2013

Building student connections: A successful first-year experience course and community college retention

Barbara Jean Klein
Iowa State University

Building student connections:
A successful first-year experience course and community college retention

by

Barbara Jean Klein

A dissertation submitted to the graduate faculty

in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Major: Education (Educational Leadership)

Program of Study Committee:
Larry Ebbers, Major Professor
Sharon Drake
Marisa Rivera
Dan Robinson
Soko Starobin

Iowa State University

Ames, Iowa

2013

This dissertation is dedicated to my parents

Dick & Jean Edwards

Who always told me that I could achieve anything I set out to do

And gave me a good sense of humor to get through the difficult times

My sons

Matt & Josh

You two are the light of my life

And to my husband, Steve

To whom I owe the most thanks to for your constant support throughout this journey

I will always be deeply grateful that I have had the good fortune

of having such a loving family—we truly are the lucky ones

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACKNOWLEDGEMENTS

Thank you cannot begin to convey the appreciation I have for so many people who have supported me throughout this journey. Dr. Larry Ebbers has given me so much encouragement over the last 10 years throughout both of my graduate degrees at Iowa State University. In addition, I have been graced with a wonderful committee: Dr. Sharon Drake, Dr. Daniel Robinson, Dr. Marisa Rivera, and Dr. Soko Starobin. You all are an inspiration to me and I hope that I am able to have the same impact on my students as you have had on me.

I am grateful for my colleagues who have been so willing to help with this research. Dr. Chris Duree encouraged me to get my Ph.D. and was always a supportive ear throughout this process. Dr. Kelly Faga was my mentor on my capstone project and served as a constant source of encouragement. I appreciate your tireless efforts and the work we did together to get the College Experience course to be an integral part of student success on our campus. My thanks also go to Dr. Robin Shaffer Lilienthal and Dr. Nancy Muecke for always giving good advice and for being a great sounding board for me.

I am blessed to work with some outstanding professionals in student affairs. Thanks go to Annie Kalous, Tara Miller, Tracie Self, and Lynn Duit. You are a wonderful example and advocate for our students. I am honored to work with such a talented and caring group.

A special thanks goes to Dr. Lisa Breja and Mike Mosher who helped me get the data I needed for my research. In a time when we all have way too much to do, you both were so willing to help. Your work made this possible.

I have also met some lifelong friends in this program. Lyn Redington and Chrystal Stanley have generously shared their ups and downs of graduate studies and life. They have

been an incredible support system during these past three years. I treasure the experiences we have shared.

My thank you to my family goes deep. Thanks to my sons, Matt and Josh, who probably can't remember a time when their mom was not working on some degree. We have been through a lot of "life learning" together. I do believe that through the good and bad times, we have become stronger and our bond is inseparable because of it. I am so proud of both of you. I am grateful for my mom and dad who provided me with a great foundation of good values, a strong work ethic, and a home where there was always love.

And finally, to my husband, Steve, who has tolerated my continued pursuit of higher education for nearly half of our years together: you always believed in me, even when I was convinced that I couldn't do this. Thank you for your encouragement, kindness, and love. Your love and support have made this dissertation possible.

ABSTRACT

The purpose of this study was to examine and describe the extent to which student entry variables and student experiences influence student outcomes related to social and academic integration and student retention. A unique focus in this study centers around the development of a first-year experience course and its impact on student retention. Astin's input–environment–output model was utilized to determine the effects of various input and environmental variables.

This study was designed to contribute to the literature on developing a first-year experience course and the impact student variables and interactions can have on retention of community college students. Much of the research on the first-year experience course has come from 4-year colleges and universities.

The setting for this study was a small, Midwestern community college with a population sample of 890 first-time full-time students. Data were gathered from electronic student records providing demographic, financial aid, academic, and enrollment information. In addition, data were collected from the Fall 2012 administration of the Survey of Entering Student Engagement to provide information about students' level of academic and social integration in the early weeks of the semester.

Findings revealed that students who enrolled in the first-year experience course, the College Experience, and attended the precollege orientation session persisted to the subsequent term at a higher rate than did those who attended only one or neither. Results showed that only the student's fall grade point average is a significant predictor of retention. Students coded as Hispanic of any race had the highest odds of all variables of persisting to the spring term. Involvement in the TRIO program and enrollment in the College Experience

course had a positive impact on fall-to-spring retention. Those who were academically unprepared and enrolled in a developmental English class also demonstrated modest gains in retention. The findings from this study provide needed insight for community college administrators as they work to increase student retention and success.

CHAPTER 1. INTRODUCTION

Community college students make up nearly 43% of the first-time undergraduate students (Berkner & Choy, 2008) and are the largest single higher education sector. With their open-door mission, community colleges serve students with very different levels of preparation which impedes the colleges' ability to retain and graduate students. Over the past 30 years there have been many initiatives focused on student success, retention, and degree completion. More recently, President Obama (2009) clearly laid out his completion agenda designed to raise college graduation rates of young adults. This call for increased accountability forces community colleges to look for ways to better retain their students.

Research based on college student withdrawal consistently has shown the importance of academic and social integration as a contributor to student persistence (Pascarella, Dub, & Iverson, 1983; Pascarella & Terenzini, 1983; Pascarella, Terenzini, & Wolfle, 1986; Tinto, 1988). According to Astin (1993), students who feel a connection to other students and the campus community have a greater likelihood to persist and graduate. In response, educators have developed focused efforts, such as first-year experience programs, learning communities, success courses, and other interventions, to promote student success.

First-year experience programs have long served as a key retention tool and are designed to assist students in their transition into the college environment, encourage success and attainment of goals, and seek to foster relationships that will help facilitate this success (Derby & Smith, 2004). The literature has reported (Barefoot, 2000) that first-year experience programs, like many other retention efforts, are designed to ease the transition by promoting student/faculty interactions and peer interactions, and increasing student involvement and academic engagement both in and outside of the classroom.

The research in this investigation took place at Iowa Valley Community College District, a small Midwestern multi-campus community college district (see Figure 1.1). IVCCD operates Ellsworth Community College and Marshalltown Community College along with a satellite campus, Iowa Valley Community College Grinnell. During the Fall 2012 term, IVCCD enrolled 3,105 students (Iowa Valley Community College District, 2012a) with 58.49% being full-time students and 57.49% being females. The age of the student population is highly traditional with 72.75% of the population being less than 23 years old. The two main campuses provide on-campus housing for students as well as intercollegiate athletics, both contributing factors to a more traditional college experience.

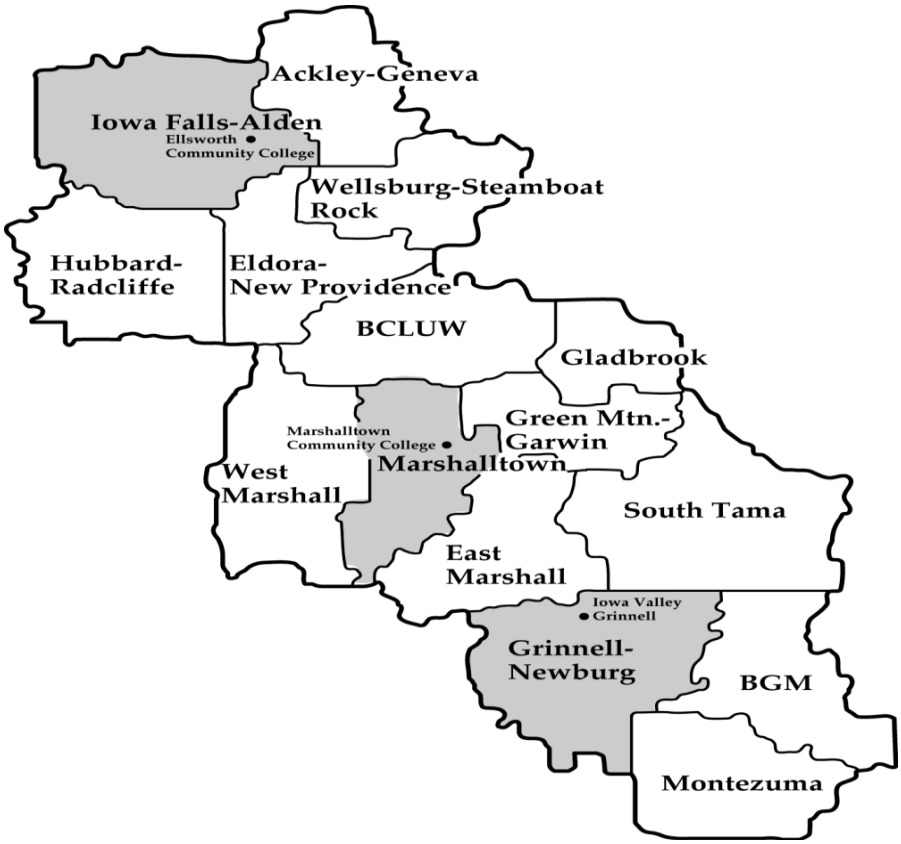

Figure 1.1 Iowa Valley Community College District

The four-county region that encompasses IVCCD has a highly diverse population (Iowa Valley Community College District, 2012b) with 10.1% of the 2010 population classified as Hispanic or Latino. A large subset of the Hispanic/Latino population resides in Marshall County with 17.3% of their overall population being Hispanic/Latino in 2010 (Iowa Valley Community College District, 2012b). Future projections of demographic changes in the four-county IVCCD region indicate continued growth in the Hispanic/Latino population to 25% in the year 2040 along with an increase in Marshall County's Hispanic/Latino population to 44% in 2040 (Iowa Valley Community College District, 2012b).

According to The Annual Condition of Iowa's Community Colleges report (Iowa Department of Education, 2012) Hispanic students make up only 4.35% of the overall community college Fiscal Year 2012 enrollment. IVCCD's proportion of Hispanic students for Fiscal Year 2012 was 7.29% which may be an outcome of the higher concentration of Hispanic/Latino students within the four-county region.

With the community college's open-door mission, the student population that is served provides a myriad of challenges with underprepared students, first generation students, and students that come from low socioeconomic backgrounds. These demographic shifts provide additional challenges as IVCCD seeks to meet the needs of an ever-changing student population.

This study offers the unique opportunity to examine student entry variables and levels of engagement for students at IVCCD. IVCCD recently added the 1-credit hour College Experience course as a mandatory requirement for all students pursuing an Associate of Arts degree. This first-year experience course was designed using active and collaborative

learning approaches with learning outcomes that assist in the college transition as well as promote academic and social integration.

Levels of student engagement were assessed using the Survey of Entering Student Engagement (SENSE) instrument. The SENSE was designed to measure the experiences of entering students which has been highly correlated with student learning and retention. It is a product of the Center for Community College Student Engagement (CCCSE). CCCSE also developed the Community College Survey of Student Engagement (CCSSE) which was established in 2001 and is administered by the Community College Leadership Program at the University of Texas in Austin. CCSSE's central mission is to provide data about effective educational practices in community colleges as well as for policymakers to promote improvements in student learning and retention. According to McClenney (2007), the theoretical underpinnings of CCSSE are found in the extensive work of Pace (e.g., 1984) on student effort and the quality of college students' experiences; Astin's (1984) work on student involvement; Chickering and Gamson's (1987) principles of good practice in undergraduate education; and Kuh's further development of the concepts of student engagement (Kuh, 2001; Kuh, Pace, & Vesper, 1997).

The conceptual framework that surrounds SENSE is that entering students should be understood as a distinct cohort. SENSE focuses on front-door experiences like admissions, financial aid, advising and registration, as well as programs like the first-year experience, tutoring, and student success courses. Results from SENSE are reported back to institutions based on six main benchmarks: (a) early connections, (b) high expectations and aspirations, (c) clear academic plan and pathway, (d) effective track to college readiness, (e) engaged learning, and (f) academic and social support network. According to the CCCSE (2012)

publication *A Matter of Degrees: Promising Practices for Community College Student Success (A First Look)*, the 2010 SENSE cohort included approximately 75,000 entering students from 172 institutions in 35 states.

The survey is administered in weeks four and five to randomly selected first college-level English, first college-level math, and developmental education classes. Community colleges that participate in the SENSE receive benchmark data that allows them to track their performance and also compare institutional results with national data. In addition, publications like *A Matter of Degrees: Promising Practices for Community College Student Success (A First Look)* provide best practice information and resources that colleges can use to redesign and improve students' educational experiences.

The data captured in this study led to a better understanding of the characteristics and variables that impact student success. The results are designed to provide insight for policy makers as they work to improve their institution's retention efforts.

Statement of the Problem

It has been shown that students who feel a connection to other students and the campus community have a greater likelihood to persist and graduate (Astin, 1993). The concept of the first-year experience program focuses on skills that positively impact students' academic and social integration, both being key concepts of persistence proposed by Tinto (1975, 1993). Simply stated, students who feel a greater sense of belonging are more likely to persist.

A popular paradigm in the research literature is the concept of freshman orientation programming or, more specifically, the first-year experience program. There is a large body of literature that indicates that first-year experience programs have a positive impact on

student academic and social integration (Tinto, 1975, 1993). Astin's (1975) theory of involvement is rooted in a longitudinal study that concluded that factors contributing to persistence were associated with students' involvement in college life, whereas factors contributing to departure from college were associated with students' noninvolvement. Because this integration process is a complex one and community college students are often handicapped due to being academically unprepared or first-generation college students, the need for a first-year experience program is essential.

Recent developments in higher education include a theme of accountability. President Obama (2009) clearly laid out his completion agenda designed to raise college graduation rates of young adults. The Iowa Community College Presidents have agreed to work collaboratively to achieve the common priority of increasing the number of certificates and degrees earned by Iowa community college students. This call for increased accountability forces community colleges to look for ways to better retain their students.

We are also in a time of shifting demographics with our high school senior classes declining. State funding has declined proportionately over the last decade with more of the rising cost burden put off on students through student loans. This is a critical time for colleges to strategically approach the areas of recruitment and retention.

As community colleges struggle with less funding and increased accountability, it is critical that they establish ways for students to become connected with the institution to increase student persistence. Colleges and universities have a plethora of initiatives and activities that they use to encourage student engagement and to get students rooted into the academic and social systems of the campus. As institutions are forced to operate with less financial resources and still accommodate an increased number of students, it is imperative to

identify what student characteristics and experiences provide for student success and make a positive difference in the lives of first-year students.

Much of the research on the first-year experience program comes from 4-year colleges and universities. Although there is much that can be learned from that framework, the differences in student population alone hinder the ability to have a "one size fits all" first-year experience model. The issues that the community college students face (academic unpreparedness, commuter student, first-generation college student, etc.) make it even more difficult for them to make a connection with the college campus. By establishing the effectiveness of the first-year experience program as it relates to academic and social integration, this study provides needed insight for community college administrators as they work to increase student retention and success.

Purpose of the Study

The central purpose of this study was to investigate and describe the extent to which student entry variables and student experiences influence student outcomes related to social and academic integration and student retention. Milem and Berger (1997) described the importance of early student involvement having a positive impact on student persistence. Their study indicated that many scholars and practitioners in the field of higher education may have underestimated the significance of this involvement. Their findings asserted that students who became involved during the first 6 to 7 weeks of a semester were significantly more likely to persist at the institution. By examining students' level of campus involvement both in and out of the classroom, the present study attempted to assess the impact of students' academic and social engagement on student persistence.

This study first sought to describe and understand the academic preparedness and social demographics of a cohort of first-year IVCCD students. Student entry characteristics, including age, high school grade point average (GPA), admissions/placement test scores, gender, ethnicity, socioeconomic status, first-generation college student status, size of high school graduating class and residency status, were examined. Students were further categorized by college environmental characteristics, including their enrollment in the first-year experience course, living on campus or commuting, enrollment in developmental coursework, first-term grade point average, and faculty/student interactions, to determine the impact of those characteristics on social and academic integration as well as on retention.

The student population at IVCCD offers some unique characteristics not found in other community colleges in the Midwest. The growing Hispanic/Latino population along with the robust Black/African American population seeking an education and, in some cases, the chance to participate in intercollegiate athletics brings a new dynamic to a relatively homogeneous area. The diverse make-up of the student population increases the need for early interventions that meet the needs of at-risk students and provide learning opportunities to engage and retain all students.

The intent of this study was to offer insight into ways that educational practice on campus might be informed and improved to increase student retention and ultimately student success. Additionally, this study's results will be added to the current body of literature to shed further light on meaningful predictors of community college student retention.

Delimitations and Limitations

Delimitations

The scope of this study was delimited to:

1. New students enrolled at a small community college in the Midwest; returning students were not sampled because the focus of this study was on engagement and retention of first-year students.
2. Focusing on the behaviors of students, as those behaviors related to academic and social integration rather than perceptions. There is literature and theory that discusses the value of student perceptions in addition to student behaviors, however, the Survey of Entering Student Engagement (SENSE) has questions that relate only to student behavior.

Limitations

The scope of this study had several limitations:

1. The sample size was small. The college student enrollment was small (average freshman class size of less than 1,000 over the previous 5 years), so the generalizability of findings and conclusions may not be able to be applied to larger institutions or 4-year colleges and universities.
2. Tinto (1988) suggested that the integration of students on campus should be investigated for short time periods (within the first semester of attendance) as well as across the full college enrollment period. This study serves as a snapshot of information that provides a rich dataset of students' backgrounds, viewpoints, and influences on their college experience. A longitudinal study including subsequent years' data on persistence and graduation would increase the validity of the

findings of this study if those outcome measures were also tested with the original precollege and college environmental characteristics used in this study.

Theoretical Framework

Astin's student involvement theory is prominent in the literature of student retention (Astin, 1984; Astin, Korn, & Green, 1987; Reisberg, 1999; Tinto, 1989; Wild & Ebbers, 2002). His theory states that, as students increase their emotional and physical investments in their college campus, their rate of retention also increases. This investment can come through contact with students and faculty, involvement in campus clubs or activities, or residential living.

The basic tenet of involvement theory is that the successful student is an active participant in the process of learning rather than a passive observer. Astin (1984) defined a highly involved student as one who "devotes considerable energy to studying, spends much time on campus, participates actively in student organizations, and interacts frequently with faculty members and other students" (p. 292). This theory postulates five basic ideas:

1. Involvement refers to the investment of physical and psychological energy in various objects.
2. Regardless of its object, involvement occurs along a continuum.
3. Involvement has both quantitative and qualitative features.
4. The amount of student learning and personal development is directly proportional to the quality and quantity of student involvement.
5. The effectiveness of any educational policy or practice is directly related to the capacity of that policy or practice to increase student involvement.

Tinto's (1987) model of institutional departure recognizes that the first year of college is a critical year in the success of the student. During this year many students face the challenge of transitioning to the adult world and adjusting both academically and socially to college life. Tinto (1987) observed that "the incidence of withdrawal is highest during this early stage of college" (p. 163).

