was easy to understand and adequate. All students reported that the survey was easy to complete and no additions, deletions, or modifications were necessary.

Operational Definition of Variables

Based on the literature, there were a number of variables that were known to be associated with persistence, therefore it was important to control for them in the analysis. Those variables were college readiness (measured here with the CPT), grade point average, prior experience with prep coursework, socioeconomic status, race/ethnicity, gender, and age. The following are the operational definition of these and other terms used in this research:

Persisters. Students who were still enrolled in fall 2007, which was 2- years after their initial enrollment. Persisters were coded as 1 and non-persisters were coded as 0.

Mentoring interaction. A face-to-face meeting between the faculty member and student where the faculty member listens to and/or provides assistance, guidance, encouragement or support to the student.

Content of coaching interaction. Content of interaction was classified into eight broad domains: educational planning, academic concerns, career counseling, time-management, personal/family/childcare concerns, financial concerns, health concerns, and other concerns.

College readiness. A measure of students' college readiness skills as determined by scores on the state mandated CPT. Three sub-tests measure basic skills in reading, writing, and math.

Success in college prep classes. A measure of students' performance in their first semester developmental classes. Successful completion of developmental course (grade of A, B, or C) was coded as 1 and failure to successfully complete course (grade of D, F, or W) was coded as 0.

Underprepared student. A student placing into math, reading, and writing prep based on his or her CPT test scores.

GPA. Students' first-semester college Grade Point Average.

Socioeconomic status. Measured two ways, first by students' annual household income and second by students' first-semester's Pell grant award status.

Race/Ethnicity. Student self reported racial/ethnic identification found on college application. White non-Hispanic is coded as (1), Black non-Hispanic coded as (2), Hispanic as (3), Asian American or Pacific Islander as (4), American Indian or Alaskan Native as (5), and not reported as (6).

Gender. Student gender coded as either male (0) or female (1)

Age. Student age obtained from college application.

Enrollment status. Defined as full-time (1) or part-time (0). Full-time was ascribed to those students who were enrolled for 12 or more hours and part-time ascribed to those who were enrolled for less than 12 hours.

Program of study. Indicates the specific program goal of student. This was coded as AA for Associate of Arts program, AS for Associate of Science program, AAS for Associate of Applied Science program, or TC for Technical Certificate.

Procedure

Prior to the start of the study, permission for approval to do research with human subjects was obtained from both the researcher's college, the site of the study, and the participating University's Institutional Review Board. The proposed research was granted exempt status by both institutions. Following approval to begin research, all students participating in the mentoring program were identified in the college's student database, and individual data elements such as race, gender, age, race/ethnicity, country of birth, CPT test scores, program enrollment, whether the student was a Pell-grant recipient, household income, and primary language were collected for each student. This information was compiled into a separate dataset and formatted for use with the statistical software package SPSS.

Data Treatment and Analysis

The criterion variable in this study was persistence. Persistence was a binary variable based on whether the student was enrolled in fall 2007, which was 2-years after initial enrollment. The key predictor variable was the mentoring experience (i.e., the frequency of mentoring/coaching interactions and the content of the interactions).

Logistic regression was used to estimate the impact of the predictor variables on persistence. The content of the mentoring/coaching interactions, operationalized into eight domains, was initially going to be entered into the model as "yes" or "no" depending on whether or not the student had a mentoring interaction with faculty in a

particular content area/domain. However, instead of being treated as a dichotomous variable, content was treated as a ratio variable, and the total frequency of interactions in each of the content areas was entered in the model. This was necessary because in some content areas, for example educational planning and career counseling, as many as 95% of students had an interaction with the faculty member. As a result, severe distortion in group sizes would have occurred, and, hence, the use of frequency instead of “yes” or “no” for content was needed.

Conceptually, the equation modeling persistence based on the frequency of coaching was understood to be: The probability of persistence = frequency of coaching interactions + college placement test scores + first semester GPA + race/ethnicity + SES + age + gender + success in college prep courses. The conceptual equation for the content domain analysis were understood to be: The probability of persistence = frequency of coaching interactions in each of the content areas (eight variables) + college placement test scores + first semester’s GPA + ethnicity + SES + age + gender + success in college prep courses.

SPSS for Windows, version 14, was used for recording data, analyzing descriptive statistics, and analyzing the impact of the predictor variables. A series of logistic regression models was used to assess the effect of the predictor variables in the model. Logistic regression is an ideal method to model the effect of the predictor variables when the criterion variable under consideration is dichotomous (Hosmer & Lemeshow, 1989). A key advantage of using logistic regression for dichotomized measures is that it avoids violations to the assumption of homogeneity of variance, which is likely to occur when Ordinary Least Squares regression models are run (Cabrera, 1994).

Summary

This chapter outlined the research method used to investigate whether greater intentional student-faculty interactions lead to greater persistence. First, a description of the study's population and sample was given, including the setting where the study took place. This was followed by a detailed description of the mentoring intervention. This detail was necessary to give a clear understanding of the type of intervention tested. This was followed by the procedure for determining the broad content areas of student-faculty interactions and a description of each content area. The instrumentation used to capture the content of student-faculty mentoring interactions and the procedures for pilot testing the instrument were presented next. A definition of the variables used in the study and the procedure for data treatment and analysis were given, followed by the conceptual equations modeling persistence based on the frequency of coaching interactions and on the content domain analysis.

CHAPTER IV

ANALYSIS OF DATA AND FINDINGS

In this chapter, the findings of the study are presented beginning with the demographic characteristics of the participants, followed by results from the student survey. An overview of participants and their reported experience is presented first, followed by an analysis of student faculty mentoring experiences and results from the logistic regression analyses.

The purpose of the study was to investigate whether greater intentional student-faculty interaction with underprepared community college students leads to higher retention and success for such students. This research question was explored through a faculty mentoring program in which faculty interactions with students were monitored and recorded into one of eight content areas depending on the nature of the mentoring experience. The relationship of student-faculty interactions in each of these content areas and student retention 2 years after initial enrollment was explored. The specific research questions that this study addressed were as follows:

1. To what extent can the retention of underprepared students be predicted by the overall frequency of faculty mentoring experiences?
2. To what extent can the retention of underprepared students be predicted by specific types of faculty mentoring experiences?

Demographic Characteristics of Participants

As mentioned in chapter 3, a demographic student survey was used to collect data on student characteristics not obtainable from the college's student data base. The survey included items on student characteristics such as educational goals, competing demands,

family support, and risk-factors. Information was also collected on students' self-perception of ability, motivation, and financing college.

Table 2 shows the race/ethnicity of the participants in the study. Broad ethnic¹ classifications were used; Caribbean and African American students were grouped together. Similarly, Cubans, Puerto Ricans, Colombians, Peruvians, and other students from Latin America were categorized as Hispanics. Caucasians or White students included all those classified as White non-Hispanics in the student database, and Asian Americans included those with Indian Ancestry from the former British colonies of Jamaica, Trinidad and Tobago, and Guyana.

Table 2

Race/Ethnicity of Participants

Race/Ethnic category	Number	Percent
African American/Black	262	45.6
Hispanic/Latino	156	27.4
Caucasian/White	134	23.3
Asian American/Pacific Islander	13	2.2
Other	9	1.5
Total	574	100.0

¹ Clearly, these racial and ethnic classifications are convoluted and troublesome. Grouping students with such coarse measures ignores the strong differences between ethnicities. For example, Caribbean and African American students do not always consider themselves in the same group. This study uses students' responses to a broad category question.

Table 3 shows the gender distribution of participants in the study. There were a higher proportion of male students (53%) than female students (47%). This was different than the college's overall gender distribution, which was approximately 40% men and 60% women. This suggests that recent male high school students were more likely to require remediation in all three areas of reading, writing, and math than their female counterparts. This is so because, to be a participant in the study, first-time students must show a need for remediation in all three areas of reading, writing, and math, and more than 85% of all first-time students were recent high school graduates.

Table 3

Gender of Participants

Gender	Number	Percent
Men	304	53
Women	270	47
Total	574	100.0

Table 4 shows students' CPT scores broken down by race/ethnicity. Florida state law mandates that any new student applying to a state community college must take the CPT to determine college readiness skills in reading, writing, and math. Students can also present alternative assessment scores, such as the SAT or ACT in lieu of the CPT. Based on the CPT scores, students are placed into the appropriate math and English courses. Passing scores on the CPT for reading and writing are 82 and for math it is 72. Students selected for the study had CPT reading and writing scores of less than 82 and less than 72 for math. The mean math score for all students was 42.8, which was lower than the mean

reading score of 59.7 and the mean writing score of 64.9.

Table 4

College Placement Test Scores by Race/Ethnicity

CPT Test Scores	Black	Hispanic	White	Other	Total
Mean CPT Reading Score	55.8	58.6	62.1	57.5	59.7
Mean CPT Writing Score	63.8	63.6	67.8	62.6	64.9
Mean CPT Math Score	42.3	42.1	44.3	42.4	42.8

Table 5 shows mean age and income and percentages for full-time/part-time status, Pell grant receipt, first-generation status, dependent responsibilities, and employment by ethnicity. The mean age of students was 22, and this was relatively consistent across all racial/ethnic groups. More than 80% belonged to the age group 19 through 22. While mean household income for all students was \$23,000, Black students had a mean income of \$20,000 and White students had a mean income of \$26,000. Slightly less than half (46%) were enrolled full-time (12 or more credit hours) and slightly more than half (51%) received Pell grants. A little over a quarter (26%) were first-generation students, which meant that neither parent attended college, and two in every five (41%) had one or more dependents.

The diversity of the entering student body in any given fall or spring semester was reflective of the great diversity in South Florida, which was evident among the student participants who represented a cohort of first-time students. Each student's country of birth was obtained from institutional records and revealed that 30% of the students were born in foreign countries. The number one foreign country of origin was Jamaica,

followed by Haiti, Colombia, Venezuela, Peru, Brazil, Bahamas, and Trinidad and Tobago. The diversity in students' countries of origin was also reflected in their native languages; slightly less than three-quarters (71%) of students indicated that their native language was English. The most common foreign languages spoken were Spanish, Creole, and Portuguese. Almost two-thirds (64%) indicated they were employed, and of those who were employed, more than half worked 30 or more hours per week. More than a quarter worked 40 or more hours per week.

Table 5

Age, Household Income, Enrollment Status, Financial Aid, First Generation Status, Dependents, and Employment Status

Student Demographics	Black	Hispanic	White	Other	Total
Mean Age	23	22	21	22	22
Mean Household Income	\$20,000	\$23,000	\$26,000	\$23,000	\$23,000
% Full-Time (12 or more hrs)	46%	48%	47%	46%	46%
% Part-Time (< 12 hrs)	54%	52%	53%	54%	54%
% Receiving Pell Grants	53%	51%	52%	53%	51%
% First Generation	27%	26%	25%	25%	26%
% With Dependents	44%	40%	40%	40%	41%
% Employed	63%	65%	64%	64%	64%

Financing Education

To get a better understanding of how they finance their education, students were asked on the survey to indicate “*which of the following are sources you use to pay your*

tuition at this college,” and were given the option to indicate whether it was a major source, a minor source, or not a source at all. They were asked to respond to each item; hence, the percentages are not cumulative and exceed 100%.

Table 6 shows the major sources used by students to pay for college tuition broken down by race/ethnicity. White students in particular were more likely to use their own income or savings, while Hispanic students were more likely to use their parents’ or spouses’ income. Overall, 37% indicated that their parents’ or spouses’ income was a major source for paying their college tuition; 34% said their own income was a major source; 33% said financial aid; 27% said scholarships or grants, and 12% said student loans was their major source. Considering that the mean household income for this group was \$23,000 and mean age was 22, the fact that only 33% indicated financial aid as a major source of paying for school is disappointingly low. It seems many more would qualify, especially as students cite lack of finances as the number one reason for withdrawal.

Table 6

Major Sources Used to Pay College Tuition

Tuition Sources	Black	Hispanic	White	Other	Total
Own income/savings	33%	29%	44%	32%	34%
Parent or spouse income	32%	44%	30%	43%	37%
Financial aid	34%	29%	26%	30%	33%
Student loan	15%	13%	13%	09%	12%
Scholarship/grant	29%	23%	32%	15%	27%

Primary Reasons for Attending College

To obtain a better understanding of students' educational goals, students were asked to "*Indicate which of the following are your reasons/goals for attending this college?*" and to indicate whether it was a primary goal, a secondary goal, or not a goal. Table 7 shows the percentage of students indicating those reasons that were a primary goal. Four out of every five students indicated that their primary goal for attending this college was to obtain an associate of arts degree, a pattern consistent across all ethnic groups. A similar percentage said their primary goal was to transfer to a 4-year college or university. More than half said that obtaining or updating job-related skills was a primary goal, and one in every four said that the primary reason for attending college was a desire to change careers. Clearly, these students have aspirations for the education and credentials that come from sustained enrollment and their persistence success must be understood in the context of these goals. The often touted explanation for withdrawals that the students may not have had aspirations to graduate did not fit this population.

Table 7

Primary Reasons for Attending College

Educational Goal	Black	Hispanic	White	Other	Total
Complete a certificate program	50%	46%	52%	48%	50%
Obtain an associate degree	82%	85%	87%	84%	84%
Transfer to a 4-year college	82%	86%	75%	82%	82%
Obtain/update job-related skills	50%	63%	63%	58%	56%
Change Careers	22%	33%	16%	24%	25%

Parents' Educational Level

To determine the educational level of their parents, students were asked to indicate “*the highest level of education obtained by your mother and father.*” The education levels of both parents were combined and the means are presented in Table 8, broken down by race/ethnicity. For all students, 21% had parents with less than a high school education, 26% earned a high school diploma or GED certificate, 19% attended college but did not earn a degree, 9% possessed a 2-year degree, 6% a 4-year degree, 4% a master’s degree, and 15% indicated they did not know what was the educational level of their parents.

Table 8

Parents' Educational Level

Education level	Black	Hispanic	White	Other	Total
Less than high school	19%	22%	22%	16%	21%
High school or GED	28%	24%	26%	27%	26%
Some college – no degree	18%	19%	20%	22%	19%
2-year degree (AA)	09%	06%	07%	09%	09%
4-year degree (BA)	06%	07%	07%	07%	06%
Master’s degree (MA)	03%	04%	10%	05%	04%
Unknown	17%	18%	08%	14%	15%

Speculation of Possible Reasons for Withdrawing or Dropping Out of College

To understand the reasons why students may withdraw or drop out from college, students were asked to indicate “*how likely each of the following issues would cause them*

to withdraw or drop out from college?” Table 9 shows the results for those students who indicated that the following issues would “*very likely*” cause them to withdraw or drop out from college. Almost half (45%) indicated that the lack of finances was the single most important reason why they may drop out of college. The second most common reason was health, followed by a tie between working full-time and being academically underprepared.

Of the options presented, caring for dependents was the least likely reason cited by students. Black students were less likely to indicate that being academically underprepared could be a possible reason for their dropping out from college. However, they were more likely to indicate that lack of finances and caring for dependents could be possible reasons. White students were more likely to cite health reasons as a possible factor. Also, the fact that health reasons were the second most cited reason for possible withdrawal points to the lower socio-economic background of this population, which may be unable to afford insurance or health care. Also of interest is the fact that, only 22% of students believed their weak academic preparation could be a possible factor in their withdrawal from college; clearly, this points to a disconnect between students’ perception of their academic preparation and their college readiness test scores.

The fact that students were discounting the possibility of being academically underprepared for the rigors of college-level work indicate that these students did not have a clear understanding of the academic skills needed for college. Although their enthusiasm and high levels of motivation are beneficial, academic preparation is often the key for a successful college experience. The fact that these students perceived their academic preparation to be adequate, in spite of the weak performance on the college

placement test raises two legitimate questions: (a) to what extent are their high schools responsible for sufficient academic preparation? and (b) to what extent are their high schools responsible for encouraging or enhancing congruence between students' perception of their academic ability and a realistic appraisal of their actual ability?

Table 9

Possible Reasons for Withdrawing/Dropping Out

Reasons	Black	Hispanic	White	Other	Total
Lack of finances	49%	42%	44%	43%	45%
Health reasons	23%	21%	31%	20%	24%
Academically underprepared	16%	27%	24%	22%	22%
Working full-time	21%	21%	24%	22%	22%
Caring for dependents	18%	12%	11%	12%	15%

Competing Demands of Students

Community college students face many competing time demands, which often impact their ability to be successful in college. A question on the survey asked students to indicate “*which of the following exerts the greatest demands on you as you try to complete your program of study?*” Table 10 shows the competing demands on students’ time. One in every three students indicated that employment/job demands (38%) and family commitments (37%) exerted the greatest demands on their time. These survey findings point to the preponderance of non-traditional students in community colleges, even when the mean age of this group was 22. Non-traditional students are often defined as those with job and family commitments, as well as being older. Only 16% of survey

respondents indicated that school represented the greatest demand on their time, while 5% said that their involvement in community activities placed the greatest demand on their time.

Table 10

Competing Demands of Students

Competing Demands	Black	Hispanic	White	Other	Total
Job/work	33%	43%	44%	39%	38%
Family commitments	36%	35%	41%	34%	37%
School	16%	20%	12%	25%	16%
Community involvement	08%	05%	03%	04%	05%

Descriptive Statistics and Sample Means

Table 11 shows the sample means for variables used in the model. Retention is a binary variable indicating whether the student did or did not enroll for the fall 2007 semester, 2 years after initial enrollment. The overall (2-year) retention rate for the sample was 39%. Educational planning, academic concerns, career counseling, and time-management comprised the bulk of the student-faculty interactions variables. College readiness was measured by CPT test scores in reading, writing, and math, and preparatory course success rates measured the percentage passing these classes in their first semester. Preparatory course success rates in the lower level prep classes (ENC0010, REA0001C, and MAT0012) were used in the regression analysis. Students' first semester college GPA and first semester Pell amount received, as well as their annual household income, were also used as variables in the regression model.

Table 11

Sample Means for Variables in the Model

Variable	Black	White	Hispanic
Percent Retained			
Retention through Fall 2007	.37	.40	.43
Student-faculty interactions			
Educational Planning (EP)	1.39	1.41	1.38
Career Counseling (CC)	.86	.88	.83
Academic Concerns (AC)	1.42	1.34	1.30
Time-management (TM)	.62	.56	.58
Personal/Family Concerns (PFC)	.40	.44	.28
Financial Concerns (FC)	.06	.03	.06
Health Concerns (HC)	.03	.02	.04
Total	4.75	4.66	4.33
College Placement Test (CPT)			
CPT Reading	55.8	62.1	58.6
CPT Writing	63.8	67.8	63.6
CPT Math	42.3	44.3	42.1
Preparatory Course Success (Percent Passing)			
ENC0010	48.2	41.3	48.5
ENC0021	48.7	46.4	39.3
REA0001C	27.8	14.5	19.3
REA0006C	59.2	65.9	72.9
MAT0012	09.8	14.5	10.7
MAT0024	23.1	30.2	28.6
GPA (Overall First-Semester)	1.87	2.07	1.97
Financial Demographic Variables (in dollars)			
Pell Amount Received (First-	2,059	2,301	2,164
Annual Household Income	20,487	26,395	23,451

Impact of Student-Faculty Interactions on Retention

Logistic regression analysis was used to estimate the impact of the independent variables on student retention. The independent variables were Ethnicity, gender, age, household income, Pell grant received (first-term), CPT test scores, overall first-semester college GPA, success in college prep courses, and faculty mentoring experiences. Table 12 shows that 89% or 512 cases were included in the regression analysis. Table 13 shows the impact of the independent variables on retention in the form of the odds ratio, which is a way of comparing whether the probability of retention is the same for the two groups in question under each variable. For example, for the variable race/ethnicity, Black students are compared to White students and then Hispanic students are compared to White students. An odds ratio of 1 implies that the probability of retention is equally likely in both groups. An odds ratio greater than 1 implies that retention is greater for the first group (Black students); an odds ratio less than 1 implies that retention is less likely for first group (Black students).

Model 1 included the demographic variables, which accounted for 5% of the variance at that point. Students' age and Pell grant received were statistically significant at $p < .05$ and remained statistically significant in all subsequent models. It is important to note however that the sample size for the study was fairly large ($n = 574$) and thus the statistical significance of these variables could be due to sample size rather than to explanatory power. Younger students were more likely to persist than older students with the odds of retention for younger students being about 85% higher than the odds of retention for older students. Students receiving higher Pell awards in their first semester were more likely to persist than students receiving lower or no Pell award.