Tinto (1997) more recently acknowledged that "it is surprising that the classroom has not played a more central role in current theories of student persistence" (p. 599; see also, Bean, 1983; Cabrera, Castañeda, Nora, & Hengstler, 1992; Tinto, 1987). He argued for the need to reconstruct the theoretical models to include more interaction between the social and academic systems of education. He went on to note that it is critical that colleges invest their time and energies in complex ways in which the experiences in the classroom shape student learning and persistence. Colleges should be examining their curriculum structure to include initiatives that promote academic and social integration such as learning communities, first-year experience courses, and active learning. It is this complex, multidimensional process that links classroom engagement with faculty and student peers to subsequent involvement in the larger academic and social community of the college.

Both Astin (1993) and Tinto's (1987, 1993) work were very influential in IVCCD's development of the College Experience course, which provides a variety of activities and learning objectives that address student integration both academically and socially. While Astin and Tinto's work is commonly seen in the 4-year college or university setting, we believe that the demographic makeup of IVCCD provides the framework for these theories to be applicable.

IVCCD's profile of first-year students differs from the typical community college student summary and has characteristics more in line with a 4-year college or university. Table 4.1 shows that 85.1% (n=757) of first-year students in our sample are between the ages of 18-22 and 40.1% (n=357) are living on campus. Both of these characteristics are more often representative of a traditional college or university setting. In addition, 34.9% (n=311) of the students have indicated that their race/ethnicity is something other than White/Caucasian. This may be due in part to the intercollegiate athletic programs at both campuses that impact 17.4% (n=155) of the first-year student cohort. Astin (1984) theorizes that students' learning and development is enhanced by involvement. The large percentage of traditionally-aged students living on campus and the number of students involved in intercollegiate athletics and activities lends itself to this kind of involvement that Astin (1984) proposes.

Some researchers may argue that these theories are less relevant because they were developed many years ago. Most recently, in Hagedorn's (2010) study on transfer-student predictors, Tinto's (1987) model of institutional departure was cited for its theory on student engagement. In addition, McClenney (2007) points to Astin's (1984) theory of student involvement as a key contributor in the development of the Community College Survey of Student Engagement (CCSSE) survey instrument. The CCSSE survey has been identified as one of the best examples of an instrument that provides unique opportunities for generalizing the results across institutions (Upcraft, Gardner, & Barefoot, 2005).

Based on the demographic makeup of the IVCCD first-year students, this researcher found these theories to be both applicable and relevant for this research and that they provide

the framework to understand how students become involved academically and socially in their academic environments.

The theoretical framework used for this study revolved around Astin's student involvement theory (1984) and the I–E–O (inputs–environments–outcomes) model (1993; see Figure 1.2). According to Astin (1993),

> inputs refer to the characteristics of the student at the time of entry to the institution; environment refers to the various programs, policies, faculty, peers, and educational experiences to which the student is exposed; and outcomes refers to the student's characteristics after exposure to the environment. (p.7)

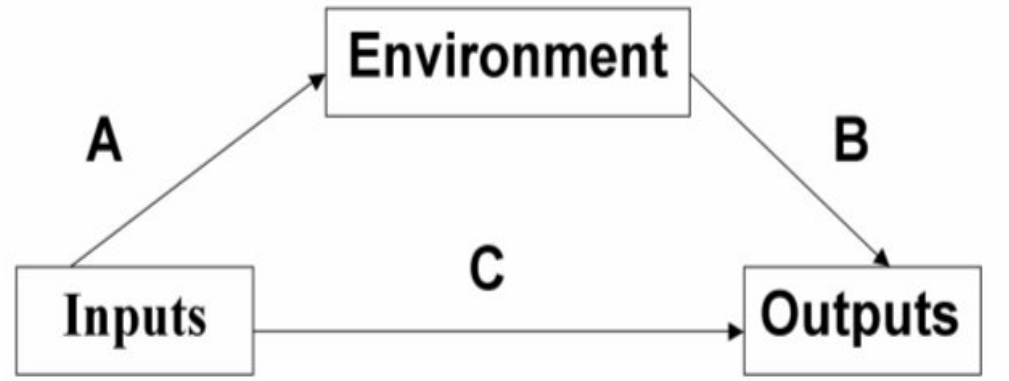

Figure 1.2 Astin's (1993) I–E–O model.

Precollege characteristics, such as first-generation status, high school GPA, and socioeconomic status, all have a significant influence on persistence of community college students. Deil-Amen (2011) described a community college student who was working full time and was unable to secure financial aid. Procedurally he felt overwhelmed and uninformed. The student described mentor relationships with faculty and how one faculty

member took a proactive approach to enhancing the students' knowledge of how to navigate through the bureaucratic hurdles of the community college system. This scenario demonstrates how precollege characteristics impede students' ability to work through the community college processes and how college faculty/staff connections serve as the conduit to be successful.

By using Astin's (1993) model and examining students' precollege characteristics (inputs) along with the connections, support, and resources (environments) that are available on campus, one is able to better understand the intercorrelated nature these elements bring to the college experience. This study evaluated those elements to determine what influences the retention (outcome) of community college students.

Research Questions

The following research questions guided this study:

1. What are the background and social demographic characteristics of first-year students at IVCCD?
2. Are there intercorrelations among variables in the SENSE survey dataset that measure academic and social integration?
3. Are there significant differences in retention in the groups of students who (a) attend a precollege orientation session and are enrolled in the College Experience course, (b) attend either precollege orientation or enroll in the College Experience course (but not both), and (c) do not attend either?
4. Which precollege and college environmental characteristics are the best predictors of student retention?

Hypotheses

According to Creswell (2009) there are two forms of hypotheses, null and alternative. A null hypothesis makes a prediction that no relationship or difference exists between groups on a variable. An alternative hypothesis is used by researchers when there is no expected outcome predicted for the population of the study. The traditional null hypothesis will be employed for the purpose of this study.

Hypothesis for Research Question #3: There is no statistically significant relationship between students who (a) enroll in the precollege orientation session and the College Experience course, (b) attend either precollege orientation or enroll in the College Experience course (but not both), or (c) do not attend either.

Hypothesis for Research Question #4: There is no statistically significant relationship between precollege and college environmental characteristics and student retention.

Significance of the Study

This research was designed to contribute to the literature on retention of community college students. Recently Iowa's community college presidents adopted the Iowa Community College Completion Initiative (2012), placing a priority on increasing the number of certificates and degrees of community college students (similar to the completion goals set at the national level). This particular study provided the unique opportunity to look deeply into the data as they relate to student demographics and student engagement to provide a better understanding of ways to improve institutional efforts and address specific barriers in a targeted manner. The recent call for increased accountability and improved outcomes on both the state and federal level makes the issue of retention and student success even more urgent and timely.

Definitions of Terms

Academic integration: behaviors that students can engage in on an academic level such as meeting with faculty and advisors, using the library, and attending out-of-class academic activities (Tinto, 1987).

Associate of Arts degree: a degree designed specifically for students who plan to transfer to a baccalaureate degree program and that provides freshman and sophomore general education requirements leading to upper division status at most 4-year colleges and universities.

Community college: any institution accredited to award the Associate of Arts, Associate of Science, Associate of General Studies, or the Associate of Applied Sciences as its highest degree. Included in this definition are comprehensive 2-year colleges as well as many public and private technical institutions.

First-generation college student: for the purpose of this study, a student "whose parents have had no college or postsecondary experiences" (Saenz & Barrera, 2007, p. 1).

First-year experience program: a program or course designed to promote academic and social integration and increase student retention; such a program may also be referred to as the freshman experience or first-year programming.

Persistence: for the purpose of this study, the continual pursuit of a student in a degree program leading toward the completion of the program and therefore being awarded a college degree in the student's field of study; persistence and retention are concepts that often are used interchangeably.

Retention: exists, generally, when students remain at the institution for the duration of their studies (that is, until they graduate; Derby & Smith, 2004).

Social integration: behaviors related to social involvement including meeting other students, making friends in extracurricular activities, and attending social and cultural events on campus (Tinto, 1987).

Summary

This study attempted to build upon prior research in order to add to the knowledge of student engagement and the first-year experience course in a community college setting. More specifically, this study examined what factors influence academic and social integration and ultimately student retention. By identifying fundamental student attributes that increase the likelihood that a student will remain in college, researchers can facilitate the development of strategies that promote improved retention and student success.

In the following chapter, a detailed outline of relevant research on student engagement as it relates to retention is provided. The literature review draws attention to and explores the different layers of social demographics, such as age differences, socioeconomic status, academic preparation, and ethnic background, all of which are shown to impact student retention. In addition, a discussion of what is known about academic and social integration on college campuses and how the first-year experience course can positively impact both forms of integration is included.

CHAPTER 2. LITERATURE REVIEW

Introduction

This chapter presents a review of the literature and highlights the background and recent demographics of community colleges both nationally and in the state of Iowa. A description of demographic and social characteristics that are often considered to impact students' ability to persist is discussed. The concept and need for developing an effective community college first-year experience course is outlined. Finally, a synthesis of related research, studies specifically related to community college student engagement, academic and social integration, and student retention is provided.

Community Colleges Across the United States

Community college students make up nearly 43% of first-time undergraduate students (Berkner & Choy, 2008) and are the largest single higher education sector. With their open-door mission, community colleges serve students with very different levels of preparation which, some would argue, impedes the colleges' ability to retain and graduate students.

According to the National Center for Education Statistics (Provasnik & Planty, 2008), in 2006–07 there were 1,045 community colleges in the United States enrolling 6.2 million students. This same study reported the diversity of students served in the community colleges during 2003–04, indicating that 40% of the students were dependent (under 24 years old and not financially independent from their parents), 26% were at least 24 years old and financially independent from their parents, 20% were independent and married with children, and 15% were independent, single parents (Horn & Nevill, 2006, p. 9). When compared with students attending 4-year colleges and universities in 2003–04, the community college

students were older, more often female, came from low-income families, and showed lower proportions of being White (Horn & Nevill, 2006, Table 2).

Provasnic and Planty (2008) reported that community college enrollment has increased 741% since 1963, compared with increases of less than 200% within each of the public and private (nonprofit) 4-year college/university sectors. This increase was due in part to the mounting demand placed on all educational sectors. Quite frankly, for many students the choice was simple—community college or nothing (Cohen & Brawer, 2008). The community college was a viable option for many students because of its lower financial investment and the potential for increased lifetime earnings (Sanchez & Laanan, 1997).

As indicated by National Center for Education Statistics ([NCES], 2012), student enrollment at public 2-year institutions during Fall 2010 was 57% White/Caucasian, 18% Hispanic, 15% Black, and 6% Asian. The most recent 2-year public institution degree attainment information from the NCES (2012) showed that 63% White, 11% Hispanic, 13% Black and 5% Asian students received some type of degree within the 150% timeframe of completion.

The state of Iowa operates 15 community colleges. Each of the 15 community colleges offers comprehensive programs including arts and sciences, college transfer (parallel) courses, career and technical programs, training and retraining programs for the workforce of Iowa's businesses and industries, and many adult and continuing education and noncredit courses for residents of each community college district. The Iowa community college system was developed as the statewide system of 2-year postsecondary educational institutions in 1965. In 1966, 14 of the community colleges were approved and organized,

and in 1967 the 15th was approved. Fourteen of the community colleges began operation in the 1966–67 school year.

The Iowa Department of Education (2011) reported that unduplicated headcount reports for the 2010–11 fiscal year showed 155,140 students enrolled, and between the years of 2006 and 2010, enrollment grew an average of 5.2% each year. According to the publication, the typical Iowa community college student was under 26, White, and female.

Credit hour enrollment grew at a similar rate in 2010–11 to 2,314,697 hours, an increase of 3.4%. Enrollments in arts and science programs (transfer to 4-year colleges) grew to 65% of the overall enrollment, 27% of students enrolled in a career and technical program, and only 4% enrolled in career option programs. The remaining 4% of students were enrolled in a combination of programs. Health science remained the largest career and technical program, with 20,260 students enrolled, followed by business management and administration with 7,598 students (Iowa Department of Education, 2011, p. 24).

Further, the Iowa Department of Education (2011) went on to point out that females outnumbered the males, 55.9% to 44.1%, and that Iowa's community colleges had become increasingly diverse. In 2007, only 12% of students were racial or ethnic minorities. In 2010, that percentage grew to 16%, and in 2011 it rose again—to 18.5%.

Students Served by Community Colleges

The statistics from the national and state data reported above demonstrate the diversity of students that community colleges serve. Astin's (1991) I–E–O model characterizes that college outcomes are functions of precollege characteristics, called inputs (I), such as demographic and family background characteristics. These inputs are then influenced by the institutional environment (E), variables such as the academic and social

experiences that students have both on and off campus. All of these characteristics shape outcomes (O): values, beliefs, and behaviors such as student persistence.

Although the majority of research on student persistence has been conducted at 4-year higher education institutions, several researchers have investigated community college student persistence. Grimes and David (1999) investigated underprepared community college students and concluded that motivational factors (self-efficacy) influenced student success and persistence. Torres and Solberg (2001) also concluded that having goals and self-efficacy were both strong predictors of student persistence. Hagedorn, Maxwell, and Hampton (2002) associated academic self-confidence with higher rates of retention. Despite the research and colleges' efforts and investment in an array of strategies intended to increase persistence, student success at community colleges has remained low.

Demographic risk factors that influence community college student retention include any student characteristics initially brought by the student to the college. Pascarella and Terenzini (2005) noted that a large share of the research has suggested that many within-college effects vary in magnitude by students' race, gender, academic ability, and parental education. Race and ethnicity, along with family income or socioeconomic status, are especially important because the nature of the undergraduate experience of historically underserved students can differ substantially from that of majority White students (Allen, 1999; Rendón, Jalomo, & Nora, 2000). Using these characteristics as a framework to build upon, a synthesis of the literature was collected to demonstrate how these variables impact student success.

Race and Ethnicity

The literature revealed that ethnicity has been found to be related to persistence in several studies. Both Cofer and Somers (2001) and Zhao (1999) found that African American students were less likely to persist than were White students. Studies of Hispanic students showed equally dismal outcomes. Recent estimates indicate that nearly 30% of the population in the United States will be Hispanic by the year 2050 (Aizenman, 2008). Alexander, Garcia, Gonzalez, Grimes, and O'Brien (2007) found that Hispanic community college students are "less likely than their White counterparts . . . to complete an associate's degree, transfer to a 4-year institution, and—among those who do transfer—obtain a bachelor's degree" (pp. 174–175; see also Bailey & Weininger, 2002, Fry, 2004; Swail Cabrera, Lee, & Williams, 2005; Wilds & Wilson, 1998; Woodlief & Chavez, 2002).

There also is evidence of unequal opportunities based on the number of people living in poverty. The U.S. Census Bureau (2012) indicated that the 2010 poverty rates for African Americans increased from 25.8% in 2009 to 27.4% in 2010 and for Hispanics from 25.3% in 2009 to 26.6% in 2010. That same data showed that the poverty level for non-Hispanic Whites was 9.4% in 2009 and 9.9% in 2010. These statistics not only show disparity between ethnicities but also may suggest that the high poverty rates could impact other variables such as academic ability, socioeconomic status, and other characteristics that lead to student success.

The Achieving the Dream National Reform Network is a movement for community college success and completion. Achieving the Dream's goal is centered around success for more community college students and specifically students of color and low-income students. Success is defined by the rates at which students:

1. Successfully complete remedial or developmental coursework and advancement to credit-bearing courses
2. Enroll in and successfully complete the gateway or college-level courses in subjects such as English or math
3. Complete courses with a "C" or better
4. Persist to the subsequent term
5. Attain a certificate or degree

Achieving the Dream is a national, non-governmental reform network that was conceived in 2004 and was funded by the Lumina Foundation and seven other partnering organizations. A central focus of the organization is to close the achievement gaps that exist between groups on the basis of race, ethnicity, gender, and age. In an interview with Dr. Byron McClenney (Boylan, 2008), he discusses their work with community colleges to help students who have historically been underrepresented succeed in higher education. Dr. McClenney notes his relentless focus on developmental education as a key to accomplishing that success.

Academic Preparedness

The population of the community college continues to diversify with increasing numbers of students of racial, ethnic, and linguistic minorities and low socioeconomic status, more students who are the first in the their families to attend college, and more who are considered significantly older than traditional college age. In response to these changing demographics, community colleges must provide the programs and services to support students who have social and academic barriers to college education.

Academic preparedness is one factor to consider when measuring retention and graduation rates. In a 2-year setting, many students arrive ill-prepared for college. According to the NCES (2003), 42% of public 2-year college students are required to complete at least one developmental education course. Success in these courses can become a critical hurdle for new community college students.

Gerlaugh, Thompson, Boylan, and Davis (2007) conducted a study that indicated at least 80% of students who began developmental courses in reading, writing, and mathematics persisted to the end of the semester. Although those results appear to indicate significant pass rates, the compounding attrition shows that fewer than half of the students who were required to take a developmental course were able to complete that course and pass their first freshman-level course in the corresponding subject.

Research has shown that academic ability based on high school GPA also can be shown to be significantly associated with student retention (Hagedorn et al., 2002). Grimes (1997) studied academically prepared and academically underprepared community college students. The findings of that study showed that underprepared students had higher levels of test anxiety and greater external locus of control. This lack of self-efficacy or confidence as it relates to academic unpreparedness poses a challenge for community college educators and policy makers.

Bailey (2009) reports a bleak picture for developmental education. He notes the high numbers of students that are referred to developmental education but never enroll in it or students that start a developmental sequence but fall short of completion and never enroll in the college-level courses. Although this portrays a pessimistic picture, three recommendations were provided.

First, community colleges should rethink assessment. Bailey (2009) points out that often administrators focus on test scores and placement into the curriculum. Instead, the focus should be on what assistance a student needs to be successful and if that fits into a developmental framework or a college-ready course.

Second, abandon the dichotomy between developmental and college-level ready students that are near the cutoff scores and provide academic support assistance for all students in college-level courses. Students near the top of the developmental range often spend time and money on services of uncertain value and gain little from their experience. Students that are just above the cutoff scores in college-level courses receive no special help and often have weak academic skills. The recommendation for policy would be to provide supplemental instruction for the first-level college courses.

Third, there is very little known about students with very weak skills and their ability to persist or even graduate. While there seems to be a national movement of comprehensive initiatives that improve developmental programs funded by organizations like Lumina and the Bill and Melinda Gates Foundation, there still is a need for continued analysis of the barriers that students with weak academic skills face.