Table 12

Description of Determinants Tested by Logistic Regression

Determinants	Model 1	Model 2	Model 3	Model 4	Model 5
	Coef (std err)	Coef (std err)	Coef (std err)	Coef (std err)	Coef (std err)
Demographic Variables					
Race: Compared to White: Black	-.190(.245)	-.223(.267)	-.318(.298)	-.259(.306)	-.254(.307)
Hispanic	-.172(.218)	-.188(.289)	-.254(.327)	-.255(.293)	-.238(.275)
Gender: Compared to Male: Female	.021(.187)	.013(.206)	.024(.226)	.025(.238)	.027(.239)
Age	-.091*(.029)	-.088*(.030)	-.072*(.032)	-.140*(.041)	-.139*(.041)
Household Income	.001(.154)	.004(.165)	.002(.169)	.001(.001)	.001(.001)
Pell Amount Received	.028*(.013)	.035*(.015)	.034*(.015)	.038*(.017)	.037*(.017)
College Placement Test (CPT)					
CPT Reading		-.004(.007)	-.011(.009)	-.004(.011)	-.004(.010)
CPT Writing		.001(.007)	.008(.008)	.000(.008)	.000(.008)
CPT Math		.025**(.006)	.028**(.007)	.030**(.007)	.030**(.007)
GPA (First Semester College)		.729**(.126)	.086**(.160)	.588**(.152)	.587**(.152)
College Prep Success					
ENC0010			.215(.244)	.220(.251)	.218(.251)
REA0001C			.291(.326)	.017(.326)	.021(.326)
MAT0012			.796*(.353)	1.118*(.384)	1.112*(.385)

* indicate that variable is statistically significant at $p < .05$ ** indicate that variable is statistically significant at $p < .01$

Table 12 continued

Determinants	Model 1	Model 2	Model 3	Model 4	Model 5
	Coef (std err)	Coef (std err)	Coef (std err)	Coef (std err)	Coef (std err)
Frequency of Faculty Mentoring Experiences					
Total Mentoring Experiences				.143*(.064)	
Interactions in Content Areas					
Educational Planning (EP)					1.265*(.253)
Career Counseling (CC)					-.054(.227)
Academic Concerns (AC)					-.240*(.204)
Time-management (TM)					-1.539**(.249)
Personal/Fam Conc (PFC)					.948*(.268)
Financial Concerns (FC)					.361(.513)
Health Concerns (HC)					.091(.729)

* indicate that variable is statistically significant at $p < .05$ ** indicate that variable is statistically significant at $p < .01$

Table 13

Logistic Regression Results of the 5 Models used in the Analysis.

Regression Statistics	Model 1	Model 2	Model 3	Model 4	Model 5
Number of cases	512	512	512	512	512
Nagelkerke Pseudo R ²	.052	.225	.261	.294	.449
-2 Log Likelihood	683.025	608.182	594.178	562.716	493.105
Chi Square	20.388	95.231	109.235	142.837	208.657
% correctly predicted					
Dropout	75.0	75.7	75.9	76.7	81.6
Persisted	39.3	59.8	63.4	65.7	74.2
Overall	59.4	68.8	70.3	71.9	78.5

* indicate that variable is statistically significant at p<.05

** indicate that variable is statistically significant at p<.01

The Nagelkerke Pseudo R-Square statistic, which is used to estimate the amount of variance in the dependent variable (persistence) that could be explained by the predictor variables, showed that Model 1 accounted for approximately 5% of the variation in the dependent variable. The model correctly predicted 75% of the dropouts, 39% of the persisters and 59% overall.

In Model 2, with the inclusion of College Placement Test scores and overall first-semester college GPA, the Nagelkerke Pseudo R-Square statistic increased from 5% to 22.5%. And in contrast to the percent of dropouts that was correctly predicted in the model, which essentially remained the same at 75%, the percent of persisters that was correctly predicted increased from 39.3% to 59.8% and the percent correctly predicted within the overall category increased from 59.4% to 68.8%.

Model 3 added variables that measured college prep success. Students successfully completing first level prep courses in reading, writing, and math were compared with those who were unsuccessful. With the inclusion of the variables measuring college prep success, the explained variance in Model 3 increased only slightly to 26%². The percent of dropouts correctly predicted remained the same at 75% but the percent of persisters increased slightly to 63.4% as did the overall category, which increased to 70.3%. The reliability of math skills being a stable predictor of success was again reflected in whether or not students successfully completed college prep math. Students who successfully completed college prep math with a grade of A, B, or C had

² It is inappropriate to conclude that course completion accounted for only 3% of the variance rather than 3% additional of the unexplained variance. There may be overlap between CPT score, GPA, and probability of completion of the prep classes, so that if prep class success were entered in the model first, it might be more predictive.

statistically significant higher retention rates than students who were unsuccessful (grade of D, F, or W). The same was not true for college prep reading and writing when controlling for the other variables. For the math preparatory course MAT0012, the odds of persistence for successful students were double the odds of persistence for students who were not successful. This difference in odds was statistically significant and once more revealed the importance of math as a key predictor of student retention for this group.

Model 4, key to answering Research Question One, examined the impact of the total frequency of student-faculty mentoring experiences on retention while considering the other variables. With the inclusion of the overall frequency of student-faculty interactions, the Nagelkerke Pseudo R-Square statistic increased from 26.1% to 29.4%. While the percent of dropouts correctly predicted remained essentially the same at 76%, the percent of persisters and overall increased slightly to 65.7% and 71.9% respectfully. Even though the impact of the overall frequency of mentoring experiences on the explained variance was small, it nonetheless was statistically significant at ($p < .05$) and positively related to retention. Students who met more often with faculty, irrespective of what was discussed during the meetings, were more likely to be retained.

In Model 5, key to answering Research Question Two, the impact of student-faculty mentoring experiences in each of the content areas was examined along with the previously included variables except for the overall frequency variable. The Nagelkerke Pseudo R-Square statistic increased from 29.4% to 44.9% reflecting a substantial increase in the explained variance of the dependent variable. The percent of dropouts correctly predicted increased from 76.7% to 82.6%, the percent of persisters correctly predicted

increased from 65.7% to 74.2% and the percent correctly predicted within the overall category also increased from 71.9% to 78.9%. This impressive explanatory effect of student-faculty mentoring experiences in the content areas in predicting persistence for this group suggest that the specific type of mentoring experience between student and faculty is of more importance than simply the overall quantity of such experiences. Specifically, mentoring experiences in the content areas, educational planning ($p<.05$), academic concerns ($p<.05$), time-management ($p<.01$), and personal/family concerns ($p<.05$) were statistically significant.

Students who met more often with faculty to identify and select appropriate courses, formulate an educational goal, or learn how to use web-based educational planning tools were more likely to persist than students that met less often, or not at all, with faculty to discuss these issues. Similarly, students who met more often with faculty to discuss their personal/family/childcare concerns were more likely to persist than students who met less often, or not at all, with faculty to discuss such issues. On the other hand students that met more often with faculty to discuss time-management issues or academic concerns were less likely to persist.

Table 14 shows the beta coefficients and odds (ExpB) values for the variables in the 5 regression models used in the analysis. Of key concern are the independent variables that were statistically significant in the regression model. Examination of the beta coefficients of these variables can reveal the specific contribution that an additional unit of the independent variable can have on the dependent variable. Examination of the odds (ExpB) values can reveal the percentage increase or decrease in the dependent variable that can be accrued by a 1-unit change in the independent variable.

Table 14: Logistic Regression Analysis Predicting Retention 2 Years Later

Variable	Beta	Exp(B)	Sig.
<i>Demographic Variables</i>			
Race: Compared to White: Black	-.254	.760	.371
Hispanic	-.238	.408	.988
Gender: Compared to Male: Female	.027	.940	.796
Age	-.139	.854	.040*
Household Income	.001	1.002	.152
Pell Amount Received	.037	1.055	.031*
<i>College Placement Test (CPT)</i>			
CPT Reading	-.004	.996	.826
CPT Writing	.000	.982	.242
CPT Math	.030	1.033	.000**
GPA (First Semester College)	.587	1.864	.000**
<i>College Prep Success</i>			
ENC0010	.218	1.217	.435
REA0001C	.021	1.040	.905
MAT0012	1.112	2.009	.004**
<i>Frequency of Faculty Mentoring Experiences</i>			
Total Mentoring Experiences	.143	1.675	.026*
<i>Student Faculty Interactions</i>			
Educational Planning (EP)	1.265	3.571	.022*
Career Counseling (CC)	-.054	.947	.896
Academic Concerns (AC)	-.240	.787	.042*
Time Management (TM)	-1.539	.215	.001**
Personal/Fam Conc (PFC)	.948	2.582	.041*
Financial Concerns (FC)	.361	1.435	.804
Health Concerns (HC)	.191	1.210	.890

* indicate that variable is statistically significant at $p < .05$

** indicate that variable is statistically significant at $p < .01$

The beta coefficient for educational planning, 1.265, which is the difference in the log odds, could be interpreted to mean that for a one-unit increase in educational planning the expected change in log odds is 1.265. The odds ratio for educational planning was 3.571 meaning those students who spoke with their professor about educational planning were more than three times as likely to persist.

On the other hand, students who met more often with faculty to discuss academic concerns such as failing grades or inability to complete assigned course work were less likely to persist than students who met less frequently, or not at all, to discuss these issues. When holding constant all of the other variables in the model, an increase of one additional mentoring experience in the domain of academic concerns dramatically reduced the odds of persistence. This suggests that by the time the faculty member realizes there is a need to address academic performance or satisfactory progress with a student, it might already be too late to prevent the student from dropping out. This is understandable; mentoring in the domain of academic concerns focused on students who were receiving unsatisfactory test grade/scores or had difficulty with or failing to complete assigned work. By definition, this would necessitate a time-interval before the faculty member could intervene with the student. By the time the faculty member received progress reports from the student's other classes and tried to apply an intervention in the form of a mentoring experience focusing on academic concerns, it appears that it was too late to prevent the student dropping out. This may help explain why increased mentoring within this domain is predictive of lower persistence.

The same was true for time-management issues. Students who met more often with faculty to discuss reasons for coming late, or not coming, to class were less likely to

persist than students who met less frequently, or not at all, to discuss these issues. The negative beta coefficient of -1.539 for the time-management domain, which translates into an odds (ExpB) value of .215, indicates that for every additional mentoring experience in the domain of time-management, the odds of persistence decreases. Since mentoring experiences in the domain of time-management, like those in the domain of academic concerns, focused on students behaviors that are negatively associated with persistence, it is not surprising that higher frequency in these areas were predictive of lower persistence.