Achieving the Dream's Dr. Byron McClenney (Boylan, 2008) discusses the need for a comprehensive academic support center for academically underprepared students. This center would include support labs for math, reading, writing, and study skills. He also shares the need for an advocate/coach for the most underprepared students as well as supplemental instruction for developmental math courses, learning communities that are linked to success courses, required success courses, required extra lab time, fast-track developmental math

courses, and professional development for those in the classroom and the academic support center.

Dr. McClenney (Boylan, 2008) goes on to discuss the importance of making connections with students early on in the semester. Having focus groups with students as early as orientation provides a way to gather student feedback. Surveys like the Community College Survey of Student Engagement (CCSSE) or the Survey of Entering Student Engagement (SENSE) both provide students with a voice and gives colleges the data to transform the way they do business to meet students' needs.

Socioeconomic Status and Age

Cofer and Somers (2001) reported that the most prominent demographic risk factor that seems to influence student retention is a student's financial status. Because many community college students come from a low socioeconomic background, cost of tuition alone has a significant negative impact on student retention. Low socioeconomic status students often have difficulty or are unsuccessful navigating through the financial aid process. According to Bonham and Luckie (1993), students' lack of money is a significant contributor to attrition.

Students from a low socioeconomic background often are forced to work to support family responsibilities or other financial responsibilities. Results from numerous studies have shown that students who work full time are more likely to drop out of community colleges compared to those who work part time or not at all (Lanni, 1997; Pascarella, Edison, Nora, Hagedorn, & Terenzini, 1998; Schmid & Abell, 2003). A study conducted by Swager, Campbell and Orlowski (1995) also found that conflict with work was a predominant reason community college students withdrew from college. When faced with a conflict between

work and school, it is assumed that students are not able to just quit work to pursue their education because of the responsibilities that they have.

The American Association of Community Colleges (2013) reports that during 2007-2008 only 46% of community college students were receiving some type of financial aid. Based on the same timeframe, only 21% of community college students received a Pell Grant and 80% of students that were enrolled full time are working either part time or full time in addition to taking community college course work. The need to work full or part time impedes a student's ability to study for their classes and get engaged in their college experience.

There is a great deal of research examining the college enrollment of traditional-age students immediately after high school (Cabrera & LaNasa, 2001; Perna, 2000; St. John, 2003). Research consistently has shown lower rates of enrollment in college within 1 to 2 years of high school graduation for students who are from lower socioeconomic backgrounds than for other students (Cabrera & La Nasa, 2001; Perna, 2000; Plank & Jordan, 2001). These findings could posit that low socioeconomic status students may represent a greater portion of the nontraditional student group and delay enrollment to a later time.

In their study, Choy and Bobbit (2000) found that 40% of undergraduate students 24 to 29 years of age who enrolled in college were classified as low income. In addition, research also has shown that older students are more likely to drop out of community colleges compared to younger students (Feldman, 1993; Windham, 1995). All of these findings illustrate the interconnectedness of age and low socioeconomic status and the impact they can have on persistence.

First-Generation College Students

Saenz and Barrera (2007, p. 1) defined a first-generation college student as someone "whose parents have had no college or postsecondary experiences." When comparing students at 4-year colleges and universities to students at community colleges, Thayer (2000) conceded that "first-generation students tend to be more concentrated in two-year colleges" (p. 3). Thayer also noted that first-generation students tended to have lower retention rates than did non-first-generation students. The American Association of Community Colleges (2013) reports that 40% of the students attending community colleges during 2007-2008 were the first generation in their family to attend college.

Recent studies focusing specifically on community college student retention have suggested that parental education level is positively associated with student persistence (Hoyt, 1999; Summers, 2003; Wild & Ebbers, 2002). Lee, Sax, Kim, and Hagedorn (2004) noted that parents who have enrolled in college classes may be more apt to counsel their children regarding college success. Parents understand the commitment needed for success, the amount of time necessary for studying, and the expenses associated with college. "Students who frequently talk with their parents and follow their advice participate more frequently in educationally purposeful activities and are more satisfied with the college experience" (Kinzie, 2007, p. 1).

Research also has illustrated that the timing of a significant proportion of college student attrition occurs during the first year (DeBerard, Spielmans, & Julka, 2004; Riehl, 1994) and that adjustment to college has both short-term and long-term ramifications for student performance, continuation in college, and overall success (Ishitani, 2006). Even the earliest experiences in college, within the first 6 weeks of the semester or earlier, have been

linked with persistence, academic performance, and increased likelihood of graduation (Levitz & Noel, 1989; Woosley, 2003; Woosley & Miller, 2009).

According to Nunez and Cuccaro-Alamin (1998), first-generation students enrolled in different types of degree programs than did non-first-generation students. As mentioned above, first-generation students were more likely to enroll in 2-year colleges and were more likely than other students to be in certificate or associate degree programs. In addition, the families of first-generation students had lower family incomes than did those of non-first-generation students and were more likely to be ethnic minorities. Specifically, they were more likely to be Latino(a) (Chen, 2005; Horwedel, 2008; Nunez & Cuccaro-Alamin, 1998; Terenzini Springer, Yaeger, Pascarella, & Nora, 1996) or African American (Chen, 2005; Horn & Nunez, 2000; Horwedel, 2008).

It is important to note the interconnectedness of all of these characteristics as they relate to persistence. Nakajima, Dembo, and Mossler (2012) pointed out that only a few variables in their study had a significant impact on student persistence. The variables that were significantly associated with student decisions to stay or leave were age, work hours, and financial aid. It is understandable that the relationship and combination of these variables may have more impact than any single variable. Furthermore, it has been suggested that a variable such as ethnicity is strongly associated with other factors, such as socioeconomic status, having an even greater negative impact on student persistence.

Developing an Effective First-Year Experience Course

Institutions of higher education have developed an array of first-year intervention programs. They are often referred to as the *first-year seminar*, the *freshman experience*, or *first-year experience*, and all are designed to encourage student success in the first year.

There is a large body of literature that has indicated that first-year experience courses have a positive impact on student academic and social integration, both being key concepts of persistence proposed by Tinto (1975, 1993).

Establishing the Need for a First-Year Experience Course

"During the last twenty years, as higher education has turned its attention to first-year students, colleges and universities have put in place numerous freshman programs, from small seminars to full-fledged first-year courses" (Barefoot, 2000, p. 12). Although research generally has shown that first-year experience programs have a positive impact on persistence (Cuseo, 1991; Pascarella & Terenzini, 1991), there are other positives that drive the need for these programs.

Porter and Swing (2006) reported in their research that first-year experience courses benefit institutions in many ways, including (a) keeping tuition-paying students enrolled; (b) helping with recruitment and marketing to prospective students, given that high retention rates have characteristically served as a measuring stick for quality; (c) improving rankings in annual college survey and reports such as in *U.S. News and World Report,* where retention rates are a factor; and (d) keeping with the institution's mission of graduating students and preparing them for the workforce. These benefits all demonstrate intrinsic factors that serve to enhance and promote the institution.

Transitioning to College

Research conducted by Cuseo (1997) went beyond the goal of the first-year experience course serving as a retention and academic achievement tool and looked more at the holistic development of the student. College is the beginning of a series of life changes for students and the better colleges educate them to begin the transition process, the stronger

foundation colleges provide for that student to not only learn but also to grow personally and professionally. It is important to note that Cuseo's (1997) research study focused on the community college system and recognized the open-access mission of the community college. That open-access concept provides for a more diverse student population (academically unprepared, nontraditional age, commuter students, etc.) that magnifies the need for a first-year course that promotes student success.

One of Cuseo's (1997) findings suggests the importance of "providing education-for-life skills that contribute to lifelong learning and holistic development of the whole person (cognitive, social, emotional, physical, ethical and vocational)" (p. 5). The theme of lifelong learning is at the heart of the community college mission. Examples of topics in a first-year experience course that encourage student development include self-assessments of interests and abilities, self-insights of internal and external locus of control, goal setting, motivation, managing time and stress, wellness, and interpersonal relationships. All of these topics have a student-centered focus and provide skills that would serve students long after they leave higher education. One student anonymously wrote on an evaluation of his or her first-year experience course, "This was the only class that was about me" (Cuseo, Williams, & Wu, 1990, p. 2).

Sense of Belonging

Another important component in Cuseo's (1997) research noted the importance of students feeling a part of the campus community. It has been shown that students who feel a connection to other students and the campus community have a greater likelihood to persist and graduate (Astin, 1993). These connections need to occur early in a student's college career (Tinto, 1993) so the student senses a feeling of belonging to the community.

To promote student involvement, first-year experience courses can promote student engagement through involvement in campus clubs and organizations, stress the importance of cocurricular activities, and have activities that encourage student interaction. New students occasionally become so focused on grades and their academic goals that they lose sight of the balance needed between the classroom and outside activities. Students need to recognize that personal and social skills are sought out by employers and are part of what makes them marketable in a job search. Being involved in clubs and organizations, seeking out a leadership role in residence life or student senate, or participating in a service learning activity all serve to grow a student's personal and professional identity. This involvement becomes part of a student's further investment and commitment to a campus community.

Structure of the Course

There are probably no two first-year experience courses that look exactly alike. Ideally, colleges design them based on their needs and their own institutional characteristics. A first-year experience program at a 4-year university might focus or prioritize things differently than one at a community college would. There are other characteristics of an institution, such as size of student body, location of campus, degrees offered, residence life or commuter campus, diversity, and whether or not there are athletics, that impact the content of the program.

It is also important to understand the goals of the student. This may be more prevalent in the community college sector rather than at 4-year colleges and universities. For example, a student at a community college may have a goal of obtaining an associate's degree and transferring. Other students could simply want to enhance their job skills or work toward a certificate and not receive any form of degree at all. Students in a 4-year setting

have primarily the one goal of receiving a bachelor's degree. For leaders planning a first-year experience program in a 2-year college setting, it is also important to recognize that students have different needs and then plan the program to provide those specific needs.

One model for first-year experience programs, designed by Austin (1988), identified six broad categories of sessions and activities that would be the foundation for a first-year experience program (Figure 2.1).

Academic Information	***General Information***	***Logistical Concerns***
• Academic structure, guidelines, regulations • Class scheduling • Meeting faculty & deans • Study skills information • Exposure to live or simulated class	• Campus tours • International policies/regulations • Description of services available • Campus history, traditions	• Financial aid, business matters • Registering a car • Getting an ID card/library card • Purchasing books
Social/Interpersonal Development	***Testing/Assessments***	***Transitional Programming***
• Information on campus activities, clubs and events • Social activities • Get acquainted exercises • Group/team building exercises	• Placement tests • Attitudinal tests • Career/personality tests • Demographic survey	• Special workshops on subjects such as career development, cultural diversity, substance abuse awareness, personal safety, roommates, acquaintance rape, commuting • Workshops on affective issues such as leaving home, changing relationships, fears and anxieties

Figure 2.1. Categories of first-year experience activities and sessions (Austin, 1988).

Teaching the Course

First-year experience courses can be taught by faculty or can be team-taught by one faculty member and one administrative staff member. A model that includes both academic affairs and student affairs personnel serves to increase the instructor–student ratio for a course that is highly interactive. It also provides the student with a contact within student affairs that can help with a smooth adjustment and can also encourage involvement in campus life activities. Barefoot and Fidler (1996) reported that institutions where freshman-year experience courses involved student affairs staff throughout all stages of planning and program design tended to have strong, broad-based institutional support and showed continued effectiveness on student success from year to year.

Sidle and McReynolds (2009) reported in their research that the manner in which a first-year experience course was organized and designed at their institution, with alliances between student affairs and academic affairs, mirrors the structure seen at many other institutions. Administrators and faculty having a shared commitment to the first-year experience course demonstrates to new students and to potential students that the institution supports this course and places a high priority on academic success and a student's desire to persist to graduation. In addition, these same administrators and faculty are demonstrating their interest in enhancing students' subsequent educational, psychosocial, and cognitive developmental experiences at their institution (Murphy, 1989).

In summary, a review of the literature showed support for the need for a first-year experience course as a key contributor to a college's retention efforts. The very foundation of a first-year experience course should allow for students to meet other students, learn about the various offices and services available for them on campus, as well as allow them to set

personal goals and help them realize the best ways to achieve their goals (Derby & Smith, 2004). The most significant components in a successful program are efforts that contribute to acclimating students to campus life.

First-year experience courses, like many other retention efforts, are designed to be highly effective for underprepared students at community colleges. Although it is important to address the need for a first-year experience program for students who enroll and are underprepared, the first-year experience program should have effective components and initiatives that meet the needs of all students.

Impact of Academic and Social Integration on Retention and Student Success

Tinto (1975) introduced the terms *academic integration* and *social integration* to the study of attrition and described a lack of integration as isolation. This incongruence between a student and the intellectual and social communities in the college hinders commitment and leads to withdrawal. Braxton, Hirschy, and McClendon (2004) found a lack of empirical backing for the influence of academic integration at residential universities and suggested serious revisions to Tinto's model, including dropping academic integration from the model and expanding social integration into multiple factors that influence social integration for residential students. Although this study was not based in a university setting, it is important to note that the literature showed significance of persistence when both forms of integration occur (Stage, 1989). It also has been shown that one form of integration can act as a vehicle for the other form of integration, with high levels of social integration compensating for weaker academic integration (Pascarella & Terenzini, 1983; Stage, 1989; Tinto, 1975).

Tinto (1997) critiqued his own model of persistence, which separated social and academic systems into two discreet boxes. He acknowledged "a fuller relationship between

these two spheres of activity" more accurately represented as "nested spheres" to better depict the ways "in which social and academic life are interwoven" (p. 619). The concept of "socio-academic integrative moments" can be used to describe when components of both academic and social integration are simultaneously combined. These "moments," in which the academic influence is coupled with the social integration, enhance feelings of college belonging, college identity, and college competence. Tinto (1993) described the most common mechanisms for creating socioacademic integrative experiences as (a) a range of in-class interactions and dynamics, (b) formal or "spontaneous" study groups, (c) social-capital relevant interactions and mentor relationships with trusted faculty or other staff, (d) consistent access to communication with "similar" students, and (e) academically-relevant clubs and activities.

Faculty–Student Interactions

Findings from studies by Stanton-Salazaar (1997, 2001) and Bensimon (2007) lend support to the notion that contacts with instructors/faculty, other staff, and students as well were all shown to be instrumental in how community college students integrate. According to Deil-Amen (2011), these studies showed that "although many students noted family support, 92% highlighted a college-specific *agent* or *agents* who were instrumental to their sense of adjustment, comfort, belonging, and competence as college students" (p. 61).

Relationships and meetings with faculty, counselors, advisors, or other students provide the social capital to strengthen academic knowledge and increase the information needed for success in class, college, and career. Many first-generation community college students are otherwise not likely to have access to the information needed to navigate the

college process (financial aid, degree requirements, etc.) through their family or peer networks.

Students report a greater sense of belonging when contact with professors over academic matters cultivates a connection between the student and the professor that can resemble elements of family and friend relationships. By establishing more of a personal, family-like mentoring relationship, students often perceive a greater institutional commitment to the welfare of students (Braxton et al., 2004).

Barefoot (2000) stated that one of the most exciting pedagogical tools that links in-class involvement with out-of-class experiences is service learning. Service learning provides organized service activities based on a component of disciplined-based courses. This commitment to service learning addresses one of the historic goals of higher education by educating students for citizenship and public service. Service learning provides students and their instructors a chance to work together and broaden their relationship beyond the classroom.

Deil-Amen (2011) reported that in-classroom interactions were dominant mechanisms of socioacademic integration. This finding confirmed and extended Tinto's (1997) posit that the classroom is the site of integration. Instructors should provide time during class for one-on-one communication and assistance to boost students' academic performance and sense of competence and belonging. In interactions outside of class, contact with faculty served as an identity-boosting function, particularly for nontraditional and underserved students. Furthermore, the study's findings indicated that students' interactions with faculty were deemed more pivotal for social capital transmission than were their interactions with advisors

or counselors. Faculty who take a proactive approach to helping students navigate within the organization provide the needed information for students to overcome procedural obstacles.

Peer Interactions

Students often become integrated into a college by developing connections with individuals, participating in clubs, or engaging in academic activities. Astin's (1993) theory of involvement suggests that the more students are involved the more they will gain from college.

Karp, Hughes and O'Gara (2010) studied the concept of *information networks* as an important mechanism in encouraging integration. Information networks were defined as social ties that facilitate the transfer of institutional knowledge and procedures. More specifically, the information networks came in the form of (a) professors or classmates from whom they could get information, (b) a specific person on campus to whom they could go, and (c) an information-seeking process that included college-based social relationships. Students reported using information networks as a way to make the campus feel more friendly and manageable and as a way to overcome obstacles with the institution.

Many community college students have described coming to college as a narrow experience. They commute to campus, they have limited time in the classroom, and then they leave for work or other family responsibilities. Students often have relationships that start out in the classroom structure but can extend to connections outside of the classroom. By building these relationships, students develop a reason beyond academics to want to come to school.

Karp et al. (2010) suggested that community colleges examine ways in which social integration is encouraged by academic activities. One initiative that promotes persistence

and integration is the 1-credit college first-year experience course. Students in this study reported benefits such as having a better understanding of the college processes and what it took to be successful. Both the content of the course as well as the relationships that were established facilitated the development of peer networks and student success. In addition, the instructor was often recognized as a "go-to" person on campus.

Students reported learning about campus resources through social relationships. Services such as tutoring or supplemental support systems were often discovered through networks of classmates rather than from printed materials or other forms of information. Students also indicated their preference of getting course advice from other students rather than from a college counselor with whom they did not have an ongoing relationship. By having these social relationships, in addition to faculty and staff resources, students begin to believe that there are people at the college who want them to succeed and who want to make sure they attain their goals.

Barefoot (2000) discusses the importance and influence a student's peer group has on them. First-year experience programs are intentionally designed to provide students with interaction with peers necessary for bonding and affiliation. Women, students of color, first-generation students, and other non-traditional student groups benefit from getting to know others who share some of the same characteristics.

Engagement and Outcomes

Harper and Quayle (2009) broadly defined engagement as "participation in educationally effective practices, both inside and outside the classroom, which leads to a range of measurable outcomes" (p. 3). This definition is certainly useful and can be extended to the instrument used in this study, the Survey of Entering Student Engagement (SENSE),

which serves to measure the experiences of entering student engagement, which is highly correlated with student learning and retention.

SENSE is a product of the Center for Community College Student Engagement (CCCSE). CCCSE also developed the Community College Survey of Student Engagement (CCSSE) that was established in 2001 and is administered by the Community College Leadership Program at the University of Texas at Austin. CCSSE's central mission is to provide data about effective educational practice in community colleges as well as for policymakers to promote improvements in student learning and retention. CCSSE is the sister to the National Survey of Student Engagement (NSSE), developed for 4-year colleges and universities. The survey is administered during the spring term to students in the classroom in randomly selected course sections.