These findings suggest that although student-faculty mentoring experiences are important, of more importance is the content of those experiences. This is so because although overall frequency accounted for approximately 3% of the additional variance, content accounted for approximately 16%. Clearly, therefore, it seems that what teachers talk to students about is more important than how often they talk with students. One implication of this finding, therefore, is the need for administrators and faculty to address and mitigate the conditions that give rise to the need for interactions predictive of dropout and to enhance the opportunities and conditions that promote interactions predictive of retention.

In contrast to mentoring experiences in the domains of academic concerns and time-management, mentoring in the domain of personal/family/childcare concerns was predictive of greater persistence. The positive beta coefficient of .948, which translates into an odds (ExpB) value of 2.582, indicates that for every additional mentoring experience in the domain of personal/family/childcare concerns, the odds of persistence increases by 58%. This more personal aspect of the mentoring is consistent with Nora

and Crisp's (2007) first dimension of good mentoring, which was psychological and emotional support.

Summary of Regression Analysis

The first research question asked whether student retention could be predicted by the overall frequency of faculty mentoring experiences. It sought to determine whether the positive effects of faculty mentoring, as evidenced in prior studies (Campbell & Campbell, 1997; Nora & Crisp, 2007), was also evident among underprepared community college students. Results from the regression analysis confirmed the utility of faculty mentoring as a strategy for retention for underprepared students. Overall frequency of faculty mentoring experiences was a positive and statistically significant predictor ($p < .05$) of student retention. Students who met more often with faculty, regardless of what was discussed during the interaction, were more likely to persist than students who met less often or not at all with faculty.

When the overall frequency of student-faculty interactions was entered into the regression model, the Nagelkerke Pseudo R-Square statistic increased from 26.1% to 29.4%. This relatively small increase in the explained variance of the dependent variable that was generated by overall frequency is puzzling, especially when compared to the frequency in the content areas which accounted for a statistically significant higher percentage of explained variance. Moreover, with the inclusion of the overall frequency variable in the model, the percent of dropouts correctly predicted remained essentially the same at 76%, but the percent of persisters and the overall category increased slightly to 65.7% and 71.9% respectfully.

The second research question sought to determine the extent to which the retention of underprepared students can be predicted by specific types of mentoring experiences. Results revealed that four of the eight types of faculty mentoring experiences were statistically significant predictors of student retention. With the inclusion of frequency of mentoring in the content areas, the Nagelkerke Pseudo R-Square statistic increased from 29.4% to 44.9%, reflecting a substantial increase in the explained variance of the dependent variable. This relatively large explanatory effect of student-faculty mentoring experiences in the content areas in predicting persistence is in contrast to the overall frequency of mentoring activity, which has a much less explanatory effect. It suggests that specific types of mentoring experiences between student and faculty are of more importance than simply the overall quantity of such experiences. Interactions pertaining to educational planning and personal/family/childcare concerns were positively associated with retention, while interactions pertaining to time-management and academic concerns were negatively associated with persistence. The percent of dropouts correctly predicted increased from 76.7% to 82.6%, the percent of persisters correctly predicted increased from 65.7% to 74.2% and the percent correctly predicted within the overall category also increased from 71.9% to 78.9%.

Student-Faculty Mentoring Experiences in the Content Areas

Educational Planning

Analysis of student-faculty mentoring experiences revealed that most mentoring activity occurred in the domain of Educational Planning (EP). This was understandable, as part of the mentoring/coaching program, the faculty member was mandated to hold a

meeting with each student to discuss the student's educational plan. An educational plan allowed the student to identify an educational goal, create a time-line, and identify the courses needed, semester by semester, to accomplish the educational goal. The mean number of student-faculty mentoring experiences within the content area of educational planning was 1.4 with a standard deviation of .54.

Within the category of educational planning, the faculty member assisted students in formulating an educational goal and helped them to determine whether their goals were realistic or needed to be revised. Students were typically given guidance on how to use the web-based educational planning tools and taught how to identify and utilize college resources. Usually, they were tutored on expected college behaviors and the expectations of their professors and were urged to follow the course-taking sequence of their academic program.

Results from the regression analysis revealed that students who interacted with faculty in the area of educational planning were more likely to enroll 2 years after initial enrollment than students who interacted less frequently or not at all with faculty in this area. And though it could not be determined whether it was the faculty or the student who initiated the interaction, faculty more often chose to classify interactions with students under the content of educational planning. A mean of 1.4 interactions indicates that a significant number of students had two or more interactions with faculty in this domain. This aspect of mentoring is clearly consistent with Nora and Crisp's (2007) second dimension of support for setting goals and choosing a career path.

Academic Concerns

Student-faculty mentoring experiences within the content area of academic concerns focused on academic problems and difficulties faced by students. In most instances, the faculty member would request a meeting with students who were obtaining poor grades or failing to complete assigned work, and the interaction would be recorded under the domain of academic concerns. In their training sessions, faculty were urged to personally assist or direct students to tutoring and other college support services and to emphasize study skills, including test-taking and note-taking skills. The mean number of interactions in the content area of academic concerns was 1.3 with a standard deviation of .60. A mean of 1.3 interactions indicates that a substantial number of students had two or more interactions in this domain.

Results from the logistic regression analysis revealed that interactions in the area of academic concerns were statistically significant. Students with high levels of faculty interactions in the area of academic concerns were less likely to persist than students with little or no involvement with faculty regarding academic concerns. This is understandable. Students obtaining poor grades or failing to complete assigned work are more likely to discuss academic issues with faculty, but such students are less likely to persist than students who are obtaining good grades, and these brief interactions, apparently, are insufficient to mediate what may have been years of inadequate schooling. It seems reasonable to assume that many of the interactions in the academic concerns domain were faculty initiated, as they probably tried to address students' poor grades and/or failure to complete assigned work. However, it may be that by the time faculty realized that there was a need to address students' poor grades or failure to

complete assigned work, it may have been too late to prevent student dropout. Therefore, it will be beneficial to identify, early, students who exhibit these at-risk characteristics and apply immediate intervention, rather than try to address it in the latter part of the semester. It is also evident that having to discuss these issues is predictive of dropout because more interaction is associated with lower retention. One implication for administrators and faculty, therefore, should be to ensure that students' inability to complete assigned work and/or poor grades be addressed as early, and with as much sensitivity, as possible.

Time-Management

Interactions in the content area of time-management focused on ways to efficiently manage time, so students can be successful in their classes. Although it would have been beneficial to determine the percentage of faculty initiated versus student initiated interactions in this domain, this was not possible. However, given the kind of issues discussed in this domain, it is reasonable to assume that many of the interactions were faculty initiated. The mean number of interactions in content area was .57 with a standard deviation of .59.

Faculty assisted students in time-management issues such as coming unprepared for classes or excessive absences or tardiness. Students were given guidance on prioritizing and decision making strategies and were urged to follow a daily planning schedule and stick to a time-management plan. Regression results revealed that faculty interactions in the domain of time-management were statistically significant. Students with high levels of faculty interactions in this domain were less likely to persist than students with little or no involvement with faculty regarding time-management issues.

This may suggest that students with full-time jobs, those having to care for dependents, or those with other pressing priorities that prevented them from attending classes or completing their assigned homework, are less likely to persist than those students who are more punctual to class and do not have to deal with time-management issues.

Yet, it is clear that students who show a need to discuss excessive absences or reasons for not completing their assignments are less likely to persist than students who do not have to address these issues. Not completing assignments, coming unprepared to class, or excessive absences are key indices of failure, and subsequent dropout.

Therefore, a greater number of interactions in this content area are not desired, for it indicates difficulty in one of the more fundamental aspects of successful college life.

More importantly, a brief faculty intervention (on average) less than one time per semester appears to be inadequate to assist students in overcoming these challenges.

Personal/Family/Childcare Concerns

Student-faculty mentoring experiences in this domain focused on personal/family/childcare problems, including problems with job or other conflicts. The mean number of interactions in the content area was .42 with a standard deviation of .54. Many students within this group had to juggle between school, job, and family responsibilities. Faculty counseled students on ways to address personal issues and/or directed students to other college support services such as day-care and counseling services.

Results from the logistic regression analysis revealed that faculty interactions in the domain of personal/family concerns were statistically significant. Students with a higher number of interactions in this domain were more likely to persist than students with little or no involvement with faculty regarding personal or family issues. What this

means is that students who discussed personal or family issues with the coach/faculty benefited from the interaction in a positive way. Although it is not possible to determine whether it was the encouragement, support, or an opportunity to talk with a faculty, students that interacted with faculty in this domain were more likely to persist than students who did not.

Financial Concerns

Within the domain of financial concerns, the faculty member worked with students who indicated a need for financial assistance/guidance. The faculty member explored scholarship options and book grants and referred students to the financial aid office or assisted students in navigating through the financial aid process. The mean number of interactions in this domain was .052 with a standard deviation of .124. Most perplexing were the results from the student survey, which showed that almost half (45%) of all students indicated that lack of finance would probably be the number one reason for dropping out of college. Yet, a very low number -- a little more than 5% -- of students actually had interactions with faculty members that focused on financial concerns. It is unclear whether this occurred because students were referred to the financial aid office or because students were sensitive about discussing financial issues with faculty. Prior studies have found that Hispanic students are less likely to apply for financial aid compared to White non-Hispanic students (Rendon, 1994). This reticence to discuss these issues may mean students were getting little or no assistance in this area, and the low percentage among this group receiving financial aid may suggest this was so. Interactions related to finances were not statistically significant in the regression model.

This could be related to the fact that a very low number of students had interactions pertaining to financial concerns.

Career Counseling

Within this category of student-faculty interactions, faculty worked with students who indicated a need to explore career options and/or required assistance in developing career goals and objectives. Faculty may have worked with students on the process of identifying career goals, provided resources, or directed students to the career counseling and/or advising center. The mean number of interactions in the domain of career counseling was .85 with a standard deviation of .57. Interestingly, while student-faculty interactions in the domain of educational planning emerged as a significant and important predictor of persistence, student-faculty interactions in the domain of career counseling was not a statistically significant predictor of persistence.

Health Concerns

Even though findings from the student survey revealed that health concerns was the second most important reason for possible withdrawal, very few students had coaching interactions in this domain. Less than 3% of all students had an interaction with faculty concerning health issues. The mean number of interactions in this domain was .027 with a standard deviation of .163. Thus, even though students indicated that health issues might be a primary reason for possibly withdrawing from college, they tended not to discuss these issues with the faculty. It may be that as long as they stayed healthy this was a non-issue or, maybe, for some reason there was a hesitancy to discuss health issues with faculty. The few interactions that did occur were not statistically significant predictors of student persistence in the logistic regression model.