The CCSSE instrument is administered on an annual basis and obtains information about how community college students participate in educationally purposeful activities. The results provide data for how often students interact with faculty members and other students as well as what they gain from being enrolled in college. Items on the CCSSE instrument reflect institutional practices and student behaviors that are associated with higher levels of student learning and persistence in college (Pascarella & Terenzini, 2005). The theoretical underpinnings of the survey are found in Astin's (1984) work on student involvement and Kuh's further development of the concepts of student engagement (Kuh, 2001; Kuh, Pace, & Vesper, 1997). CCSSE has been identified as one of the best examples of an instrument that provides unique opportunities for generalizing the results across institutions (Upcraft, Gardner, & Barefoot, 2005).

Results from CCSSE are reported in terms of five benchmarks of effective educational practice, (a) frequency of students' engagement in active and collaborative learning; (b) level of student effort applied to educational pursuits; (c) degree of academic challenge students experience at their colleges; (d) amount of student–faculty interaction that occurs in the course, outside of the classroom, or online; and (e) support for learners provided through institutional practice and students' use of college support services. CCSSE is committed to accountability and reports survey results and benchmarking data on their website. This provides community colleges a tool with which to identify strengths and weaknesses, monitor progress, and track performance.

According to the CCCSE (2012) publication *A Matter of Degrees*: *Promising Practices for Community College Student Success (A First Look)*, the 2011 CCSSE cohort had nearly 444,000 students from 699 institutions in 48 states participate in the CCSSE survey. Of those respondents nearly 27% were enrolled part time and 73% were enrolled full time. In addition, 57% were female and 43% male, ranging in age from 18 to 65. With respect to race/ethnicity, 62% were White, 12% Latino/Hispanic, 11% Black, 4% Asian or Pacific Islander, 2% Native American, and 4% other.

CCSSE developed the Survey of Entering Student Engagement (SENSE) to collect, analyze, and report information about institutional practices and student behaviors in the first few weeks of college. SENSE's conceptual framework assumes that entering students should be understood as a distinct cohort. Front-door experiences and key contact points, such as admissions, financial aid, advising, and registration, all require taking a closer look at student flow. In addition, policies such as late registration and programs such as first-year experience, tutoring, and student success courses are becoming increasingly common at

community colleges. Heightened awareness of the entering student perspective is causing institutions to take a closer look at how current programs are meeting students' needs.

The SENSE survey was first administered as a pilot program in 2007. It focuses on six main benchmarks: (a) early connections, (b) high expectations and aspirations, (c) clear academic plan and pathway, (d) effective track to college readiness, (e) engaged learning, and (f) academic and social support network. Like CCSSE, the benchmark data allows schools to track their performance and also compare institutional results with national data.

Participating institutions have the ability to disaggregate the data to look at students by race and ethnicity, age, enrollment status, and gender to identify where student are having disparate experiences. This allows institutions to look for themes and confirm or refute assumptions about entering student experiences.

The 2010 SENSE cohort included approximately 75,000 entering students from 172 institutions in 35 states. The survey is administered in classes randomly selected from the population of all first college-level English, first college-level math, and developmental education courses. With respect to race and ethnicity, the 2010 cohort was made up of 54% White, 18% Latino/Hispanic, 15% Black, 3% Asian or Pacific Islander, 2% Native American, and 4% other (CCSSE, 2012).

Throughout this literature review, reference has been made to student involvement (Astin, 1984), Tinto's (1993) academic and social integration, and now engagement (Harper & Quayle, 2009). All of these frameworks share the common notion that students inhabit the environment of college, they have various encounters with the college environment, and all of those experiences can influence students' development and attitudes. The act of students accessing the academic, social, and cocurricular activities of an institution has been shown to

impact persistence (Astin, 1984; Bean, 2005; Harper & Quayle, 2009; Tinto, 1993). For the purposes of this study, the term engagement is used as an umbrella inclusive of involvement and integration. As positive outcomes, such as persistence, learning, and satisfaction, are associated with student engagement, it is a useful variable by which student and institutional characteristics can be measured.

Summary

In summary, a review of the literature suggests that student engagement plays a positive role in retention. In addition, the literature supports that a focus on faculty/student interaction, peer-to-peer interactions, and initiatives such as the first-year experience course appear to contribute to increased chances of student success. Even with these initiatives, the literature acknowledges that the performance of community colleges could significantly improve through increased retention and graduation rates. By developing ways to better serve the diverse population that these open-door institutions support, community colleges have an opportunity to not only improve the lives of students but also to make a marked impact on the nation's struggling economy.

There was a consistent theme in the literature of a lack of research in community college persistence. There has been a number of studies completed in the 4-year sector on retention and initiatives such as the first-year experience course. As was shown in this literature review, the profile of a community college student varies significantly from a student that has met admissions requirements and is able to attend a 4-year college or university. These differences in the makeup of each student body make the research at the 4-year colleges or universities irrelevant in most cases.

Finally, with the increased focus on accountability at both the federal and state level, research that can improve practice and policy on community college retention will be welcomed by policymakers. It is also a time when colleges are forced to do more with less, and finding ways to ensure that every dollar is spent in the most efficient way helps to improve and provide the best services for the students served.

CHAPTER 3. METHODOLOGY OF THE STUDY

Overview

The central purpose of this study was to investigate and describe the extent to which student entry variables and student experiences influence student outcomes related to social and academic integration and student retention at IVCCD. This chapter provides an overview of the methodology that guided this study. A description of the methodological approach along with the population and sample, instrumentation, data collection, variables, and the data analysis procedures used in this study are presented.

Research Questions

The objective of this study was to address the following research questions:

1. What are the background and social demographic characteristics of first-year students at IVCCD?
2. Are there intercorrelations among variables in the SENSE survey dataset that measure academic and social integration?
3. Are there significant differences in retention in the groups of students who (a) attend a precollege orientation session and are enrolled in the College Experience course, (b) attend either precollege orientation or enroll in the College Experience course (but not both), and (c) do not attend either?
4. Which precollege and college environmental characteristics are the best predictors of student retention?

Hypotheses

According to Creswell (2009) there are two forms of hypotheses, null and alternative. A null hypothesis makes a prediction that no relationship or difference exists between groups on a

variable. An alternative hypothesis is used by researchers when there is no expected outcome predicted for the population of the study. The traditional null hypothesis will be employed for the purpose of this study.

Hypothesis for Research Question #3: There is no statistically significant relationship between students who (a) enroll in the precollege orientation session and the College Experience course, (b) attend either precollege orientation or enroll in the College Experience course (but not both), or (c) do not attend either.

Hypothesis for Research Question #4: There is no statistically significant relationship between precollege and college environmental characteristics and student retention.

Methodological Approach

Creswell (2009) postulated that in quantitative methodology a large sample of individuals can be analyzed and used to make generalizations where warranted about a larger population from which the sample was taken. In the case of this study, a sample of IVCCD students was examined using institutional student data and characteristics as well as data collected from the Survey of Entering Student Engagement (SENSE), a product of the Center for Community College Student Engagement. SENSE provides nationally compiled data from over 150 community colleges that could be used as a benchmark for IVCCD as supplemental comparison data. For the sake of this study, the results of the statistical analyses were used to make generalizations and provide direction for policy about community college students enrolled in subsequent years. It is noteworthy that having the national benchmark data provided IVCCD the ability to compare itself to a national dataset and identify areas of strength and opportunities for future growth. These findings also could inform the literature on best practices for community college policy makers.

Setting

The site of this investigation was Iowa Valley Community College District (IVCCD), a multi-campus community college district comprising two main campuses. IVCCD is unique in Iowa because it operates Ellsworth Community College (ECC) in Iowa Falls, Iowa, and Marshalltown Community College (MCC) in Marshalltown, Iowa. IVCCD was organized in 1966 as one of the 15 community colleges in Iowa. Both colleges have long traditions: ECC was founded in 1890 and MCC was founded in 1927. IVCCD also operates a satellite campus, Iowa Valley Grinnell, which was established in 1993. IVCCD offers many award-winning programs through the certificate, diploma, and 2-year associate degrees that it offers. IVCCD's 5-year average fall enrollment is 3,068, making it one of the smaller community colleges in Iowa (Iowa Valley Community College District, 2012a). Approval was received from the Chancellor of IVCCD to participate in the study and to use the name of the district throughout the documentation of the research.

There are several characteristics about IVCCD that provide for a traditional college experience. Table 4.1 shows that 85.1% of the first-year students in this study are between the ages of 18 and 22. There is on-campus housing at both campuses providing for dorm-style and apartment-style living for students that are unable to commute to campus. ECC has four housing units, two traditional-style dormitory buildings and two apartment-style units. MCC has three apartment-style units that have been built within the last ten years. In addition, both campuses provide for intercollegiate athletics with ECC offering eight sports and MCC having seven. This provides students with the ability to be involved in intercollegiate athletics or have that be a part of their campus-life experience in addition to their academic pursuits.

The four-county region that encompasses IVCCD has a highly diverse population. Based on the 2010 census data (Iowa Valley Community College District, 2012b), IVCCD has 10.1% of the district population that identify themselves as Hispanic or Latino. In Marshall County (site of Marshalltown Community College), 17.3% of the population indicated that they were Hispanic or Latino. Tama County also has a diverse population with 7.5% of the citizens classifying themselves as American Indian/Alaska Native and another 7.4% classifying their origin as Hispanic or Latino. In comparing these statistics with the State of Iowa, the US Census Bureau (2013) indicates that Iowa has 5.2% of the overall population that categorizes themselves' as Hispanic or Latino origin and only 0.5% of the population indicating they are of an American Indian/Alaska Native origin.

In terms of student enrollment at IVCCD for fiscal year 2012, the *Annual Condition of Iowa's Community Colleges* reports (Iowa Department of Education, 2012) that IVCCD's enrollment(n=4,279) was 69.6% White, 7.3% Hispanic, 5.9% Black, 4.5% Asian/Pacific Islander, and 1.6% American Indian. The remainder of the population did not provide their ethnicity or race.

During that same fiscal year 2012 timeframe (Iowa Department of Education, 2012), of the students that were enrolled in developmental education (N=872), 56.6% were White, 13.2% were Black, 12.7% were Hispanic, 2.6% were American Indian, and 1.4% were Asian/Pacific Islander. From an academic preparedness standpoint, these statistics may suggest that the students from diverse backgrounds come to us more underprepared than their White counterparts.

One final component to the background characteristics as they relate to the literature, according to the US Census Bureau (2013), the city of Marshalltown had a 2010 population

of 27,775 with 24.1% of the citizens indicating that they were of Hispanic or Latino origin and 15.4% of the people in Marshalltown below the poverty level. Using the same data source, Iowa Falls (where Ellsworth Community College is located) has a 2010 population of 5,207, with only 3.9% of the citizens indicating that they were of Hispanic or Latino origin and 6.8% of the people in Iowa Falls falling below the poverty level. These two statistics, race/ethnicity and poverty level, make for very different campus cultures and campus priorities.

On a statewide community college level, the Iowa Department of Education (2012) reports that the Fall 2012 enrollment reported from all 15 community colleges shows 15.2% of community college students identified themselves as minorities. Black students made up 6.6% of the Fall 2012 student enrollment and Hispanic students made up 5.6% with Asian/Pacific Islanders just 2.2%.

The demographics of the IVCCD four-county region along with the on-campus housing and intercollegiate athletics all provide for a more diverse student population. This research serves to examine these variables that are so prevalent at IVCCD such as race/ethnicity, socioeconomic status and first-generation status to establish how they impact student success.

Data Sources

This study used data from two sources in order to gain a deeper understanding of how student entry variables and student experiences influence student outcomes related to social and academic integration and student retention. The first source of student information was identified by the IVCCD Office of Institutional Research from the Jenzabar EX student information system. That data was made available to the researcher through published

institutional reports and Microsoft Excel student information files. The data contained in the student information files included items related to student demographics, academic preparedness, socioeconomic status, enrollment information, and other campus-related variables.

The supplementary data source used in this study was the Survey of Entering Student Engagement (SENSE) dataset. SENSE is a survey that is the product of the Center for Community College Student Engagement, and it focuses on early student experiences as they relate to engagement. The results from the survey are designed to help community colleges improve institutional practices that affect student success during the freshman year. In addition, each year a published document of findings and best practices is developed and distributed to all member schools.

SENSE provides 38 survey questions that evaluate students' experiences with peer-to-peer interactions in class, peer-to-peer interactions outside of class, student–faculty interactions, and overall student satisfaction with the college. The responses used for the purposes of this research come from questions 18 & 19 and were utilized to serve as a measure of each student's academic and social integration, which the literature has reported to be a contributor to student persistence (Pascarella et al., 1983, 1986; Pascarella & Terenzini, 1983; Tinto, 1988).

The SENSE instrument is a paper-and-pencil form designed to be completed in one class period. Responses that students provide on the SENSE instrument are anonymous with an option to put a student's college-issued identification number in question 39. For those students that did provide their student identification number, the institutional researcher was able to match the SENSE data with the student's internal demographic data which became

the dataset for the logistic regression. Students who did not list their student ID number on their survey did not have their information included in the logistic regression dataset.

Population and Sample

The target population chosen for this study was based on the Integrated Postsecondary Education Data System (IPEDS) definition of first-time full-time degree-seeking freshman students. There were 890 students who enrolled at IVCCD during the Fall 2012 semester and met this definition. Any student who was taking concurrent courses as a high school student was not included in this study. Likewise, students who took concurrent courses during high school who had now matriculated were treated as "first-time" students even though they had completed some college coursework during high school, which aligns with the IPEDS definition. Students who had transferred into IVCCD with transfer credits were included in this first-time definition or dataset.

Results from the SENSE dataset provided 675 valid cases. The data from both of these sources were compiled into one dataset using the student's institutional identification number as the common identifier. Students who did not list their student ID number on the survey did not have their information included in the dataset used for the logistic regression. There were a total of 290 cases after the two datasets were merged. Of the 290 in the sample, 24 were classified as missing cases, leaving a total of 266 cases in the predictive model.

Data Collection

There were two sources of data used in this study. The internal student data received from the Office of Institutional Research came from a variety of institutional forms that students completed and submitted to IVCCD. For example, much of the demographic information came from the application for admission, high school transcripts, financial aid

forms, and other internal mechanisms. This information was then entered in by staff and could be retrieved through the use of internal reports and queries. In addition, academic information, such as enrollment in subsequent semesters, and other student characteristics, such as living on campus or commuting or involvement with the TRIO program, was received to validate outcomes such as student retention.

Specific variables that were gathered in the internal student data report were the student's gender, ethnicity, ACT/COMPASS scores, high school GPA, socioeconomic status (Pell Grant eligibility), first-generation college student status, size of high school, Iowa resident/ nonresident, campus resident or commuter, TRIO participant, enrollment in developmental coursework, participation in intercollegiate athletics, campus location (ECC or MCC), enrollment in the College Experience course, enrollment in a precollege orientation, and Spring 2013 semester enrollment.

Survey Instrument

Data also were collected using the Survey of Entering Student Engagement (SENSE). This survey was administered at IVCCD as well as at the other 14 Iowa community colleges during the Fall 2012 term. This commitment by all the Iowa community college presidents (Iowa Association of Community Colleges Presidents, 2012) demonstrates their belief that this survey has value in improving engagement and student success. The survey consists of 38 questions and elicits information from students about their first impressions of the college; intake processes, such as admissions, registration, placement, and orientation; and how they assess their earliest relationships with faculty, staff, and peers. See Appendix A for a complete copy of the survey instrument.

The types of inventories utilized to measure the items on the survey instrument were dichotomous responses (i.e., "yes" and "no"), numerical scales, and Likert-type rating scales (e.g., *strongly agree* to *strongly disagree* or *never used services* to *used services four or more times*). SENSE is organized in 21 topical areas with associated questions (see Appendix B).

SENSE is administered to new students during the 4th and 5th weeks of the Fall academic term. Students are chosen to participate based on a random sample of courses in which new students often enroll including developmental reading, writing, and math courses and freshman-level courses in math and English. The survey itself is a pencil-and-paper survey and is designed to be completed in one 50-minute class period.

Data Analysis Procedures

Research Question 1

The first research question for this study was: What are the background and social demographic characteristics of first-year students at IVCCD? The computer software program Statistical Package for Social Sciences® (SPSS) for Windows® was used to execute the statistical analyses for this study. In order to address this research question, descriptive statistics were employed. The literature pointed to age, ethnicity, socioeconomic status, and first-generation college student status as predictors of lower student success rates (Choy & Bobbit, 2000; Cofer & Somers, 2001; Thayer, 2000; Zhao, 1999). Although this is not an exhaustive list of variables that were analyzed, these were at the forefront for priority. For a complete list of variables, and their coding, see Appendix C.

Research Question 2

The second research question for this study was: Are there intercorrelations among variables in the survey dataset that measure academic and social integration? In response to research question 2, an exploratory factor analysis was performed on the SENSE dataset (n=675) to evaluate the collective influence of student interactions with faculty and with peers both in and out of the classroom. The variables that were selected are as follows:

From peer-to-peer interactions in class: Questions 18k, 18q, 18s, 19a, 19g, 19s

From peer -to-peer interactions out of class: Question 19h, 19i, 19j, 19k, 19r

From student–faculty interactions: Questions 18b, 18r, 19l, 19m, 19n, 19q

Results of the exploratory factor analysis were used to recode variables for Academic Interactions, Social Interactions, and Outside of Class Interactions and used in the logistic regression model. These results were used as a measure of engagement.

Research Question 3

The third research question for this study was: Are there significant differences in retention in the groups of students who (a) attend a precollege orientation session and are enrolled in the College Experience course, (b) attend either precollege orientation or enroll in the College Experience course (but not both), and (c) do not attend either? A one-way analysis of variance (ANOVA) was conducted to determine if statistically significant differences existed between the means of students who attended both the precollege orientation session and enrolled in the College Experience course, attended either the precollege orientation or enrolled in the College Experience course (but not both), or did not attend either. The independent variable in this question, attendance at the first-year experience programs that were offered, was recoded from the fields that indicate if students

attended either of the programs. The dependent variable, retention to the spring term, was a dichotomous variable.

The ANOVA procedure assumed that the three independent variable groups were: evenly distributed, independent of the population, and all had equal variances. A Levene's test of homogeneity of variance was used, because the number of responses (*n*) varied for each group, to further examine whether the three groups had equal variances. Post-hoc testing was conducted to compare and contrast combinations of treatment (involvement in first-year programming) means. Tukey and Scheffe post-hoc tests were employed to identify significant differences between groups.

Research Question 4

The fourth research question in this study was: Which precollege and college environmental characteristics are the best predictors of student retention? A logistic regression was employed to investigate the best predictors of a student's retention to the spring term. When researching a binary dependent variable like retention, logistic regression is considered superior to other statistical methods (Peng, So, Stage, & St. John, 2002) based on the ability of the logistic regression to produce accurate classification results.

Following Astin's (1993) I–E–O model, the independent variables were blocked to determine how well each block of the independent variables predicted retention. The independent variables in Block 1 (inputs) were academic preparedness for math, academic preparedness for English, age, race/ethnicity, high school GPA, and socioeconomic status. The independent variables in Block 2 (environment) were TRIO participation, fall GPA, and enrollment in the College Experience course. In addition, Block 2 included the recoded variables from the exploratory factor analysis that demonstrated faculty and student

interactions (engagement). This research design paralleled the entry and enrollment sequence of a student's transition to the community college and supported a clear structure for the presentation of findings. A modified version of Astin's (1993) I–E–O model is displayed in Figure 3.1.

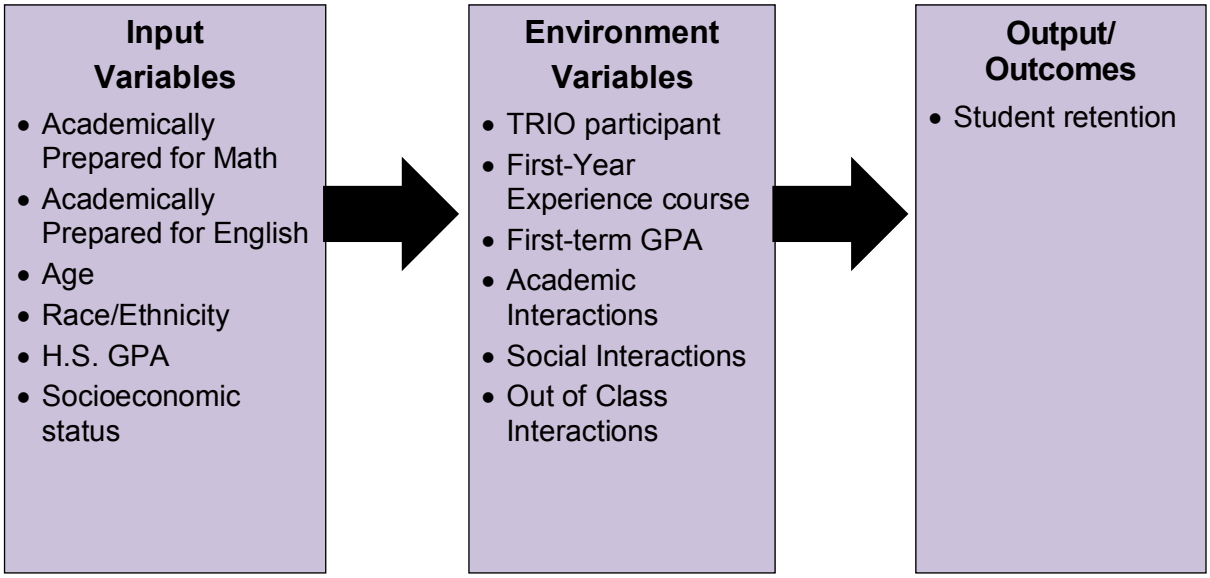

Figure 3.1. Predictive model for community college student retention.

Ethical Considerations

The data were accessed and produced by the Office of Institutional Research at IVCCD in response to the researcher in this study also being the registrar at one of the campuses. Great care was taken to ensure that there was a separation between the researcher being an active participant in the day-to-day data activities and the institutional researcher who did the actual data extraction. That said, the researcher was well aware of the cautions of regulatory requirements such as FERPA and the Red Flag Rules and their nearly unbendable rules on the release or sharing of student data. Human subjects approval from the Iowa State University Institutional Review Board (IRB) was sought. The IRB determined

that this study was exempt (see Appendix D) because all student identifier information was removed before it was provided to the researcher.

CHAPTER 4. RESULTS

This chapter provides an overview of the study's findings from the statistical analysis of the data. To gain a better understanding of the demographics of the 890 first-time full-time students in the study sample, a profile of gender, race/ethnicity, age, residency, first-generation status, socioeconomic status, and other pertinent variables was compiled with frequency analysis. A detailed description of the demographic findings is provided in Table 4.1.

Demographic Characteristics of First-Year Students

Examination of the demographics and background characteristics of the 890 students who began their college experience at IVCCD shows that 53.9% (n = 480) were male. When reviewing race/ethnicity, the breakdown shows the highest proportion of students were White/Caucasian (65.1%). Among the other race/ethnicity groups, Black/African American represented 17.3%, Hispanic represented 9.8%, American Indian/Alaska Native 1.6%, and Asian 0.3%. Only 1.2% of the students reported they were of two or more races, and 4.7% did not report any race/ethnicity.

When performing a cross-tabulation of gender and race/ethnicity, a higher percentage of males were found in the Black/African American students at 82.5%. The Hispanic category also had a higher than average proportion of males with 63.2%. Only 45.4% of the White/Caucasian students were categorized as male, demonstrating a larger percentage of White/Caucasian females.

A large percentage (85.1%; n = 757) of students fell into the traditional-student category of 18 to 22 years of age. In addition, 61.2% of the students in the study were

Table 4.1

*Demographics Characteristics of IVCCD First-Year Students (*N = *890)*

Variable	*n*	%
Gender		
Female	410	46.1
Male	480	53.9
Race/Ethnicity		
American Indian or Alaska Native	14	1.6
Asian	3	0.3
Black or African American	154	17.3
Hispanic of any race	87	9.8
White/Caucasian	579	65.1
Two or more races	11	1.2
Race/Ethnicity unknown	42	4.7
Age groups		
17 or below	12	1.3
18–22	757	85.1
23–26	41	4.6
27–30	24	2.7
31–39	30	3.4
40–55	22	2.5
56 & above	4	0.4
Residency		
Iowa resident	688	77.3
Non-Iowa Resident	202	22.7
First-generation college student		
Yes	169	19.0
No or unknown	721	81.0
Socioeconomic status		
Pell Grant eligible	545	61.2
Not Pell Grant eligible	345	38.8
High school graduating class size		
1–50 students	96	14.5
51–100 students	199	30.0
101–200 students	107	16.1
201–300 students	43	6.5
301–400 students	164	24.7
401+ students	54	8.1

classified as having a low socioeconomic status. This categorization was based on the student having received a Pell Grant. Further exploration of these two variables shows a higher percentage of low socioeconomic status students in each of the nontraditional age groups beyond 18–22 years of age. Low socioeconomic status was reflected in 73.2% of students in 23–26 years of age group, 83.3% in the 27–30 years of age group, 93.3% of students in the 31–39 years of age group, 72.7% in the 40–55 years of age group, and 75% of those age 56 years and above.

Students were recoded into a traditional age group (17–22 years of age) and a nontraditional age group (23 years and above) to investigate whether these two groups differed in their socioeconomic status. A chi-square statistic was conducted and assumptions were checked and met. As shown in Table 4.2, the Pearson chi-square results indicate that there are significant differences in the socioeconomic status of these two age groups, $\chi^2 = 21.14$, $df = 1$, $N = 890$, $p < .001$). Of the 13.6% ($n = 121$) students who were categorized as nontraditional age, 80.2% ($n = 97$) were eligible for a Pell grant, whereas only 58.3% ($n = 448$) of the traditional students were.

Table 4.2

Chi-square Analysis of Student Age Groups and Socioeconomic Status

		Socioeconomic status			
Variable	*n*	Non-Pell grant eligible	Pell grant eligible	χ^2	*p*
Student age group				21.14	.000
Traditional (17–22 years of age)	769	321	448		
Nontraditional (23+ years of age)	121	24	97		
Totals	890	345	545		

Further exploration of the socioeconomic status variable along with race/ethnicity showed that 89.6% of the students who classified themselves as Black/African American had low socioeconomic status, well above the 61.2% of all first-time students. At the same time, only 54.2% of the White students met the definition of low socioeconomic status and were deemed eligible for a Pell Grant. The other categories of race/ethnicity demonstrated percentages of Pell Grant-eligible students in line with their overall proportion of the study.

In terms of residency, 77.3% of the students in the study were residents of the state of Iowa and the remainder came from another state or country outside of Iowa. When comparing socioeconomic status with residency, 69.8% of the nonresidents were categorized as low socioeconomic status in contrast with only 58.7% of the Iowa residents. In reviewing different race/ethnicity categories with residency, 78.6% of the Black/African American students were nonresidents, 28.7% of the Hispanic students were nonresidents, and only 6.2% of White students were nonresidents.

Results showed that 19.0% (n = 169) of students indicated being a first-generation college student with neither parent ever having attend any college or having other postsecondary education. To investigate whether first-generation college students differ in their socioeconomic status, a chi-square statistic was computed. Assumptions were checked and were met. As shown in Table 4.3, the Pearson chi-square results indicate a statistically significant relationship between being a first-generation college student and having low socioeconomic status. Of the 19% (n = 169) students who were categorized as being first-generation students, 71.6% (n = 121) were eligible for a Pell Grant, and only 58.8% (n = 424) of the non-first-generation students were eligible for a Pell Grant.

Table 4.3

Chi-square Analysis of First-Generation Status and Socioeconomic Status

Variable	*n*	First-generation status		χ^2	*p*
		Yes	No		
Socioeconomic status				9.44	.002
Non-Pell grant eligible	345	297	48		
Pell grant eligible	545	424	121		
Totals	890	721	169		

The final demographic component shows that students who came from a graduating class of fewer than 50 students made up 14.5% (n = 96) of the sample, 30.0% of those studied came from a graduating class of 51–100, 16.1% came from a class of 101–200, 6.5% from a class of 201–300, 24.7% from a class of 301–400, and 8.1% of students graduated with over 400 students in their graduating class.

Academic Characteristics of First-Year Students

To gain a better understanding of the academic profile of the new students in this study, data on variables that relate to student preparedness, involvement in student success courses and services on campus as well as student transcript information were collected and are shown in Table 4.4.

Among the study group, nearly one third (32.8%, n = 143) completed high school with a GPA of 3.00 (B) or above. Another 50.2% (n = 372) left high school with a GPA of 2.00 to 2.99 (C), and 17.0% of the new students had a GPA lower than a 2.00 at graduation.

IVCCD has mandatory placement, which requires students to take a placement test before they can be placed into a freshman level writing or math class. Students often will take the ACT test while in high school to demonstrate their academic preparedness. They also can take the COMPASS test in the college's testing office to show evidence of their

ability to do college-level work. Students who score below the calibrated cut scores for math and writing are required to successfully complete a developmental course first.

The data from this study showed that 54.3% (n = 483) students tested below the freshman level in math and 43.2% (n = 385) tested below the freshman level in writing. Despite having approximately half of the study sample testing below the freshman-level

Table 4.4

*Academic Characteristics of IVCCD First-Year Students (*N = *890*)

Variable	*n*	%
High school final grade point average		
3.50–4.00	95	12.8
3.00–3.49	148	20.0
2.50–2.99	194	26.2
2.00–2.49	178	24.0
<2.00	126	17.0
Academic preparedness		
Low score on math placement test	483	54.3
Low score on writing placement test	385	43.2
Enrollment in developmental coursework Fall 2012		
Enrolled in developmental math course	225	25.3
Enrolled in developmental writing course	206	23.1
Participated in precollege orientation		
Yes	618	69.4
No	272	30.6
Enrollment in college experience course		
Yes	620	69.7
No	270	30.3
TRIO participant		
Yes	47	5.3
No	843	94.7
Fall 2012 GPA distribution		
3.50–4.00	185	20.8
3.00–3.49	168	18.9
2.50–2.99	107	12.0
2.00–2.49	96	10.8
1.00–1.99	141	15.8
0.00–0.99	193	21.7

requirements, only 23.1% (n = 206) enrolled in a developmental writing course and only 25.3% (n = 225) enrolled in a developmental math course in their first term of enrollment.

The *Annual Condition of Iowa's Community Colleges* (Iowa Department of Education, 2011) reports that 30% of all 2010 Iowa high school graduates enrolled at a community college the following fall. Of those 8,097 immediate enrollees, 2,679 (33%) enrolled in a developmental education course in the fall. Most of the developmental course taking came through developmental math with 2,082 courses having a math prefix. There were 934 developmental English courses taken by the immediate enrollee group. While these statewide numbers are higher than IVCCD's, it demonstrates that the phenomenon of student unpreparedness is widespread.

Students that have tested at a developmental level do have the opportunity to take a challenge test that was developed by the IVCCD faculty, and if successful, they are able to move directly into the freshman-level course. This may explain a portion of the gap between the number of students who should have taken developmental courses and those who actually enrolled in one of those courses.

IVCCD offers a series of initiatives designed to effectively integrate new students into campus life and culture early in their first semester. These first-year experience programming efforts include the precollege orientation session and the College Experience course. Students are encouraged to attend a precollege orientation session during the summer prior to starting classes. This session is designed to get students registered for the correct courses, provide them with an understanding of college policies and services available, and answer questions that students have about their enrollment. Over two-thirds (69.4%, n = 618) of the new students attended a precollege orientation.

New students who were enrolled in an Associate of Arts (AA) degree program were required to successfully complete the 1-credit-hour College Experience course (SDV108). All students were encouraged to enroll in the course, but those who were seeking an AA degree were required to complete this to meet graduation requirements. During the Fall 2012 term, 69.7% (n = 620) students enrolled in the College Experience. This course was designed to assist students in developing an academic plan, gain a better understanding of how to navigate through the college process, and develop lifelong skills such as time management and stress management as well as an appreciation for diversity.

When crosstabs were run based on students that enrolled in the College Experience course and their subsequent persistence to the Spring 2013 term, positive results were found. Findings showed that 80.2% of the students enrolled in the College Experience course persisted to the Spring 2013 term while only 71.1% of the students that did not enroll in the College Experience course persisted to the Spring 2013 term.

The TRIO program was relatively new to IVCCD, the college having been a recipient only since 2010. TRIO is a federal outreach and student services program designed to identify and provide services for individuals from disadvantaged backgrounds, including students from first-generation and low-income backgrounds. In addition, it was designed to help inspire and support students in their pursuit of a college degree as they transition to college. The program encourages students to meet regularly with their advisors, complete periodic grade checks, and complete a long-term plan of study. During the Fall 2012 term, 5.3% (n = 47) of the students in the study sample were identified as being TRIO eligible.

The final component shown in Table 4.4 is a distribution of grades for the students in the study based on their term GPA at the end of the Fall 2012 term. Among the students in

the study, 20.8% (n = 185) of the students had a GPA of at least a 3.50 or above and another 18.9% (n = 168) had a GPA between a 3.00 and 3.49. There was only a small difference in percentages between students with a 2.50 to 2.99 GPA (12.0%) and those with a 2.00 to 2.49 GPA (10.8%). Students whose GPA fell below 2.00 (15.8%) and those with a GPA below a 1.00 (21.7%) would have been placed on a warning or termination status, respectively, and might have had to appeal their status to return the subsequent semester.

Student Life Characteristics of First-Year Students

The student life characteristics of the first-year students at IVCCD are outlined in Table 4.5. Of the 890 students in the study, 51.0% (n = 454) were attending ECC and 49.0% (n = 436) were attending MCC or Iowa Valley Community College Grinnell. Most (82.4%, n = 733) were seeking an Associate of Arts degree and the remaining students (17.6%, n = 157) were enrolled in a career and technical program.

Among the students in the study, 40.1% (n = 357) were living on campus and 59.9% (n = 533) were classified as commuter or off-campus students. Of the 357 students living on campus, 77.6% (n = 277) were enrolled at ECC and 22.4% (n = 80) were attending MCC.

Only 17.4% (n = 155) of the students in the study were participating in intercollegiate athletics during the Fall term. However, some sports did not begin until the spring term and those student athletes would not be reflected as such in this study. Of the 155 total student athletes, 60.6% (n = 94) were enrolled at ECC and 39.4% were enrolled at MCC.

In terms of the race/ethnicity of the student athletes, the largest percentage 49.0%, (n = 76) identified as White/Caucasian, followed by Black/African American at 31.0% (n = 48). In addition, 11.6% of the student athletes classified themselves as Hispanic followed by 2.6%

who identified as American Indian or Alaska Native, 1.3% who indicated they identify with two or more races, and 4.5% whose race/ethnicity were unknown.

Table 4.5

*Student Life Characteristics of IVCCD First-Year Students (*N = *890)*

Variable	*n*	%
Campus attendance		
Enrolled at Ellsworth Community College	454	51.0
Enrolled at Marshalltown Community College	436	49.0
Program enrollment		
Associate of Arts degree	733	82.4
Career & tech degree/diploma	157	17.6
Residence life classification		
Living on campus	357	40.1
Commuter	533	59.9
Residence life by campus		
Ellsworth Community College	277	77.6
Marshalltown Community College	80	22.4
Intercollegiate athletics participant		
Yes	155	17.4
No	735	82.6
Intercollegiate athletes by campus		
Ellsworth Community College	94	60.6
Marshalltown Community College	61	39.4
Intercollegiate athletes by race		
American Indian or Alaska Native	4	2.6
Asian	0	0.0
Black/African American	48	31.0
Hispanic of any race	18	11.6
White/Caucasian	76	49.0
Two or more races	2	1.3
Race/ethnicity unknown	7	4.5
Intercollegiate athletes by gender		
Female	41	26.5
Male	114	73.5
Intercollegiate athletes living on campus		
Yes	136	87.7
No	19	12.3

Among the student athletes 73.5% (n = 114) were male and 26.5% (n = 41) were females. Most of the student athletes (87.7%, n = 136) were living on campus.

Profile of Students Who Did Not Persist

The characteristics of the 201 students from the study who did not persist to the Spring 2013 term are outlined in Table 4.6. Of that group, 52.7% (n = 106) were males. That percentage is very similar to the percentage of males in the overall study (53.9%).

A review of race/ethnicity shows that the largest groups of students to leave the institution were White/Caucasian at 54.7% (n = 110) and African Americans at 25.9% (n = 52) of the students. The next largest group was Hispanic at 10% (n = 20).

Looking at the age groups, the largest group of students who did not persist came from the 18–22-year-old age category at 82.1% (n = 165) followed by the 23–26-year-old age category at 6.5% (n = 13). The rest of the age groups had fewer than 10 students who did not return for the Spring 2013 term.

The percentages of students from Iowa who left were very comparable to the student population in this study, as 75.6% (n = 152) of the students who did not persist were from Iowa. In addition, only 22.9% (n = 46) of students who didn't persist categorized themselves as first-generation college students. Students in the low socioeconomic status group were 70.6% (n = 142) of this sample.