Academic Preparedness and GPA

College readiness, measured by students' academic preparation in high school, is perhaps the most important factor in student retention. Students exposed to a more rigorous high school curriculum have been consistently found to persist and achieve at higher rates than students who are less adequately prepared. For this study, academic preparation was measured by the state mandated college readiness tests in reading, writing, and math. Results from the logistic regression analysis showed that while reading and writing scores had no statistically significant effect on retention, math scores were statistically significant and remained significant in all subsequent models.

Students' overall first-semester college GPA, included in Model 2, proved to be a reliable and statistically significant predictor of retention, with higher GPA associated with greater retention. This highlights the importance of students' first semester in college, where successful academic experiences seem to produce more successful academic experiences.

Success in College Prep Courses

Performance in first-level college prep courses, defined as success (grade of A, B, or C) or non-success (grade of D, F, W, or X) was entered in Model 3. Success in college prep math emerged as a better predictor of persistence than success in college prep reading or writing even when already controlling for college readiness in these subjects through inclusion of the CPT score in the model. This finding highlights the importance of math as a critical gatekeeper course for underprepared students, with the resulting implication that the development of math skills in such students should be a priority for community colleges.

Race/Ethnicity, Gender, and Age

The impact of race/ethnicity, gender, and age can be seen in Model 1 of the regression equation. Both race/ethnicity and gender had little or no impact on retention as both were statistically insignificant. Students' age, however, emerged as an important predictor of retention among this group. Age was a statistically significant variable in all 5 regression models and had a negative beta coefficient. The negative beta coefficient indicated that younger students in the sample were more likely to persist than older students. This suggests that older students who are returning to college, but lack the basic skills necessary for college level work, are much more likely to drop out within 2 years compared to their younger counterparts. It may also mean that older students, by definition, have more competing demands in the form of a full-time job, family commitments, and/or dependents.

Summary

This chapter presented the findings of the study beginning with the demographic characteristics of participants, followed by results from the student survey. An overview of faculty responsibilities in the mentoring/coaching program and a description of the mentoring/coaching practices used were presented next. This was followed by the analysis of student-faculty mentoring experiences and results from the logistic regression analyses.

The research questions sought to investigate whether greater intentional student-faculty interactions with underprepared community college students were predictive of higher retention for such students. Results from the regression analysis revealed that student-faculty mentoring experiences in the content areas of educational planning and

personal/family/childcare concerns were predictive of persistence, while mentoring experiences in the content areas of academic concerns and time-management were predictive of dropout. The findings of the study are discussed in chapter 5 along with limitations, conclusions, implications for theory, implications for practice, and recommendations for future research.

CHAPTER V

DISCUSSION

The preceding chapters introduced the research questions and context for the study, including the theoretical framework, a review of relevant literature, and a description of the research method and analyses of data. This chapter concludes the dissertation by offering a discussion of findings from the study, limitations of the study, implications for current practice, and suggestions for future research.

Summary of the Study

Community colleges play a vital role in U.S. higher education, enrolling about half of all college going students (NCES, 2003). The students served by community colleges, however, are very different from students served by traditional 4-year colleges and universities. Community college students have dramatically varying goals, from earning a degree to receiving on-the-job-training. Many are low-income, minority, first-generation, and underprepared. Many have significant time commitments – to their families, their jobs, and their communities – in addition to their studies. And many are older, attend school part-time, and work full-time.

Partly, as a result of these characteristics, student attrition is a serious problem for community colleges. Of all first-time students who entered a community college in 1995, only 40% earned a degree or transferred to a 4-year institution within 6 years (U.S. Department of Education, 2003). Among minorities, this rate is even lower. Only 26% of African American and 29% of Hispanic students who began at a community college earned a degree or certificate within 6 years. And for certain groups, the completion rate is even lower. For example, for students needing remediation in all three areas of reading,

writing, and math, the completion rate – earning some type of credential – within 6 years is less than 15%.

One way to facilitate student retention is by utilizing Tinto's (1993) model of student departure, which suggests that students should be involved in focused activities that counteract feelings of being socially and intellectually isolated from the institution. Tinto (1993) suggests that a student's departure from an institution "reflects the character of the individual's social and intellectual experiences within the institution" (p. 51). He maintains that students who are more engaged and more deeply connect with the institution are more likely to persist.

Student engagement or involvement has been identified by Astin (1999) as the most critical factor in impacting persistence and suggested that students must be actively engaged in their environment in order for learning to take place. Astin (1999) operationalized student involvement as active participation in college classes and extracurricular and social activities and suggested that faculty interaction both inside and outside the classroom was necessary for student success and growth. Astin's (1999) work suggests that student affairs professionals and college administrators need to create opportunities for involvement to occur, both in and out of the classroom, to increase student persistence.

One way in which students can become integrated into the academic and social life of the institution is through faculty mentoring. A good student-faculty mentoring relationship is likely to engender positive self-perceptions and a sense of being valued and respected by faculty and other students. Nora and Crisp (2007), in a review of the literature on faculty mentoring, concluded that mentoring is generally recognized as a

productive way of addressing the college adjustment needs and contributing to a positive experience for students. From their review, these authors felt that students in a mentoring relationship often receive the academic and social support during their enrollment to positively impact their abilities to succeed in college (Nora & Crisp, 2007).

Evaluation of most mentoring programs have focused on students' perceptions of the program or looked at the relationship between the mentoring program and student outcomes and have focused less on identifying the key mentoring constructs that are inherent in the mentoring experience (Cohen & Galbraith, 1995; Nora & Crisp, 2007; Miller, 2002). This study attempted to address this gap by looking at the content of student faculty interactions with developmental students in order to gain a deeper understanding of the many facets of the mentoring experience. The purpose of this study was to investigate whether greater intentional student-faculty interaction/mentoring experiences with underprepared community college students leads to higher retention for such students.

Upon entry, first-time, underprepared students targeted for the study were required to enroll in a college success skills course called SLS1000. The instructors of this course were invited to participate in a faculty mentoring program, where they were paid a stipend to act as personal mentors or success coaches to the students in their classes. Faculty members met with students one-on-one, both in and out of class, and may have assisted students with developing an educational plan, provided personalized assistance with college issues, or directed students to appropriate support services such as advisement, counseling, financial aid, tutoring, childcare, or health services.

The faculty recorded the frequency of contacts with students and the issues and concerns of students during these student-faculty interactions. The content of the student-faculty interaction was operationalized into eight content areas that included: educational planning, time-management, academic concerns, career counseling, personal/family/childcare concerns, financial concerns, health concerns, and other. There were two research questions to the study. The first asked to what extent the retention of underprepared students can be predicted by the overall frequency of faculty mentoring experiences and the second asked to what extent can retention be predicted by specific types of faculty mentoring experiences?

Logistic regression analysis was used to estimate the impact of the independent variables on student retention. The independent variables in the model included student-faculty interactions/mentoring experiences, CPT test scores, first semester GPA, success in first level college prep courses, race/ethnicity, gender, age, Pell amount received in the first semester, and annual household income.

While overall frequency of faculty mentoring emerged as a statistically significant predictor of retention, an even stronger predictor was faculty mentoring in specific content areas. Faculty mentoring in four of the eight content areas was predictive of retention. Students who met with faculty more often to talk about educational planning issues and/or personal/family/concerns had higher retention rates than students who did not meet with faculty as often or not at all to talk about these issues. In contrast, students who met with faculty more often to talk about issues of time-management or academic concerns had *lower* rates of retention than students who met with faculty fewer times or not at all to talk about these issues.

College readiness skills, measured by CPT test scores in math, was statistically significant; not so for reading and writing scores. Students with higher CPT math scores had a higher probability of persistence than students with lower math scores. It is important to note that even in such a truncated sample as all low-scoring students, math score was positively associated with persistence.

In addition to CPT math scores, students' first semester GPA was statistically significant. Higher GPA was associated with higher retention. Also, the successful completion of college prep math with a grade of A, B, or C was statistically significant; reading and writing were not. Students successfully completing MAT0012 had a higher probability of persistence than students not successfully completing the course. It should be noted that all students needed remediation in all three areas of reading, writing, and math.

Financial aid, measured by whether the student received Pell award, was statistically significant. Students receiving Pell awards were more likely to persist than students not receiving any Pell award. Household income was not statistically significant, maybe because most students belonged to the low-income category. The mean household income for all students was \$23,000. And finally older students were less likely to persist than younger students.

Impact of Faculty Mentoring on Student Retention

The mean number of faculty mentoring experiences for all students in the study was 4.62 and the retention rate was .392. In other words, on average, students had between 4 and 5 mentoring experiences with faculty over the course of the semester and 39% of the initial sample was still enrolled at the college 2 years after initial enrollment.

There were no differences in persistence by Ethnicity, and both persisting and non-persisting students had roughly equal levels of faculty interactions.

Faculty Mentoring in the Content Area of Educational Planning

Results showed that a higher frequency of faculty mentoring in the area of educational planning was predictive of student retention. This finding raises the obvious question to ask, why? Why did students who had greater levels of interaction with faculty regarding the student's educational plan showed higher persistence rates? This may be difficult to ascertain as students who were more motivated at the start probably had more interactions with faculty than students who were less motivated. Also, students interested in developing, exploring, or talking about educational goals and careers or those with prior experiences of interacting with their high school instructors will be more likely to have interactions focusing on educational planning. Such students are also more likely to succeed. It seems reasonable to assume therefore that students with the greatest potential for success were probably the ones who took advantage of the mentoring opportunities provided by the faculty member.

One may also suggest that the positive effect of student-faculty interactions in the content area of educational planning may be the result of deliberately creating a more responsive, supportive, and engaging learning environment for students through the faculty mentoring experience. As part of the mentoring/coaching program, the faculty member was mandated to hold a meeting with each student to discuss the student's educational plan. More than anything, interactions in the content area of educational planning helped students identify and perhaps clarify whether they had appropriate

educational goals and the courses that were needed, semester by semester, to accomplish these goals.

All students in the mentoring/coaching program, theoretically, would have met with a faculty member at least once to discuss an educational plan, which was a mandatory aspect of the mentoring/coaching program. The difference in the number of interactions or mentoring experiences between students in this and other domains seems to be that some students had follow-up meetings with the faculty. A legitimate question, therefore, is why would some students have more follow-up sessions with faculty members than others? Certainly motivation could be a factor. One can expect that more motivated students would take advantage of the opportunity to discuss their educational goals with faculty. A reasonable question that one may ask, therefore, is whether it was the content of the interaction – a focus on an educational plan – or the opportunity to interact with a faculty member, who appeared interested in the student's success and offered advice on how to be successful in college that led to increased retention? These interactions *may* be most like the interactions Tinto (1993) was recommending.