The last section in the profile shows the grade distribution for the students who did not persist to the Spring semester. The two largest categories were students who had the lowest term GPAs: 62.2% (n = 125) of those with a GPA of 0.00–0.99 ("D" grade or below)

Table 4.6

Demographics of IVCCD First-Year Students Who Did Not Persist to Spring 2013 (N = *201*)

Variable	*n*	%
Gender		
Female	95	47.3
Male	106	52.7
Race/ethnicity		
American Indian or Alaska Native	6	3.0
Asian	0	0.0
Black or African American	52	25.9
Hispanic of any race	20	10.0
White/Caucasian	110	54.7
Two or more races	4	2.0
Race/Ethnicity unknown	9	4.5
Age groups		
17 or below	3	1.5
18–22	165	82.1
23–26	13	6.5
27–30	7	3.5
31–39	8	4.0
40–55	4	2.0
56 & above	1	.5
Residency		
Iowa resident	152	75.6
Non-Iowa resident	49	24.4
First generation college student		
Yes	46	22.9
No or unknown	155	77.1
Socioeconomic status		
Pell grant eligible	142	70.6
Not Pell grant eligible	59	29.4
Fall 2012 semester grade point average distribution		
3.50–4.00	8	4.0
3.00–3.49	18	9.0
2.50–2.99	11	5.5
2.00–2.49	12	6.0
1.00–1.99	27	13.4
0.00–0.99	125	62.2

and 13.4% (*n* = 27) of those with a GPA of 1.00–1.99 (between grades “C” and “D”). All of those students would have been placed on some kind of academic or financial aid warning or

termination based on IVCCD's policy on satisfactory academic progress. Although in some cases they could have returned to the college, they may have had to file an appeal to return or speak to an advisor before registering for classes.

Measures of Academic and Social Integration

The SENSE instrument was administered during the fourth and fifth weeks of the Fall 2012 academic term. From this survey, a total of 675 valid responses were gathered for the data set. For the purposes of this research, 17 variables were selected from Questions 18 and 19 to gauge students' first impressions of the college and assess their earliest relationships with faculty, staff and peers. Those questions along with their mean scores and standard deviations are detailed in Table 4.7.

An exploratory factor analysis was conducted with the SENSE data set to determine if there were any intercorrelations related to a student's academic and social engagement in the early weeks of college. The factor analysis was used to evaluate the collective influence of student interactions and to create measures of academic and social integration that will be applied in the logistic regression. The exploratory factor analysis with varimax rotation was performed using 17 variables selected from Questions 18 and 19 related to peer-to-peer interactions in class, peer-to-peer interactions out of class, and student-faculty interactions. The KMO measure of sampling adequacy was .792, indicating it was adequate for conducting a factor analysis. Bartlett's test of sphericity was significant at $p < .001$.

Table 4.7

SENSE Survey Questions with Mean Scores and Standard Deviations

Survey question	*M*	*SD*
Question 18[a]		
18b. The instructors at this college want me to succeed.	4.38	0.645
18k. All instructors had activities to introduce students to one another	3.57	1.087
18q. At least one other student whom I didn't previously know learned my name	4.33	0.772
18r. At least one instructor learned my name	4.44	0.744
18s. I learned the name of at least one other student in most of my classes	4.38	0.793
Question 19[b]		
19a. Ask questions in class or contribute to class discussions	2.83	0.820
19g. Work with other students on a project or assignment during class	2.59	0.892
19h. Work with classmates outside of class on class projects or assignments	1.94	1.025
19i. Participate in a required study group outside of class	1.57	0.951
19j. Participate in a student-initiated (not required) student group outside of class	1.47	0.819
19k. Use an electronic tool (e-mail, text messaging, Facebook, class website, etc.) to communicate with another student about coursework	2.38	1.147
19l. Use an electronic tool (e-mail, text messaging, Facebook, class website, etc.) to communicate with an instructor about coursework	2.52	1.090
19m. Discuss an assignment or grade with an instructor	2.23	0.957
19n. Ask for help from an instructor regarding questions or problems related to class	2.37	0.979
19q. Discuss ideas from your readings or classes with others instructors outside of class	1.77	0.964
19r. Discuss ideas from your readings or classes with others outside of class (students, family, co-workers, etc.)	2.23	1.091
19s. Skip class	1.54	0.833

[a]Coded as: 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree.
[b]Coded as: 1 = Never, 2 = Once, 3 = Two or three times, 4 = Four or more times.

As shown in Table 4.8, the exploratory factor analysis yielded five composite variables (factors) of student interactions. Three of the factors, Academic Interactions, Social Interactions, and Interactions Outside of the Class, had Cronbach's alpha reliabilities greater than .70 which indicates acceptable reliability. Two of the factors, Outside of the Classroom Influencers and Instructor Support, had Cronbach's alpha reliabilities below .60 indicating that none of the items were strongly related to each other. In addition, the items

Table 4.8

Student Engagement Composite Variables

Variable	Factor loading
Academic Interactions (α = 0.744)	
Ask for help from an instructor regarding questions or problems related to class	.704
Discuss an assignment or grade with an instructor	.673
Discuss ideas from your readings or classes with others (students, family, co-workers, etc.) outside of class	.661
Ask questions in class or contribute to class discussions	.659
Discuss ideas from your readings or classes with instructors outside of class	.597
Work with other students on a project or assignment during class	.496
Social Interactions (α = 0.782)	
At least one other student whom I didn't previously know learned my name	.824
I learned the name of at least one other student in most of my classes	.819
At least one instructor learned my name	.775
Interactions Outside of Class (α = 0.702)	
Work with classmates outside of class on class projects or assignments	.778
Participate in a required study group outside of class	.759
Participate in a student-initiated (not required) student group outside of class	.714
Outside of Classroom Influencers (α = 0.498)	
Use an electronic tool (e-mail, text messaging, Facebook, class website, etc.) to communicate with another student about coursework	.749
Use an electronic tool (e-mail, text messaging, Facebook, class website, etc.) to communicate with an instructor about coursework	.711
Skip class	.478
Instructor Support (α = *0.433)*	
All instructors had activities to introduce students to one another	.715
The instructors at this college want me to succeed	.583

with a factor loading of <0.60 were removed for the recoding of the constructs. This includes the final two variables from the Academic Interactions construct with factor loadings of .597 and .496, respectively.

Following this exploratory factor analysis, variables under each of the factors were recoded to be used as variables for the logistic regression. These recoded variables provided a measure for student engagement as it relates to the predictors of student retention.

Intercorrelations

The intercorrelations among the predictor variables are shown in Table 4.9. The three highest (and significant) correlations were student enrolled in a developmental English course (EnrEnglDevCourse) with tested at developmental course level for English (UnprepEngl, $r = .661$), student enrolled in a developmental math course (EnrMathDevCourse) with tested at developmental course level for math (UnprepMath, $r = .498$), and student enrolled in a developmental math course (EnrMathDevCourse) with student enrolled in a developmental English course (EnrEnglDevCourse, $r = .309$).

These correlations should come as no surprise. Students that take the placement test (either ACT or Compass) and score at a developmental level in math and English would naturally need to enroll in a developmental course. That said, it is surprising that these correlations aren't even stronger. As Bailey (2009) noted, there are high numbers of students that are referred to developmental education but never enroll in it.

In terms of the recoded variables from the SENSE survey, the highest correlation came between the student's academic interactions (AcademicInt) and student's interactions outside of the classroom (InteractionsOutofClass, $r = .217$) and student's social interactions (SocialInteractions) and student's interactions outside of the classroom (InteractionsOutofClass, $r = .243$) both of which were statistically significant.

Of the 17 predictor variables examined, only one had correlation coefficient greater than .50 (EnrEnglDevCourse and UnprepEngl, $r = .661$), representing a strong relationship. Thirteen correlation coefficients in the moderate category, .20 to .50 ($r = .217$ to $r = .498$), and 113 could be categorized as weak with correlation coefficients between –.20 and +.20 ($r = –.194$ to $r = .190$). Results can be found on Table 4.9.

Table 4.9

Intercorrelations Among the Predictor Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. UnprepMath	—	.307**	.131**	–.099	–.344**	.190**	.150*	.033	.307**	.498**	–.041	–.291**	.060	–.088	–.064
2. UnprepEngl		—	–.149*	–.010	–.072	.081	.132*	–.091	.661**	.242**	–.048	–.170**	–.012	–.039	.092
3. Age			—	.052	–.361**	.138*	–.066	–.087	–.069	.078	–.156*	.111	.066	–.061	–.173**
4. Race/ethnicity				—	.308**	–.134*	.027	–.189**	–.004	–.018	.080	.105	–.054	.140*	.071
5. HS GPA					—	–.175**	.080	.097	–.071	–.166**	.229**	.266**	–.194**	.054	.069
6. SES						—	.068	.057	.093	.100	–.049	–.193**	–.018	–.103	–.051
7. First-generation student							—	.056	.161**	.151*	.060	–.097	–.039	.055	.023
8. TRIO participant								—	–.102	–.058	.032	.001	.060	–.067	–.068
9. Enr EnglDev Course									—	.309**	–.025	–.124*	–.017	–.033	.080
10. EnrMathDev Course										—	.074	–.150*	–.044	–.067	–.046
11. Enr in College ExpCourse											—	.033	–.083	.033	.161**
12. Fall GPA												—	.087	.082	–.025
13. AcademicInt													—	.134	.217**
14. Social Interactions														—	.243**
15. Interactions OutOfClass															—

Note. UnprepMath = tested at developmental course level for math, UnprepEngl = tested at developmental course level for English, Age = age at time of Fall enrollment, Race/ethnicity = student's declared race/ethnicity, HS GPA = grade point average upon graduation from high school, SES = (socioeconomic status) student's Pell Grant eligibility, First-generation student = parents have no college experience, TRIO participant = student selected for TRIO program, EnrEnglDevCourse = student enrolled in a developmental English course, EnrMathDevCourse = student enrolled in a developmental math course, Enr in College Exp Course = student enrolled in 1-credit College Experience course, Fall GPA = student's Fall 2012 term grade point average, AcademicInt = recoded SENSE variable of student's academic interactions, SocialInteractions = recoded SENSE variable of student's social interactions, InteractionsOut-OfClass = recoded SENSE variable of student's interactions outside of the classroom.

*$p < .05$. **$p < .01$.

Consistent correlations between students testing into developmental coursework and then taking developmental courses may pose a violation to multicollinearity among predictors. These variables were in separate blocks of the logistic regression model and served to evaluate different circumstances. The demographic statistics in Table 4.4 indicate that, although nearly half of the students in the population test into a developmental course, only about a quarter of them actually enrolled in one. For this reason, this researcher believed there was merit in keeping those variables in the model as potential significant predictors.

Comparative Analysis

Based on the type of each independent variable, three different comparative analyses were used to determine if differences existed between the independent variables and students' persistence to the Spring 2013 term. Those analyses included the independent samples *t*-tests, the Mann-Whitney U test, and cross-tabulations with Pearson chi-square analysis. Independent variables that were nominal and dichotomous were analyzed using cross-tabulations and Pearson chi-square tests. Independent variables that were ordinal and scale variables that were normally distributed were analyzed using the independent samples *t*-test. Variables that violated the assumption of normality were analyzed using the Mann-Whitney U test (Aron et al., 2005; Mertler & Vannatta, 2010; Morgan et al., 2007; Tabachnick & Fidell, 2007; Urdan, 2010).

Independent Sample *t*-Tests

Morgan et al. (2007) states that ordinal variables are "ordered from low to high, such that ranks [can] be assigned" (p. 38). The ordinal variables included in this study are: age, high school grade point average, and Fall 2012 grade point average. The ordinal variables

that did not violate the assumptions of the *t* test were analyzed using inferential statistics through the use of the independent samples *t* test. The variables that violated the assumption of normality were analyzed using the Mann-Whitney U test.

The variances of the dependent variables are evaluated using Levene's test for equality of variances. Results of the Levene's test for equality are displayed in Table 4.10 revealing that two variables, High School GPA and Fall GPA, produced statistical significance ($p < .05$). This finding indicates that the variances of the dependent variables are significantly different and equal variances are not assumed (Morgan et al., 2007; Urdan, 2010). Only one variable, age, did not violate the assumption of equal variances and the Mann-Whitney U was used to analyze that variable.

Table 4.10

Levene's Test for Equality of Variances: Enrolled Spring 2013

Variable	Assumptions	*F*	*P*
Age	Equal variances assumed	.024	.418
High school GPA	Equal variances not assumed	2.246	.000
Fall GPA	Equal variances not assumed	17.132	.000

Skewness of the variable is an important statistic to understand whether a variable is normally distributed. Morgan et al. (2007) reports that a general guideline for normality is a skewness between -1.0 and 1.0. Shown in Table 4.11 are the descriptive statistics for all ordinal variables (age, high school GPA, and Fall 2012 GPA) showing that High School GPA and Fall 2012 GPA had an approximately normal skewness (with skewness between -1.0 and 1.0).

Table 4.11

Descriptive Analysis of Ordinal Variables

Variable	*n*	*M*	*SD*	Skewness	
				Statistic	SE
Age	897	20.59	6.050	3.672	.082
High School GPA	865	2.30	1.100	-0.936	.083
Fall GPA	897	2.26	1.309	-0.475	.082

Mann-Whitney U Test

The ordinal variable that markedly violated the assumptions of the independent samples *t*-test (age) was further examined using the Mann-Whitney U Test to compare student persistence to the Spring 2013 term. The 696 students that persisted to the Spring 2013 term had significantly lower mean scores (434.80) than the 201 students that did not persist (498.18), U = 60,003.50, p = .001, r = -.11. The effect size of -.11 is considered to be small (Morgan et al., 2007). Results are displayed in Table 4.12.

Table 4.12

Comparison of Student Persistence to Spring 2013 on Age

Variable	Mean rank	Mann-Whitney *U*	*p* (2-tailed)	*r*
Age		60,063.50	.001	-.110
Enrolled Spring 2013	434.80			
Not Enrolled Spring 2013	498.18			

Cross-Tabulations and Pearson Chi-Square Tests

Cross-tabulations and Pearson Chi-Square tests were conducted to analyze the nominal and dichotomous variables: students that tested into a developmental math course, students that tested into a developmental English course, socioeconomic status, first-generation student status, TRIO participation, enrollment in a developmental math course, enrollment in a developmental English course, enrollment in the College Experience course, and race/ethnicity.

Prior to conducting the analysis, the assumptions of cross-tabulation and Pearson Chi-Square tests were checked and met: the data for the variables were independent, all of the variables were nominal, and at least 80% of the frequencies were greater than or equal to 5 (Morgan et al., p. 104). Cross-tabulations and Pearson Chi-Square tests determined if students were more or less likely than expected to persist to the Spring 2013 term. The phi coefficient was utilized for 2 x 2 cross-tabulations (unpreparedness for math, unpreparedness for English, socioeconomic status, first-generation status, TRIO participation, enrollment in a development math course, enrollment in a developmental English course, enrollment in the College Experience course). Cramer's V was used for the larger ethnicity cross-tabulation (Morgan et al., 2007; Urdan, 2010).

The cross-tabulation and Pearson Chi-Square for the dichotomous variable academic unpreparedness for math is shown on Table 4.13. The results indicate that students' persistence to the Spring 2013 term differed significantly for academic unpreparedness for math ($\chi^2 = 11.407$, $df = 1$, $p = .003$). The Phi coefficient, which indicates strength of the association between the two variables, was .134.

Table 4.13

Academic Unpreparedness for Math to Enrolled in Spring 2013 Cross-Tabulation

Variable	*n*	Enrolled Spring 2013		χ^2	*P*	*df*
		Yes	No			
Academic unpreparedness for math				11.407	.003	1
No Dev Course Needed	153	131	22			
Needs Dev Course	459	354	105			
Totals	612	485	127			

Displayed in Table 4.14 are the results of the cross-tabulation and Pearson Chi-Square test for the dichotomous variable academic unpreparedness for English. The statistical analysis indicated that students that were prepared in English or unprepared in English differed significantly on their persistence to the Spring 2013 term ($\chi^2 = 9.945$, $df = 1$, $p = .007$). The Phi coefficient, which indicates strength of the association between the two variables, was .109.

Table 4.14

Academic Unpreparedness for English to Enrolled in Spring 2013 Cross-Tabulation

Variable	*n*	Enrolled Spring 2013		χ^2	*P*	*df*
		Yes	No			
Academic unpreparedness for English				9.945	.007	1
No Dev Course Needed	452	364	88			
Needs Dev Course	345	252	93			
Totals	797	616	181			

Displayed in Table 4.15 are the results of the cross-tabulation and Pearson Chi-Square test for the dichotomous variable socioeconomic status. The statistical analysis indicated that students differed significantly in their persistence to the Spring 2013 term

based on their socioeconomic status ($\chi^2 = 10.171$, $df = 1$, $p = .001$). The Phi coefficient, which indicates strength of association between variables, was -.106.

Table 4.15

Socioeconomic Status to Enrolled in Spring 2013 Cross-Tabulation

		Enrolled Spring 2013				
Variable	*n*	Yes	No	χ^2	*p*	*df*
Socioeconomic Status				10.171	.001	1
Not Pell Grant Eligible	350	291	59			
Pell Grant Eligible	547	405	142			
Totals	897	696	201			

The results of the cross-tabulation and Pearson Chi-Square test for the dichotomous variable first-generation status are displayed in Table 4.16. The analysis revealed that persisting to the Spring 2013 term was not significantly different between the first-generation and non-first-generation college students ($\chi^2 = 2.301$, $df = 1$, $p = .129$). The Phi coefficient, which indicates strength of association between variables, was -.051.

Table 4.16

First-Generation Status to Enrolled in Spring 2013 Cross-Tabulation

		Enrolled Spring 2013				
Variable	*n*	Yes	No	χ^2	*p*	*df*
First-Generation Status				2.301	.129	1
No	725	570	155			
Yes	172	126	46			
Totals	897	696	201			

The cross-tabulation and Pearson Chi-Square for the dichotomous variable TRIO participant is shown on Table 4.17. The results indicate that students' persistence to the Spring 2013 term did differ significantly for students that did or did not participate in the

TRIO program ($\chi^2 = 5.510$, $df = 1$, $p = .019$). The Phi coefficient, which indicates strength of the association between the two variables, was .078.

Table 4.17

TRIO Participation to Enrolled in Spring 2013 Cross-Tabulation

		Enrolled Spring 2013				
Variable	*N*	Yes	No	χ^2	*p*	*df*
TRIO Participation				5.510	.019	1
No	850	653	197			
Yes	47	43	4			
Totals	897	696	201			

Displayed in Table 4.18 are the results of the cross-tabulation and Pearson Chi-Square test for the dichotomous variable enrollment in a developmental math course. The statistical analysis indicated that students did not differ significantly in their persistence to the Spring 2013 term based on their enrollment in a developmental math course ($\chi^2 = 0.256$, $df = 1$, $p = .613$). The Phi coefficient, which indicates strength of association between variables, was shown to be .017.