Faculty Mentoring in the Content Area of Academic Concerns

Results from the regression analysis showed that higher frequency of mentoring in the content area of academic concerns was predictive of lower retention. This is understandable, given that mentoring in this area focused on students' poor grades and/or inability to complete assigned homework. It is also evident that students with poor grades or not doing their homework are more likely to drop out. It appears that by the time the faculty member became aware of the need to address issues pertaining to students' academic progress and attempted an intervention in the form of a student-faculty

interaction focusing on the student's poor grades, it was perhaps too late to prevent student dropout. It is also reasonable to assume that most of the student-faculty interactions in this content area were faculty initiated. Hence, there would be a preponderance of academic concerns interactions focused solely on the most at-risk students within the group. This would explain why higher frequency in this content area was predictive of lower retention and why frequency in specific content areas generated more explanatory power in the dependent variable than the overall frequency.

Faculty Mentoring in the Content Area of Time-Management

Student-faculty interactions in the content area of time-management, like those in the content area of academic concerns, were predictive of lower retention. Students who more often met with faculty to discuss issues of time-management were *less likely* to persist than students who met less frequently or not at all with faculty to discuss issues of time-management. Student-faculty interaction in this area addressed issues such as coming unprepared for classes, excessive absences, tardiness, or not completing assignments. Intuitively, it makes sense that students who more often met with faculty to discuss these issues were less likely to persist than students who did not need this help, for having to deal with issues of time-management in the context of faculty interactions may indicate that there may be other competing important priorities in students' lives.

This finding, in some ways, points to the non-traditional college traits inherent in this group: underprepared, part-time attendance, and full-time employment. A significant number had to balance work, school, and family life, and those that had difficulty in managing these issues were more likely to meet with faculty to address these issues. In many ways, the measure of providing the interaction was also a measure of the need for

the interaction. Not completing assignments, coming unprepared to class, or excessive absences are essentially issues of time-management and surely lead to failure and then dropout. Therefore, a greater number of interactions in this content area are not desired, for it indicates difficulty in one of the most fundamental aspects of successful college life. However, it is interesting that faculty often chose to classify “not completing assignments” as a time-management issue and did not consider that they may not have given students the skills to do the assignment or showed that it was in the students’ best interest to do so.

Faculty Mentoring in the Content Area of Personal/Family Concerns

Results from the logistic regression analysis revealed that faculty interactions in the content area of personal/family/childcare concerns were statistically significant. Students with a higher number of interactions were more likely to persist than students with little or no involvement with faculty regarding personal or family issues. Given the non-traditional characteristics of the group such as, being underprepared, older, and minority, this finding is understandable. Faculty counseled students on ways to address personal, family, or childcare problems and directed them to other college support services. It appears that having the opportunity to share personal problems and concerns with a caring faculty member was beneficial to student retention.

Impact of Success in College Prep Courses

Surprisingly, successful completion of college prep writing ENC0010 or college prep reading REA0001C were not statistically significant predictors of persistence. Students who successfully completed the lower level college prep reading and writing courses during the 2 year period did not show any statistically significant difference in

persistence than students who did not complete the lower level college prep reading and writing. In contrast, however, successful completion of college prep math MAT0010 was a statistically significant predictor. A key finding of this study, therefore, is that while many students are able to overcome the reading and writing requirements, math presents a greater challenge that many fail to overcome. Clearly, further research is needed to determine why mathematics is such a strong gate-keeping course. It may be the institution needs to examine the instructional strategies or in other ways attempt to facilitate the learning of mathematics.

Limitations of the Study

Because this study was conducted at a single 2-year public institution, involving a limited sample of underprepared students, any generalization of the findings must be made with caution. However, the sample was representative of the population of underprepared students at this minority serving institution; therefore, generalizations are appropriately applied to similar institutions with similar student populations.

Perhaps the major limitation in the study was not being able to control for the quality of student-faculty interactions. Faculty members were expected to interact with and coach students in their classes, but there was no established standard set for the duration, intensity, or quality of the interaction. It was left up to faculty to report any and all interactions, and there was variation among faculty in reporting interactions. For example, some faculty members felt that any interaction with students, whether it lasted 1 minute or 10 minutes constituted a reportable mentoring contact. And because faculty were held accountable primarily for the number of contacts/interactions they had with

students, rather than the quality of those mentoring interactions, it may be possible that many mentoring interactions that faculty reported were lacking in substance.

There were also some limitations involved in the data collection. For example, the instruments used collected self-reported survey data from student participants and self-reported faculty descriptions of student-faculty interactions. Faculty determined the content areas under which they recorded interactions, and there was no way to ensure the consistency of faculty's classification of interactions beyond the shared instructions and discussion of appropriate coding. Thus, while one faculty member may have recorded an interaction under the domain of time-management, another faculty member asked to record that same interaction may have recorded it under the domain of academic concerns. Therefore, possible lack of consistency in the classification of interactions by faculty represents another limitation. Yet, in sample case scenarios there was 80% inter-rater reliability between faculty, and it could be assumed that for any faculty member, there would be consistency of coding between the persisting and non-persisting students ultimately distributing the inconsistency across the two possible outcomes. Moreover, because both students and faculty were self-reporting data, there exists the possibility of non-sampling measurement errors in typing and data entry.

Another limitation pertains to the outcome variable used in the study, persistence. Persistence was measured by determining whether students were still enrolled at the institution 2 years after initial enrollment. This may, potentially, distort the actual retention rate, given the fact that many community college students engage in stop-out options, where they take a semester off but return the following or in subsequent semesters. If anything, this would underestimate the actual persistence in that some

students may have stopped out for the outcome semester. However, students who had stopped out in a prior semester were counted as persisters if enrolled in the fall 2007 semester.

Finally, there is the possibility of students self-selecting into the treatment. For it is possible that students who were more motivated and more engaged would be more likely to seek out or be receptive to faculty interaction. Such students are also more likely to persist.

Implications for Theory and Literature

1. In general, findings from the study is consistent with the research on faculty mentoring which has been found to positively impact retention rates of college students. For example, Campbell and Campbell (1997) found that minority students paired with faculty mentors had statistically significant higher grade point averages and were twice as likely to persist as non-mentored minority students. Similarly, Mangold, Bean, & Adams (2003) found that students who participated in a formal mentoring program were less likely to drop out than non-mentored students and the positive effects of mentoring often persist over an extended period.
2. Findings from the study provide additional evidence to support Tinto's (1993) model of student persistence. Tinto's (1993) model of student persistence suggests that student involvement matters, especially during the first year of college. Tinto maintains that the more academically and socially involved students are – that is, the more they interact with other students and faculty – the more likely they are to persist. Findings from this study revealed that higher levels

of student-faculty interactions in the content area of educational planning and personal/family/ childcare concerns were statistically significant, as well as students' first semester GPA. This confirms the importance of students' initial experiences at college.

3. The statistically significant impact of student-faculty interactions within the content area of educational planning and personal/family/childcare concerns also provides evidence to support Astin (1999) theory of student involvement. Astin (1999) found that the most persuasive types of student-involvement were academic involvement, involvement with faculty, and involvement with student peer groups. He suggested that levels of involvement "occur along a continuum, varying in intensity for each student, and differing between students" (p. 106). Findings from this study are consistent with the conclusions reached by Astin, especially the findings which suggest that student involvement occurs along a continuum, varies in intensity, and differs among students. This was evident in the amount of interactions students had with faculty, with some students having statistically significant more interactions than others. Moreover, Astin (1999) also found that career counseling, advising, personal counseling, intellectual discussions, and informal socializing contribute to the social integration and satisfaction of students, which in turn lead to greater student persistence. In many ways, this has been supported by the findings from this study.

4. The statistically significant negative relationship between student-faculty interactions within the content area of time-management and academic concerns points to the overwhelming challenges faced by this group as supported by

Muraskin's (1997) evaluation study on low-income, developmental students and Tinto's (1993) revised model of student departure. These challenges parallel the "external commitments" of students in Tinto's revised model, and the measure of providing faculty interaction to address time-management and academic issues could also be viewed as a measure of the need for the interaction. The more support students needed, the less likely they were to persist.

5. The results of this study are also consistent with other studies that have shown that high school preparation is critical in determining whether one completes a degree (e.g. Dougherty & Kienzl, 2006). This study found that better prepared students were more likely to be retained 2 years after initial enrollment compared to less prepared students, even among the underprepared.

6. Related to high school preparation is students' socio-economic status, which exerts a powerful influence on student persistence (Dougherty & Kienzl, 2006). Given the preponderance of low-income students among this group and the fact that those receiving larger Pell awards were more likely to persist compared to those with smaller or no Pell awards, it is important to examine whether new forms of tuition assistance and financial incentives could enhance retention for other disadvantaged groups.

Implications for Practice and Suggestions for Future Research

1. Perhaps the most important implication arising from this study is the fact that a relatively inexpensive intervention had a statistically significant impact on student persistence. Considering the deep need of these students and the relative brevity of support they received in this mentoring program, this may be a

significant finding for community colleges as they struggle with the ever increasing population of underprepared students. This study provides evidence that with some creativity and a little effort increased retention could be realized for underprepared community college students.

2. Another implication is the fact that this mentoring program for college prep faculty could be easily replicated by any community college. Faculty members were trained using the resources of the institution - through the Office of Faculty and Staff Development. It is a model for an initial effort with a significant payout in retention. While one might expect even greater gains with more effort, the implication is that community colleges do not have to spend exorbitant amounts of cash implementing grand programs to impact retention. In tight budget times, smaller interventions may be all that is possible. Impressive gains, for the level of investment, in persistence might be realized if faculty members show genuine concern and interest in students' success, communicate high expectations, and hold students accountable for diligently applying effort to their work.

3. By analyzing the content of student-faculty interactions, this study provided an insight into the kinds of student behaviors and experiences that are both positively and negatively associated with persistence of underprepared students. With this in mind, community colleges should strive to create or enhance the conditions that facilitate student behaviors that are positively associated with persistence, such as the creation of an educational plan or road map and greater faculty interaction. At the same time, community colleges should proactively try

to address the negative student behaviors associated with persistence, such as those within the content areas of academic concerns or time-management.

4. Persistence for this group was related to student-faculty interactions in the content area of educational planning. Students were more likely to persist if they interacted regularly with faculty concerning their program of study and creating a road map to completion. Two-year institutions, therefore, should assess the degree to which similar populations have clearly defined educational goals and strive to provide support to help students identify and develop educational goals.

5. The positive effect of student-faculty interactions in the content area of educational planning appears to be the result of deliberately creating a more responsive, supportive, and engaging learning environment for students. Many students praised the faculty for helping them develop appropriate college behaviors, such as coming to class on time, completing assignments, self-registering for classes, and applying for financial aid. Community colleges, therefore, should assess the degree to which their student populations have similar needs and provide the academic, social, and personal support that will enable greater numbers of students to persist and eventually graduate. It may be that these basic college behaviors are unfamiliar to this underprepared population.

6. Both Astin (1999) and Tinto (1993) found that the frequency and quality of contact between students and faculty, staff, and other students were important independent predictors of student persistence. To a large extent, the faculty interactions tested in this study supported their theories. Two-year institutions,

therefore, should strive to create an environment where students are involved as active members of the institution, especially during their first semester at college.

7. A key finding of this study was the negative association found between student-faculty interactions in the content areas of time-management and persistence. It appears that many students from this group had to balance work, school, and family life, and those that had difficulty in managing these issues were more likely to meet with faculty to address these issues. Such students were also less likely to persist. This finding, in some ways, points to the lack of adequate financial resources of this group. If students have to work two jobs to pay for family and school, they may not have the luxury of time-management and, therefore, persistence. Two-year institutions, therefore, should determine the degree to which their students have adequate financial resources to get them through college and implement or enhance their financial support systems to address these needs.

8. Findings from the study also showed that students receiving Pell awards were more likely to persist than students receiving lower or no Pell awards. Furthermore, in spite of the relatively low average household income for this group, a significant number of students were not recipients of financial aid. Given the relationship between receiving Pell award and persistence, 2-year institutions, should determine the extent to which its underprepared students are applying for and receiving financial aid and implement mechanisms to ensure that all eligible students receive financial aid and other forms of tuition assistance.

9. Another important finding from the study showed that academic preparation coming out of high school, measured by students' college placement test scores in math, was a statistically significant predictor of persistence. Additionally, students who were successful in their remedial math class were also more likely to persist. Given these findings, community colleges, in collaboration with their feeder high schools, should emphasize the importance of and focus on implementing programs that addresses the development of math skills in high school students. Moreover, community colleges should adopt and test a variety of approaches such as supplemental instruction and tutoring to address the math deficiency among their incoming underprepared student population.

Interestingly, success in college prep reading and writing, unlike math, failed to emerge as statistically significant predictors of persistence. This calls into question the current practice of requiring students to successfully complete these courses prior to taking college level classes. For if college prep math is the key gate-keeping course for this population, why should the institution take students' tuition by requiring them to complete other courses, only to stop them dead in their tracks with college prep math? It seems ethical to focus on the development of math skills first. Those students who can successfully overcome the math challenge will move on; those who cannot will know their limitations and adjust their plans accordingly.

Moreover, faculty should ask themselves what they can change. If the community college is providing a repeat of the instruction in high school, faculty should have little expectation of different results. Perhaps follow up research

could examine success in college prep math courses by professor. This could potentially identify best practices among master math instructors that could then be used by the college for training college prep math faculty.

10. Age was a statistically significant predictor of retention, with older students being less likely to persist than younger students. Older students are more likely to attend college part-time, be more deficient in math skills, are more likely to have full-time employment, and are more likely to have dependents. These characteristics are often negatively associated with persistence and degree completion. Community colleges, therefore, should be cognizant of the needs and challenges of its older student population and enhance its support systems to assist such students in achieving their educational goals.

11. Finally, the importance of having a successful first semester at college was revealed by the positive impact of higher first semester GPA on students' persistence. Students with higher first semester GPAs were more likely to persist than students with lower first semester GPAs. Community colleges, therefore, should prescribe first-semester courses that first-time underprepared students may take, with the goal of ensuring early successes in the courses attempted.

Overall, there is strong consistency in the findings here for developmental students that faculty interaction is important as it is for non-developmental students as shown in prior research. Frequently administrators believe that academic readiness solely determines success for underprepared students and therefore believe retention of underprepared students is outside their control. This study clearly demonstrates this is not the case.

REFERENCES

- Arbona, C., & Nora, A. (2005). *Predicting college attainment of Hispanic students: Individual, institutional, and environmental factors*. Research paper presentation at the annual meeting of the Association for Institutional Research, San Diego, CA.
- Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel*, 25, 297-308.
- Astin, A. W. (1985). *Achieving educational excellence*. San Francisco: Jossey-Bass.
- Astin, A. W. (1993). *What matters in college: Four critical years revisited*. San Francisco: Jossey-Bass.
- Astin, A. W. (1999). Student involvement: A developmental theory for higher education. *Journal of College Student Development*, 40, 518-532.
- Attinasi, L. C., Jr. (1989). Getting in: Mexican Americans' perceptions of university attendance and implications for freshmen year persistence. *Journal of Higher Education*, 60, 247-277.
- Batzer, L. A. (1997). The effect of remedial education programs on academic achievement and persistence at the two-year community college. (Doctoral dissertation, Western Michigan University, 1997). (ERIC Document Reproduction Service No. ED433867)
- Bean, J., & Metzner, B. (1985). A conceptual model of nontraditional undergraduate student attrition. *Review of Educational Research*, 55, 485-539.
- Borglum, K., & Kubala, T. (2000). Academic and social integration of community college students: A case study. *Community College Journal of Research and Practice*, 24, 567-576.
- Braxton, J., Bray, N., & Berger, J. B. (2000). Faculty teaching skills and their influence on the college student departure process. *Journal of College Student Development*, 41, 215-227.
- Braxton, J. M., McKinney, J. S., & Reynolds, P. J. (2006). Cataloging institutional efforts to understand and reduce college student departure. *New Directions for Institutional Research*, 130, 25-32.
- Cabrera, A. F. (1994). Logistic regression analysis in higher education: An applied perspective. *Journal of Higher Education*, 60, 134-160.

- Campbell, T. A., & Campbell, D. E. (1997). Faculty mentor programs: Effects on academic performance and retention. *Research in Higher Education*, 35, 727-742.
- Carnevale, A. P., & Rose, S. J. (2003). *Socioeconomic status, Ethnicity and selective college admissions*. New York: The Century Foundation.
- Choy, S., & Bobbitt, L. (2000). *Low-income students: Who they are and how they pay for their education* (Statistical Analysis Rep. 2000-169). Washington, DC: National Center for Educational Statistics.
- Cohen, A. M., & Brawer, F. B. (2003). *The American community college* (4th ed.). San Francisco: Jossey-Bass.
- Donaldson, J. F., & Graham, S. W. (1999). A model of college outcomes for adults. *Adult Education Quarterly*, 50, 24-40.
- Dougherty, K. J., & Kienzl, G. S. (2006). It's not enough to get through the open door: Inequalities by social background in transfer from community colleges to four-year colleges. *Teachers College Record*, 108, 452-487.
- Easterling, D. N., Patten, J. E., & Krile, D. J. (1998). Patterns of progress: Student persistence isn't always where you expect it. Sinclair Community College. (ERIC Document Reproduction Service No. ED421185).
- Heverly, M. (1999). Predicting retention from students' experiences with college processes. *Journal of College Student Retention: Research, Theory and Practice*, 1, 3-11.
- Hosmer, D. W., & Lemeshow, G. S. (1989). *Applied logistic regression*. New York: Wiley.
- House, J. D. (2000). The effect of student involvement on the development of academic self-concept. *Journal of Social Psychology*, 140, 261-264.
- Klicka, M. A. (1998). Developmental education services at Bucks County Community College. In R. H. McCabe and P. R. Day, Jr. (Eds.), *Developmental education: A twenty-first century social and economic imperative*, 37-43. Mission Viejo, CA: League For Innovation in the Community College.
- Kuh, G. D. (1995). The other curriculum: Out-of-class experiences associated with student learning and personal development. *The Journal of Higher Education*, 66, 123-156.

- Mangold, W. D., Bean, L. G., Adams, D. J., Schwab, W. A., & Lynch, S. M. (2003). Who goes who stays: An Assessment of the effect of a freshman mentoring and unit registration program on college persistence. *Journal of College Student Retention*, 4, 95-122.
- McCabe, R. H. (2000). *No one to waste: A report to public decision- makers and community college leaders*. Washington, DC: Community College Press.
- Miglietti, C. L., & Strange, C. C. (2002). Learning styles, classroom environment preferences, teaching styles, and remedial course outcomes for underprepared adults at a two-year college. *Community College Review*, 26, 1-19.
- Muraskin, L. (1997). "Best practices" in student support services: A study of five exemplary sites. *Follow-up study of student support services programs*. Washington, DC: U.S. Department of Education, Office of Planning, Budget and Evaluation.
- Nagda, B. A., Gregerman, S. R., Jonides, J., vonHippel, W., & Lerner, J. S. (1998). Undergraduate student-faculty research partnerships affect student retention. *The Review of Higher Education*, 22, 55-72.
- National Center for Education Statistics. (2003). *Digest of education statistics: 2002*. Washington, DC: U.S. Department of Education.
- National Center for Education Statistics. (2005). *First generation college students in postsecondary education* (Statistical Analysis Rep. 2005-171). Washington, DC: U.S. Department of Education.
- Nora, A. (2001). The depiction of significant others in Tinto's "Rites of Passage". A reconceptualization of the influence of family and community in the persistence process. *Journal of College Student Retention: Research, Theory and Practice*, 3, 41-49.
- Nora, A., & Crisp, G. (2007). Mentoring students: Conceptualizing and validating the multi-dimensions of a support system. *Journal of College Student Retention*, 9, 337-356.
- Nora, A., & Rendon, L. I. (1990). Determinants of predisposition to transfer among community college students: A structural model. *Research in Higher Education*, 31, 235-255.
- Pagan, R., & Edwards-Wilson, R. (2003). A mentoring program for remedial students. *Journal of College Student Retention*, 4, 207-225.