Table 4.18

Enrollment in a Developmental Math Course to Enrolled in Spring 2013 Cross-Tabulation

		Enrolled Spring 2013				
Variable	*n*	Yes	No	χ^2	*p*	*df*
Enrollment in Developmental Math Course				0.256	.613	1
No Dev Course Taken	666	514	152			
Enrolled in Dev Course	231	182	49			
Totals	897	696	201			

Displayed in Table 4.19 are the results of the cross-tabulation and Pearson Chi-Square test for the dichotomous variable enrollment in a developmental English course. The

statistical analysis indicated that students did not differ significantly in their persistence to the Spring 2013 term based on their enrollment in a developmental English course (χ^2 = 2.799, *df* = 1, *p* = .094). The Phi coefficient, which indicates strength of association between variables, was .056.

Table 4.19

Enrollment in Developmental English Course to Enrolled in Spring 2013 Cross-Tabulation

		Enrolled Spring 2013				
Variable	*n*	Yes	No	χ^2	*p*	*df*
Enrollment in Developmental English Course				2.799	.094	1
No Dev Course Taken	688	525	163			
Enrolled in Dev Course	209	171	38			
Totals	897	696	201			

The results of the cross-tabulation and Pearson Chi-Square test for the dichotomous variable enrolled in College Experience course are displayed in Table 4.20. The analysis revealed that there were significant differences in persistence to the Spring 2013 term for students that enrolled in the College Experience course (χ^2 = 9.331, *df* = 1, *p* = .002). The phi coefficient, which indicates the strength of association between the two variables, was .102.

Table 4.20

Enrollment in College Experience Course to Enrolled in Spring 2013 Cross-Tabulation

		Enrolled Spring 2013				
Variable	*n*	Yes	No	χ^2	*p*	*df*
Enrollment in College Experience Course				9.331	.002	1
No	270	192	78			
Yes	627	504	123			
	897	696	201			

The cross-tabulation and Pearson Chi-Square for the nominal variable race/ethnicity is shown on Table 4.21. The results indicate that students' persistence to the Spring 2013 term did differ significantly for race/ethnicity ($\chi^2 = 21.238$, $df = 6$, $p = .002$). Cramer's V, which indicates strength between variables, was .154.

Table 4.21

Race/Ethnicity to Enrolled in Spring 2013 Cross-Tabulation

		Enrolled Spring 2013				
Variable	*n*	Yes	No	χ^2	*p*	*df*
Race/Ethnicity				21.238	.002	6
Unknown	43	34	9			
Hispanic of Any Race	88	68	20			
American Indian/Al Native	14	8	6			
Asian	3	3	0			
Black/African American	154	102	52			
White/Caucasian	584	474	110			
Two or More Races	11	7	4			
Totals	897	696	201			

In summary, three different comparative analyses were used to determine if differences existed between the independent variables and students' persistence to the Spring 2013 term. Those analyses included the independent samples *t*-tests, the Mann-Whitney U test, and cross-tabulations with Pearson chi-square analysis. Independent variables that were nominal and dichotomous were analyzed using cross-tabulations and Pearson chi-square tests. Independent variables that were ordinal and scale variables that were normally distributed were analyzed using the independent samples *t*-test. Variables that violated the assumption of normality were analyzed using the Mann-Whitney U test (Aron et al., 2005; Mertler & Vannatta, 2010; Morgan et al., 2007; Tabachnick & Fidell, 2007; Urdan, 2010).

To assist in selecting the input parameters for the inclusion in the logistic regression model, variables that had a *p*-value of <.05 were used as input variables in this model. Among the background and academic variables tested for associations with persistence to the Spring 2013 term, age ($p < .01$), High School GPA ($p < .001$), Fall GPA ($p < .001$), academically unprepared for math ($p < .01$), academically unprepared for English ($p < .01$), socioeconomic status ($p < .01$), TRIO participation ($p < .05$), enrollment in the College Experience course ($p < .01$), and race/ethnicity ($p < .01$). Three variables were not significant and will not be included in the model: first-generation status, enrollment in a developmental math course, and enrollment in a developmental English course.

Impact of First-Year Experience Programming on Student Retention

In order to determine if participation in first-year experience programming influenced if students were retained in the subsequent spring term, a one-way ANOVA was performed to see if statistically significant differences existed. The independent variable in this study, attendance in the precollege orientation or the College Experience course, was computed from the data of the variables for attendance at precollege orientation and enrollment in the College Experience course, SDV108. The recoding established three distinct groups, (a) attended neither precollege orientation nor the College Experience, (b) attended either precollege orientation or the College Experience but not both, or (c) attended both precollege orientation and the College Experience. The dependent variable for this test was the enrollment in Spring 2013 variable. A *p*-value of <.05 was established for statistical significance. The results are shown in Table 4.22.

Table 4.22

One-Way ANOVA Summary Table Comparing Spring 2013 Enrollment and Involvement in First-Year Experience Programming

Groups	*SS*	*df*	*MS*	*F*	*p*
Between groups	8.597	2	4.299	25.936	.000
Within groups	147.008	887	0.166		
Total	155.606	889			

Results show that between groups, the sum of squares (*SS*) = 8.597, degrees of freedom (*df*) = 2, the mean square (*MS*) = 4.299, *f*-ratio (*F*) = 25.936, and the significance (*p*) < .001. Because the *p*-value was less than .05, the difference found among the three groups was found to be statistically significant.

As shown in Table 4.23 the mean score for students who did not attend either the precollege orientation or SDV108 was .57. Students who attended either the precollege orientation or enrolled in SDV108 had a slightly higher mean score of .72, whereas students who attended both the precollege orientation and enrolled in SDV108 had a higher mean score of .86. The organizational strategy Levene's statistic was 82.179 with 2 and 887

Table 4.23

Means and Standard Deviations Comparing Involvement in First-Year Experience Programming

	Spring 2013 retention		
Involvement	*n*	*M*	*SD*
Attended neither precollege orientation nor SDV108	115	.57	0.497
Attended either precollege orientation or SDV108	312	.72	0.448
Attended both precollege orientation and SDV108	463	.86	0.350
Total	890	.77	0.418

degrees of freedom ($p < .001$). Because the results of the Levene's test were significant the assumption of equal variances was violated.

Post hoc Tukey HSC and Scheffe tests indicated that students who did not attend any of the first-year programming and those who attended either precollege orientation or SDV108 differed significantly in their retention to the spring term ($p < .05$). The post hoc tests also showed that students who did not attend any of the first-year programming or who attended both differed significantly in retention to the spring term ($p < .001$). The third grouping was students, who had attended neither precollege orientation nor SDV108 or who attended both, differed significantly in retention to the spring term ($p < .001$). Results can be found in Table E.1 (Appendix E).

In summary, the findings from the one-way ANOVA would indicate that there are statistically significant differences in the means of the three groups. This would indicate a Type I error has occurred and the null hypothesis for the third research questions has been rejected.

Regression Analysis

A sequential logistic regression analysis was conducted to predict the retention of students from the Fall 2012 term to Spring 2013. The blocked-entry strategy that was employed in this analysis is consistent with the model framework presented in this study (Figure 1.2). Block 1 consisted of the input variables that students had established prior to enrolling: academically unprepared for math, academically unprepared for English, socioeconomic status, age, and high school GPA. The variable, race/ethnicity, was dummy coded with three exhaustive and mutually exclusive dichotomous variables (Hispanic, Black/African American, and White/Caucasian). The other race/ethnicity categories were

suppressed because of low student numbers. Three of the four categories had less than 10 cases each leaving only the unknown category which was deemed not meaningful for analysis.

Block 2 included the environmental variables that were influencers while students were enrolled at IVCCD: TRIO participation, enrolled in the College Experience course, fall GPA, academic interactions, social interactions, and interactions out of class. The dependent variable, or outcome, was a dichotomous variable, enrolled Spring 2013 (coded as 0 = No and 1 = Yes). The SPSS program was utilized for all regression analyses.

The dataset used for this regression analysis was made up of students who were originally in the first-time full-time cohort (n = 890) that completed the SENSE (n=675) instrument. The combination of those two datasets provided for a total of 290 cases. Of the 290 in the sample, 24 were classified as missing cases, leaving a total of 266 cases in this analysis.

Block 1 included eight variables: Hispanic race/ethnicity, Black/African American race/ethnicity, White/Caucasian race/ethnicity, academic unpreparedness for math, academic unpreparedness for English, age at the time of the official Fall semester count, high school GPA at graduation, and socioeconomic status. Collectively the eight variables were not significant. The Hosmer–Lemeshow goodness-of-fit test yielded a chi square (8) of 11.137 and was not significant ($p > .05$). Based on the classification table, the model correctly predicted the outcome 82.3% of the time. The statistics from Block 1 regression analysis are shown in Table 4.24.

Table 4.24

Logistic Regression Analysis of Students Persisting to Spring Block 1

Variable	β	*SE*β	Wald's χ^2	*df*	*p*	*e*β (odds ratio)
Constant	–.292	1.777	0.027	1	.869	0.746
Hispanic	1.079	0.885	1.485	1	.223	2.942
Black/African American	-.212	0.627	0.114	1	.735	0.809
White/Caucasian	.097	0.540	0.032	1	.858	1.101
AcadUnprepMath	–.515	0.526	0.957	1	.328	0.598
AcadUnprepEngl	.289	0.380	0.579	1	.447	1.336
Age	.097	0.078	1.540	1	.215	1.102
High school GPA	.211	0.195	1.168	1	.280	1.234
Socioeconomic status	–.524	0.371	1.993	1	.158	0.592

Note. Hispanic = Hispanic of any race, Black/African American = student race, White/Caucasian = student race, AcadUnprepMath = Tested at developmental course level for math, AcadUnprepEngl = Tested at developmental course level for English, Age = Age at time of fall enrollment, High school GPA = grade point average upon graduation from high school, Socioeconomic status = student's Pell Grant eligibility.

Block 2 added six variables including involvement in the TRIO program, enrollment in the College Experience course, Fall 2012 GPA, academic interactions, social interactions, and interactions outside of class. With the addition of these variables, Block 2 and the model were statistically significant ($p < .01$). See Table 4.25 for results. The Hosmer–Lemeshow goodness-of-fit test yielded a chi square (8) of 5.234 and was not significant ($p > .05$). This would suggest that the model was a good fit with the outcomes. Based on the classification table, the model indicated correct prediction of 36.2% of the nonpersisters and 96.8% of the persisters for a total correct prediction of 85.7% overall.

Table 4.25

Full Logistic Regression Model Analysis of Students Persisting to Spring

Variable	β	*Se*β	Wald's χ^2	*df*	*p*	*e*β (odds ratio)
Constant	–3.345	2.663	1.578	1	.209	0.035
Hispanic	1.225	0.959	1.633	1	.201	3.405
Black/African American	0.302	0.712	0.181	1	.671	1.353
White/Caucasian	0.303	0.609	0.248	1	.619	1.354
AcadUnprepMath	0.092	0.588	0.025	1	.875	1.097
AcadUnprepEngl	0.486	0.423	1.322	1	.250	1.626
Age	0.049	0.090	0.296	1	.586	1.050
HS GPA	–0.139	0.252	0.305	1	.581	0.870
SES	–0.241	0.420	0.329	1	.566	0.786
TRIO participant	1.049	0.931	1.272	1	.259	2.856
Enr in college exp course	0.605	0.500	1.462	1	.227	1.831
Fall GPA	0.953	0.171	31.162	1	.000	2.594
AcademicInt	–0.078	0.307	0.065	1	.799	0.925
SocialInteractions	0.234	0.324	0.521	1	.471	1.263
InteractionsOutOfClass	0.278	0.281	0.975	1	.323	1.320

Note. Hispanic = Hispanic of any race, Black/African American = student race, White/Caucasian = student race, AcadUnprepMath = Tested at developmental course level for math, AcadUnprepEngl = Tested at developmental course level for English, Age = Age at time of fall enrollment, High school GPA = grade point average upon graduation from high school, Socioeconomic status = student's Pell grant eligibility, TRIO participant = student selected for TRIO program, Enr in college exp course = student enrolled in 1-credit College Experience course, Fall GPA = student's Fall 2012 term grade point average, AcademicInt = Recoded SENSE variable of student's academic interactions, SocialInteractions = Recoded SENSE variable of student's social interactions, InteractionsOutOfClass = recoded SENSE variable of student's interactions outside of the classroom.

Results of the logistic regression revealed that a student's Fall 2012 GPA was the only significant predictor of student persistence when all the variables from Block 1 and Block 2 were considered. This corresponds with previous studies, which consistently showed association between students' college academic performance and persistence (Kirby & Sharpe, 2001; Leppel, 2002). Practical analysis of this statistic would indicate that students

were more than two and a half times as likely to persist when their GPA increased by one standard deviation (*SD* = 1.309).

The finding of statistical significance between students' Fall 2012 GPA and persistence to the Spring 2013 term would indicate a Type 1 error has occurred. Therefore, the null hypothesis for the fourth research question has been rejected.

In summary, this chapter provided analyses of descriptive statistics, measures of academic and social engagement, the impact of the first-year experience course, and a prediction analysis based on the first-year students at IVCCD. The types of analyses include frequency, cross-tabulations and Pearson chi-square, Mann-Whitney U, independent samples *t* test, exploratory factor analysis, Pearson correlation, one-way ANOVA, and logistic regression analysis. All data analyses were conducted using IBM SPSS 21.0.

The first area of analysis was the results of descriptive statistics which was divided into four sections: demographic characteristics, academic characteristics, student life characteristics, and profile of students that didn't persist. This information was further extrapolated based on findings in the literature of characteristics that have been shown to impede persistence. Findings similar to those in the literature review regarding the interconnectedness of variables like race/ethnicity, low socioeconomic status, age, and academic unpreparedness were also found in the dataset.

The second area of analysis was an exploratory factor analysis of 17 variables from the Survey of Entering Student Engagement to measure the collective influence of student interactions with students, faculty and staff. Three factors (social interactions, academic interactions, and interactions outside of the classroom) were found to have alpha reliabilities greater than .70 and were recoded for use in the logistic regression analysis. In addition, a

comparative analysis was performed to determine if differences existed between the independent variables and students' persistence to the Spring 2013 term. Significance was found in nine of the twelve variables that were tested for the predictive model. Those nine independent variables will be used in the logistic regression in addition to the three factors that were identified in the exploratory factor analysis.

The third area of investigation was a one-way ANOVA performed to determine if there were statistically significant differences in the means of persistence to the Spring 2013 term between the three distinct groups. The groups were identified as, (a) attended neither precollege orientation nor the College Experience course, (b) attended either precollege orientation or the College Experience course, or (c) attended both precollege orientation and the College Experience course. Statistical significance was found between the groups validating the impact this course is having on retention of students.

The fourth and final analysis was a sequential logistic regression designed to predict the retention of students from the Fall 2012 term to Spring 2013. Following Astin's (1993) I–E–O model, the independent variables were blocked to determine how well each block of the independent variables predicted retention. Variables in Block 1 were demographic and academic characteristics of students. Block 2 contained college influencers and measures of engagement from the exploratory factor analysis with the dependent variable being enrollment in the Spring 2013 term. Results were limited with only one statistically significant finding. Student's Fall 2012 GPA was the only significant predictor of persistence.

CHAPTER 5. DISCUSSION AND CONCLUSIONS

This research was designed to contribute to the literature on retention of community college students. Recent developments in higher education include a theme of accountability. President Obama (2009) clearly laid out his completion agenda designed to raise college graduation rates of young adults. The Iowa community college presidents (Iowa Association of Community Colleges Presidents, 2012) have agreed to work collaboratively to achieve the common priority of increasing the number of certificates and degrees earned by Iowa community college students. This call for increased accountability forces community colleges to look for ways to better retain their students.

This is also a time of trying to do more with less. State funding has declined proportionately over the last decade and more of the rising cost burden has been put off onto students, who meet this burden through student loans. This is a critical time for colleges to strategically approach the areas of retention and student success.

This study provided the findings that support the need for a first-year experience course like the College Experience. Throughout, this dissertation has outlined how to develop an effective course, has provided the data to prove that more students are retained when they enroll than if they don't enroll in such a course, and has provided the best practices information needed to sustain a highly effective program. At a time when funds are scarce and senior-level administrators are forced to reduce rather than add programs, the concept of a first-year experience program is a good fit for many institutions trying to improve student retention.

This chapter presents a discussion regarding the findings in relationship to the literature and analyses, study limitations, implications for future research, and conclusions. These results and conclusions are meant to provide a framework for other practitioners to build upon for the subjects of the first-year experience course, student engagement and retention.

Demographic Characteristics

The first research question framing this study called for a descriptive analysis of student characteristics, which took into account a large subset of variables. Although those variables are helpful in understanding the demographic and social characteristics of students, the literature pointed specifically to race and ethnicity, academic preparedness, socio-economic status, age, and first-generation student status as consistently having been shown to impede student persistence. Below are findings as they relate to those variables.

Race and Ethnicity

Race and ethnicity were found to be related to persistence in several previous studies. According to Cofer and Somers (2001) and Zhao (1999), African Americans were less likely to persist than were White students. These findings were also true for Hispanic students when looking at outcomes (Alexander et al., 2007). The results of the present study do show some resemblance to those findings.

When looking at the characteristics of the students who did not return for the Spring 2013 semester, the percentage of Black/African American students not returning was 25.9% (n = 52) which is substantially higher than their percentage (17.3%, n = 154) in the original sample. The percentage of Hispanic students who did not continue their education to the Spring 2013 semester was 10% (n = 20), only slightly higher than their original percentage

(9.8%) in the original cohort of first-time students. Although White/Caucasian students originally represented 65.1% of the study sample, only 54.7% (n = 110) left after one semester. The relative percentages of other race/ethnicity groups remained relatively unchanged between the Fall 2012 and the Spring 2013 semesters. These findings show the disparity between ethnicities as it relates to student persistence.

According to the U.S. Census Bureau (2012), the poverty rates for African Americans increased from 25.8% in 2009 to 27.4% in 2010 and for Hispanics from 25.3% in 2009 to 26.6% in 2010. At that same time, the poverty rates for non-Hispanic Whites were 9.4% in 2009 and 9.9% in 2010. The results of this study are similar to the findings in other studies for African Americans regarding socioeconomic status. Although 61.2% of the total sample in the study was categorized as low socioeconomic status and eligible for a Pell grant, cross-tabulations run on the African American students showed that 89.6% of them were in the low socioeconomic status group. The Hispanic group results also showed a higher percentage (64.4%) of Pell grant-eligible students than in the total sample. As expected, the White/Caucasian group had only 54.2% of the students eligible for a Pell grant, demonstrating that not as many White/Caucasian students were in the low socioeconomic status category as were in the sample as a whole.