- Pantages, T., & Creedon, C. (1978). Studies of college attrition. *Review of Educational Research*, 48, 49-101.
- Pascarella, E. T., & Chapman, D. (1983). A multi-institutional path analytic validation of Tinto's model of college withdrawal. *American Educational Research Journal*, 20, 87-102.
- Pascarella, E. T., & Terenzini, P. T. (1980). Predicting freshmen persistence and voluntary dropout decisions from a theoretical model. *Journal of Higher Education*, 51, 60-75.
- Pascarella, E. T., & Terenzini, P. T. (1983). Predicting voluntary freshmen year persistence/ withdrawal behavior in a residential university: A path analytic validation of Tinto's model. *Journal of Educational Psychology*, 75, 215-226.
- Pascarella, E. T., & Terenzini, P. T. (1991). *How college affects students: Findings and insights from twenty years of research*. San Francisco: Jossey-Bass.
- Patton, L. D., Morelon, C., Whitehead, D. M., & Hossler, D. (2006). Campus-based retention initiatives: Does the emperor have clothes? *New Directions for Institutional Research*, 130, 9-24.
- Rendon, L. (1994). Validating culturally diverse students: Toward a new model of learning and student development. *Innovative Higher Education*, 9, 33-52.
- Rodger, S., & Tremblay, P. F. (2003). The effects of a peer mentoring program on academic success among first year university students. *The Canadian Journal of Higher Education*, 33, 1-18.
- Roueche, J. E., & Roueche, S. D. (1993). *Between a rock and a hard place: The at-risk student in the open-door college*. Washington, DC: Community College Press.
- Roueche, J. E., Roueche, S. D., & Ely, E. E. (2001). Pursuing excellence: The community college of Denver. *Community College Journal of Research and Practice*, 25, 517-537.
- Schoenecker, C., Bollman, L., & Evens, J. (1996, May). Developmental education outcomes at Minnesota community colleges. Paper presented at the annual forum of the Association of Institutional Research, Albuquerque, NM. (ERIC Document Reproduction Service No. ED397712)
- Spady, W. (1970). Dropouts from higher education: An interdisciplinary review and synthesis. *Interchange*, 1, 64-85.

- Spady, W. (1971). Dropouts from higher education: Toward an empirical model. *Interchange*, 2, 38-62.
- St. John, E. P., & Somers, P. (1997). Assessing the impact of student financial aid on first-time enrollment decisions. In J.S. Davis (Ed.), *Student aid research* (pp. 101-125). Washington, DC: National Association of Student Financial Aid Administrators.
- Summers, M. D. (2003). Attrition research at community colleges. *Community College Review*, 30, 64-84.
- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research*, 45, 89-125.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). Chicago: University of Chicago Press.
- Tinto, V. (1998). College as communities: Taking the research on student persistence seriously. *Review of Higher Education*, 21, 167-178.
- Tinto, V. (2006). Research and practice of student retention: What next? *Journal of College Student Retention: Research, Theory and Practice*, 8, 1-19.
- Tracey, T. J., & Sedlacek, W. E. (1987). Prediction of college graduation using noncognitive variables by race. *Measurement and Evaluation in Counseling and Development*, 19, 177-184.
- U.S. Department of Education, National Center for Educational Statistics. (2002). *Descriptive summary of 1995-96 Beginning Postsecondary Students: 6-years later*. Washington, DC: U.S. Department of education.
- Voorhees, R. (1987). Toward building models of community college persistence: A logit analysis. *Research in Higher Education*, 26, 115-129.
- Wirt, J., Choy, S., Rooney, P., Provasnik, S., Sen, A., & Tobin, R. (2004). *The condition of education 2004 (NCES 2004-2007)*. U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

APPENDIX A

Week #	Coaching Data Sheet: Student-Faculty Interactions - Reference # _____									
Student ID	Please check the appropriate box (with an X) to indicate the type of interaction you had with each student									
	EP	CC	AC	FCC	TM	FC	HC	OTHER	Comments	
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
EP = Education Planning				CC = Career Counseling/Advising					AC = Academic Concerns	
FCC = Family/Childcare				TM = Time Management					FC = Financial Concerns	
HC = Health Concerns										

APPENDIX B

Achieving the Dream (AtD) Student Survey

- 1 On which campus do you take most of your classes? ☐ Central ☐ North ☐ South ☐ Other _____
- 2 Indicate which of the following are your reasons/goals for attending BCC? *(Please respond to each item)*

	Primary goal	Secondary goal	Not a goal
To complete a certificate program _____	☐	☐	☐
To obtain an associate's degree _____	☐	☐	☐
To transfer to a 4-year college or university _____	☐	☐	☐
To obtain or update job-related skills _____	☐	☐	☐
For self-improvement or personal enjoyment _____	☐	☐	☐
To change careers _____	☐	☐	☐
- 3 What is your family status? ☐ Single ☐ Married ☐ Divorced ☐ Separated ☐ Other _____
- 4 Indicate which of the following are **sources** you use to pay for your tuition, books, and expenses at BCC? *(Please respond to each item)*

	Major Source	Minor Source	Not a source
My own income/savings _____	☐	☐	☐
Parent or spouse/significant other's income/savings _____	☐	☐	☐
Financial aid _____	☐	☐	☐
Student loans (bank, etc.) _____	☐	☐	☐
Public assistance, grants or scholarships _____	☐	☐	☐
- 5 Please give an estimate of your annual household income.

☐ Under \$10,000	☐ \$10,000 - \$20,000	☐ \$20,000 - \$30,000
☐ \$30,000 - \$40,000	☐ \$40,000 - \$50,000	☐ Over \$50,000
- 6 What is your native language? ☐ English ☐ Spanish ☐ Creole ☐ Portuguese ☐ Other _____
- 7 How many dependents do you have? ☐ None ☐ One ☐ Two ☐ Three ☐ Four ☐ Other _____
- 8 Please estimate the number of hours per week you are currently employed _____
☐ Not Employed
- 9 Are you the first in your family to attend college? ☐ Yes ☐ No ☐ Don't know

- 10 What is the highest level of education obtained by your family members?
Not a high school graduate	☐	Mother	☐	Father	☐
High school diploma or GED	☐				☐
Some college, did not complete degree	☐				☐
Associate's degree	☐				☐
Bachelor's degree	☐				☐
Master's degree	☐				☐
Unknown	☐				☐
- 11 How likely is it that the following issues would cause you to withdraw from your classes at BCC? (Please respond to each item)
Finance (lack of funds to meet tuition, books, and everyday expenses)	Extremely Likely	☐	Somewhat Likely	☐	Not Likely	☐
Academic (Difficulty understanding / learning material in courses)	☐		☐		☐	
Home/Family (caring for dependents / lack of encouragement and support)	☐		☐		☐	
Employment/Job (work demands/unable to get time off for school /related issues)	☐		☐		☐	
Other issues (Please indicate)	☐		☐		☐	
- 12 How confident are you in your ability to do well in your **Mathematics** classes at BCC?
Extremely Confident	☐	Confident	☐	Somewhat confident	☐	Not at all confident	☐
- 13 How confident are you in your ability to do well in your **English** classes at BCC?
Extremely Confident	☐	Confident	☐	Somewhat confident	☐	Not at all confident	☐
- 14 How confident are you that you will complete your entire program of studies and achieve your goals at BCC?
Extremely Confident	☐	Confident	☐	Somewhat confident	☐	Not at all confident	☐
- 15 Have you **applied** for financial aid? ☐ Yes ☐ No **16** Have you **received** financial aid? ☐ Yes ☐ No
- 16 How supportive is your family of your attending BCC? ☐ Ext. Supp ☐ Supportive ☐ Somewhat ☐ Not at all
- 17 Please give an estimate of the time since you have been out of school?
☐ less than 6 months	☐ 6 months - 1 year
☐ 1 year - 2 years	☐ More than 2 years
- 18 How motivated are you to complete your study at BCC?
☐ Extremely Mot	☐ Motivated	☐ Somewhat	☐ Not at all

APPENDIX C

TO: SLS1000 FACULTY MEMBERS

FROM: DEORAJ BHARATH, DIR OF INSTITUTIONAL RESEARCH

SUBJECT: ATD SURVEY INSTRUCTIONS

Dear SLS1000 Faculty Members,

Thank you for your assistance in administering this survey to our incoming cohort of AtD students. This survey will enable administrators to better understand the demographic characteristics of our AtD student population and plan intervention strategies more effectively. The purpose is to identify key factors related to the retention of first-year AtD students.

Instructions for Survey Administration

- Please administer the survey at the beginning of class. If students have completed the survey in another course, they do not need to complete it again.
- Please inform students that the information collected will be confidential and results will be reported in the aggregate.
- Please tell students that it is very important to answer each question and that you're there to help should they have problems with any question.
- Please give each student a survey and a consent form.
 - Ask students to read and fill out the consent form
 - Ask students to complete the survey by checking or shading the most appropriate answer to each question
- Please collect completed surveys and consent forms and put in the enclosed envelope. Leave envelope with Department's secretary.

A summary of the findings will be sent to you after the data is analyzed. Should you have any questions about the survey, please feel free to contact me at (954) 201-7049.

Thank you again for your assistance.

APPENDIX D

PARTICIPANT CONSENT FORM

Dear Student,

Our college, through a grant from the Lumina Foundation, is conducting research to identify the factors which enable students to persist and complete their program of study at the college. Part of the research requires that students complete a questionnaire.

Mr. Deoraj Bharath, Director of Institutional Research, who is leading this research effort, will use the results from this questionnaire as part of his doctoral research. Please sign the consent form below to give him permission to use the results from this questionnaire. He will keep all information collected confidential and **no individuals will be identified when reporting the results**. Thank you.

I give my permission to Deoraj Bharath, doctoral student at Florida International University, to use the results of this questionnaire for his doctoral research. I understand that this information will be used only for the purpose of conducting academic research and for making recommendations pertaining to student success at the college. I also understand that results from the survey will be reported in the aggregate and no individual student will be identified with the results.

Name (please print): _____

Sign Here: _____ Date: _____

Student ID: _____

VITA
DEORAJ BHARATH

1982-1992	High School Teacher Trinidad and Tobago
1992-1995	B.A. Geography Florida Atlantic University Boca Raton, Florida
1998	M.A. Education Florida Atlantic University Boca Raton, Florida
1996-1999	Adjunct Faculty American Flyers College Pompano Beach, Florida
1999	Ed. M. Education Harvard Graduate School of education Cambridge, Massachusetts
1999-2005	Senior Research Associate Ft. Lauderdale, Florida
2005-2007	Director, Institutional Research Ft. Lauderdale, Florida
2007-2008	District Director, Institutional Effectiveness Ft. Lauderdale, Florida

PRESENTATIONS

Bharath, D. (2006, May). *Faculty coaching for underprepared community college freshmen: A strategy for improving student outcomes*. Paper presented at annual meeting of Association of Institutional Research, Kansas City, Kansas.

Bharath, D. (2002, March). *Community college "at-risk" students: A longitudinal study*. Paper presented at annual meeting of Florida Association of Institutional Research, Ft. Myers, Florida.