Academic Preparedness

In 2003, NCES reported that 42% of students at public 2-year colleges are required to complete at least one developmental education course. The data in the present study indicated that 54.3% (n = 483) tested below the freshman level on the math placement test. In reviewing the test scores for writing placement, 43.2% (n = 385) of the students fell below the established cut scores to be placed into a freshman-level writing course. Even more

crippling, only 25.3% and 23.1% of the students actually enrolled in a developmental math or writing course respectively, in their first term.

At IVCCD, mandatory placement has only been in place for three years. Often it is difficult to find and keep good instructors for the developmental course sections. The gap between the numbers of students needing development coursework and the number that actually are enrolling may be cause for concern. This may be an area to review and ensure that there are adequate numbers of sections or that proper advising is taking place. There is a stigma about remediation that causes students to be resistant to taking developmental courses. Bailey (2009) notes the high numbers of students that are referred to developmental education but never enrolled in it; these statistics may be the outcome of that.

Research has shown that academic ability based on high school GPA (Hagedorn et al., 2002) also can be significantly associated with student retention. Of the students in the present study who had a high school GPA of lower than 2.00, only 57.9% (n = 73) returned for the Spring term. Of the high school GPA groupings listed in Table 4.4, the percentage of students who persisted to the Spring term dropped with each lower GPA grouping. These results can be found in Table E.2 (Appendix E).

Based on our CCSSE committee's recommendation a year ago, supplemental instruction was implemented and coupled with our developmental math courses. This fall was the second semester of offering supplemental instruction to students. The overarching goal is to have more students successfully complete the developmental math course and then progress to a college-level math course. In addition, a module-based math series was established for our developmental math courses. This allows students to work through the

course at their own pace and has an instructor with them in a computer lab if they have questions.

Socioeconomic Status and Age

Research consistently has showed that students from lower socioeconomic backgrounds wait multiple years after high school to enroll in college (Cabrera & La Nasa, 2001; Perna, 2000; Plank & Jordan, 2001). The findings in this study corroborate that with 80.2% of the nontraditional student population (age 23+) being eligible for a Pell grant in comparison to the traditional age students (ages 17–22) of whom only 58.3% were Pell grant eligible.

The literature also suggests that older students are more likely to drop out of community colleges compared to their younger counterparts (Feldman, 1993; Windham, 1995). When looking at the students who did not persist to the Spring 2013 term and using the same recoded age variables as above, 27.3% (n = 33) of students in the nontraditional student group did not persist to the Spring term compared to a slightly lower 21.8% (n = 168) of the traditional students. All of these findings illustrate the interconnectedness of age and low socioeconomic status and the impact these variables have on persistence.

First-Generation College Students

Recent community college studies have suggested that parental education is positively associated with student persistence (Hoyt, 1999; Summers, 2003; Wild & Ebbers, 2002). The findings in this study suggest the same. Students who indicated that their parents had no prior college persisted to the Spring term at a rate of 72.8% (n = 123). Students with parents who had at least some college experience or a college degree persisted to the Spring term at rate of 78.5% (n = 566). In addition, first-generation students often have lower

family incomes than do non-first-generation students. The chi-square statistics showed that there were significant differences between these two groups and their socioeconomic status, $\chi^2 = 9.44$, $df = 1$, $N = 890$, $p = .002$. See Table E.3 (Appendix E) for the Pearson chi-square results.

As policy makers we need to be cognizant of the impact these background and demographic characteristics have on students and how they potentially impede their ability to be successful. From a practice standpoint, McClenney (Boylan, 2008) suggested the importance of providing an advocate/coach for the most underprepared students. Too often these students are the ones that slip through the cracks and silently leave our campuses. The results of the background and demographic characteristics illustrate the interconnectedness between the variables that continue to have an impact on student success.

One example of the interconnectedness was noted earlier. When cross-tabulations were run on socioeconomic status and race/ethnicity, it was found that 89.6% of the Black/African American students that enrolled in Fall 2012 fell into the low socioeconomic category (eligible for a Pell Grant). That is well above the 61.2% for all first-time students. This classification of low socioeconomic status is based on the student's actual receipt of a Pell Grant rather than student perceptions increasing the validity.

In summary, a review of the background and social demographic characteristics of this cohort of first-time students mirror the findings in the literature. Students are coming to the community college less prepared, more diverse, and with more financial constraints. As enrollments at the community college continue to grow, these characteristics provide significant difficulties in their college lives. Although there are limitations as to what the community college can do to help students with theses background characteristics and/or

financial or even academic problems, the results of this study provide criteria to identify students at risk of dropping out of college. Administrators, faculty, and counselors at the community college should be mindful of these factors so that greater sensitivity can be offered and improved services implemented for students who may be at risk.

Intercorrelations and Student Engagement

The second research question guiding this study addressed identifying levels of student engagement from the SENSE survey. The literature has pointed to academic and social integration as key contributors to student persistence (Pascarella et al., 1983); Pascarella & Terenzini, 1983; Pascarella, Terenzini, & Wolfle, 1986; Tinto, 1988). SENSE was designed to evaluate students' experiences and the connections they make early in their college career. The variables in the SENSE survey that were evaluated for this research focused on peer-to-peer interactions in class, peer-to-peer interactions out of class, and student–faculty interactions.

When reviewing the frequency data for the variables used in the exploratory factor analysis, student responses for questions involving students getting to know one another and feeling that their instructor wants them to succeed are all positive signs of student engagement. The lowest mean scores involved students participating in study groups in and outside of class (Questions 19i and 19j). In terms of engagement, this may be an area that IVCCD and other community colleges could build upon to increase peer-to-peer interactions. Purposeful activities in this area have been shown to be ways to improve student engagement and ultimately improve student success.

Another variable from the SENSE dataset that might require some additional exploration is Question 18k. Students quantify their perceptions that all instructors have

activities to introduce students to one another (1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree). This variable has the lowest mean score ($M = 3.57$) within the series of five questions in 18. As colleges think in terms of academic and social engagement, this might be an area to review.

In an effort to increase academic and social integration, ECC has proposed a multi-day first-year experience program this fall. Residence life students will move in on Sunday and all new students will attend 4 hours of the College Experience course on Monday and again on Tuesday. In addition, students would be involved in interactive activities each evening including a service learning project on Tuesday afternoon. The College Experience class will continue on into the fall semester, maintaining that "cohort" feel of keeping the class together.

This new format was not adopted at MCC and so IVCCD's district calendar has two different start dates for the Fall 2013 semester. This allows the Ellsworth campus the ability to try this new framework as a pilot project and see what the results look like before MCC would potentially adopt something similar. ECC is in the process of developing an evaluation form for students to provide feedback on the multi-day first-year experience program that ECC will implement next fall. The new concept was proposed to a group of current sophomores and they were enthused and supportive of the new format but disappointed that they will not be a part of it. In addition, ECC will ask for feedback from instructors of the College Experience course to gauge their successes as well as opportunities for improvement.

From the SENSE data, results of the exploratory factor analysis indicated that there were three constructs, all with high alpha reliability. For the first construct, Academic

Interactions (α = 0.744), four items describing course-related discussions with teachers, students, or other people (family, coworkers, etc.) with whom the student was familiar loaded onto the construct. This construct corresponds to the concept of academic integration and active learning. Three items loaded onto the second construct, Social Interactions (α = 0.782), which demonstrates students' sense of belonging, an important aspect of Astin's (1984) social involvement theory and Tinto's (1993) social integration theory. Three items loaded onto the third construct, Interactions Outside of Class (α = 0.702), all of which related to student–student interactions outside of class. This construct aligns with both academic and social integration.

In summary, exploratory factor analysis was used to create several of the environmental measures describing academic and social integration. What began as an analysis of 17 variables was paired down to three constructs. In each case, the multi-item composite created a stronger, more reliable and robust measure for the model than would have been available with a single-item measure.

Impact of First-Year Experience Programming on Student Retention

Results from this study's ANOVA support the literature's findings that first-year experience programs serve as a key retention tool (Derby & Smith, 2004). Significant mean differences were found in each of the three groups of students: students who had attended neither of the first-year experience activities, students who had attended one, or those who were involved in both the precollege orientation session and the College Experience course. Although the precollege orientation serves as a bridge to get students prepared for college, previous research along with the results of this study's ANOVA confirms the association between participating in a first-year experience course and student retention.

When crosstabs were run based on students that enrolled in the College Experience course and their subsequent persistence to the Spring 2013 term, positive results were found. Findings showed that 80.2% of the students enrolled in the College Experience course persisted to the Spring 2013 term while only 71.1% of the students that did not enroll in the College Experience course persisted to the Spring 2013 term. This finding further validates the impact the College Experience course is having.

Keeping with the goal of most first-year experience programs, the College Experience class is designed to help students acclimate to campus life. It follows the very foundation of a first-year experience course and is structured to allow students to meet other students, learn about the different offices and services available to them on campus, as well as allowing them to set personal goals and helping them develop a plan to achieve them. At IVCCD, when the College Experience course was developed, there was a concerted effort to review the literature for models that would be a good fit with its student population and the goals it had for its students and the institution.

There are three primary reasons that the College Experience course has been so effective at IVCCD. The first is found in the literature. Like many retention programs and initiatives, with this course there is a focus on academically underprepared students, and although it is important to address the needs of those students identified as underprepared, the literature indicates that these types of effective first-year experience programs and retention initiatives should be offered to all students (Gabrielle, 2002; Magner, 1989; Parker,1997). At IVCCD, the College Experience course is a requirement for all students in a transfer program (seeking an Associate of Arts degree), which makes up about 75% of the student population. Before the course was required, it was often picked up by students who

needed one credit to be a full-time student. In addition, it was thought of as an easy class for students who were already struggling. By making it mandatory, it took away the stigma that it was only underprepared students who should be enrolling in it.

The second reason the College Experience course has been so effective is also grounded in the literature. During the development of the course, strong learning objectives were established along with interactive activities for students to participate in with their peers (Cuseo, 1991). Some of the course topics include understanding the electronic learning management system (ANGEL), developing a 2-year academic plan, understanding the support services provided at the college (tutoring, counseling, etc.), gaining financial literacy, developing or strengthening one's appreciation for diversity, and self-management skills such as time management and stress management. All of these course topics serve to develop the student holistically and instill an appreciation for lifelong learning. Coupling these topics with interactive activities presents students with the opportunity to get to know other students. For example, a diversity activity requires students to take four recipe cards and write down two things that make them similar to their classmates and two things that make them different. Students are asked to stand on the outside perimeter of the classroom. When what is read off the card is something with which students can identify (such as "I have brown hair"), they take one step into the middle of the classroom. By the end of the activity everyone is in the middle, demonstrating that the students all have more in common that perhaps what they see on the surface. Students remember what they do and they remember these activities and the lessons behind them.

The third reason for this course's success is the constant communication and regular meetings by the faculty and staff who are teaching the class. This started out of necessity

because the course went from having a handful of sections each term to needing five or six times that many sections. Most teachers had never taught this course and some had never taught at all. So the idea of meeting weekly or biweekly was to share ideas and best practices to improve everyone's class. At ECC, an instructor handbook was developed that contained PowerPoint presentations, worksheets, and activities that could be used in class. Instructors could develop their own activities or they could access these ready-made teaching tools. The ongoing meetings also allowed for a continuous dialogue of how to make the course better and how to get student feedback and assessment data.

The results of this study's ANOVA substantiate the concept that increased student involvement in these types of purposeful first-year experience programs leads to higher rates of student retention and success. Within the context of Astin's (1991) I–E–O model, this class represents the concept of the environmental interventions that colleges can deploy to increase not only academic and social integration but also retention and student success.

Predictors of Student Retention

The fourth and final inquiry of this study explored the extent to which student characteristics (inputs) along with institutional interventions (environment) predict student retention to the Spring 2013 term. The results revealed that a student's Fall 2012 GPA was the only significant predictor of student persistence when all the variables were considered. This corresponds with previous studies, which consistently showed association between students' college academic performance and persistence (Kirby & Sharpe, 2001; Leppel, 2002). Furthermore, unlike studies that found correlational association between GPA and persistence (DeBerard et al., 2004) the results of this study are based upon logistic regression analysis, indicating that the GPA was a significant predictive variable for student retention.

Knowing that Fall 2012 GPA was a significant predictor to persistence, early identification of at-risk students becomes crucial. It could suggest that what happens to the student after he or she enrolls may be more important than the influence of precollege variables. Therefore, it sheds light on the possibility of enhancing student persistence at the community college through institutional policies and practices intended to enhance a student's GPA and its relational factors. Academic tools such as early warning systems to identify high-risk students could be a solution for administrators to explore. There are limitations to what community colleges can do in order to help students with their background, financial, or academic problems. Administrators, faculty, and counselors at the community college should be aware of these factors so that greater sensitivity can be offered and improved services implemented for students who are at risk.

Although findings in the logistic regression did not demonstrate significance for Hispanic students, there are purposeful efforts to improve retention of Hispanic students that have been established. At MCC, a Hispanic Student Success Specialist was hired to meet the specific needs of the growing Hispanic population. This position serves multiple functions. Students that are interested in starting college are often apprehensive about taking that first step. Having a person of color to work through the admissions and advising process can provide for less anxiety about enrolling in college.

The Student Success Specialist is also knowledgeable about the financial aid process. They can help students complete financial aid forms and answer questions about costs, billing, and the differences in financial aid programs. One of the most significant services that this position has provided is the ability to translate between students and often their parents with other staff members. This most often comes into play with the financial aid

process. Parents are involved in the process providing information about their income but are unable to speak English causing a breakdown in the ability to receive financial aid. This ability to translate between the two languages has been one of the greatest benefits of the position and has also been a positive for our Student Affairs staff as a whole.

The third benefit of having the Hispanic Student Success Specialist position is the outcome of that position visiting our Iowa Valley Education and Training Center. The Education and Training Center serves the Marshalltown community by providing outreach services through skilled training, language learning programs, and educational opportunities. These services are designed to increase individuals' self-esteem while embracing diversity and promoting cultural awareness. Students that are working in their GED and considering taking that next step to higher education can visit with the Student Success Specialist right there at the Education and Training Center and set up a time to visit the campus.

Limitations of the Study

There were several limitations to this study. First, the data collection represents a snapshot of first-time students during the 2012–13 academic year. Tinto (1988) suggested that the integration of students on campus should be investigated for short time periods as well as across the full college enrollment period. A longitudinal study that includes subsequent years' data on persistence and graduation would increase the validity of the findings and allow for great generalizability of conclusions.

Second, to gather better program efficacy data especially as they relate to the College Experience course, a qualitative analysis may be a necessary companion to this study. It would be beneficial to gain a better understanding of students and their paths to success.

This could be accomplished through a case study and could shed light on what experiences promote growth and early engagement.

Third, the sample size was small. The initial cohort of students ($N = 890$) was further decreased to 290 for the logistic regression after student records were merged with SENSE data (student identification number was optional). In addition, this was a single-institution study, which limits the generalizability of findings to other similar-sized institutions (Creswell, 2009).

Fourth, many of the variables in the predictive model were dichotomous. Had there been more ordinal variables in the model, the outcomes may have provided for more useable results. Variables like academic unpreparedness could have used the student's actual placement test scores to provide more specific, scalable outcomes.

Finally, the definition of first-generation students was limited to students whose parents had attended no college. The concept of the first-generation student can also be tied to parents having some college but not a bachelor's degree. This alternate definition would have increased the number of students and may have provided for more robust data for the prediction model.

Implications for Policy and Practice

This study outlines four implications for theory, policy, and practice. First, this study suggests that students who are involved in the College Experience course are retained at a higher level than are those who do not take the course. This finding, along with the increasing number of students coming to community colleges as first-generation college students, with low socioeconomic backgrounds, and often academically unprepared, needs to guide decision-makers to support these retention efforts. In addition, as colleges look at a

more diverse population at their doors, they should be mindful that students also should see more diversity in their classrooms, accomplished by colleges hiring teachers from underrepresented populations to serve as role models and mentors in education.

The second implication from this study comes as a recommendation for policymakers. Given that fall term GPA is the most significant predictor variable for student retention, it's apparent that colleges should focus on improvement of academic performance among students. One of the problems that often occurs on college campuses is that faculty and administrators do not notice that students are falling behind until well into the term. Often, when interventions are attempted, it is too late for the student to recover and the likelihood of academic survival is greatly reduced. Therefore, in order to improve academic performance and student retention, it is recommended that colleges develop an early-warning system for at-risk students.

The third implication from this study aligns with the state and federal focus on accountability and improved student outcomes. Policymakers and higher education administrators could gain a wealth of political capital by having all education sectors working together with a common goal of student success. Projects like the Iowa Community College Completion Initiative (2012) should serve as a model for establishing data metrics and sharing best practices that lead to increased retention and graduation rates. These types of collaborative efforts demonstrate higher education's commitment to the student as well as to the tax payer.

The final suggestion for practice is about using the classrooms effectively. Although this current study could not find a direct relationship between student interactions and persistence, previous researchers have demonstrated the importance of student–faculty

interaction with student persistence (Heverly, 1999; Schmid & Abell, 2003). For many community college students, the classroom is the only place that students and faculty will meet due to job commitments, being older, or having to commute, all of which limits the amount of time students interact with faculty, staff, and the campus community. Therefore, retention programs should be targeted to the classroom setting.

For many students the community college is the only chance they have to pursue a higher education. The retention initiatives that are supported can make a positive difference for many students and provide meaningful learning experiences that will impact them for the rest of their lives.

Recommendations for Future Research

This study was intended to be an initial step in the creation of a model that predicts student retention and to establish if programs like the first-year experience course improve student success. In this section a discussion of next steps for future research of a similar nature are shared.

To more effectively establish the impact of the pre-college and environmental variables, future research should be more longitudinal in nature. This study focused on persistence to the second semester, however, this is not representative of the ultimate goal of attainment of a credential or transfer to a 4-year college or university. Researchers should also consider how other external variables such as family and work obligations impact longer-term student success.

One of the pre-college variables this study focused on was academic unpreparedness. Another area for future research related to academic unpreparedness should include students with disabilities. Research indicates that students with learning disabilities may have

characteristics such as test-taking anxiety that can cause them to place into developmental coursework. Researchers may want to examine the type and extent of the disability and then the extent to which the services available on college campuses are impacting student success.

Further analysis of the first-generation college student variable could better demonstrate the influence this characteristic has on persistence. In this study, a dichotomous variable was used with the definition of "parents attended no college" to identify first-generation college students. By establishing an ordinal variable that categorizes students into multiple groups (parents attended no college, parents attended some college but have less than a bachelor's degree, and parents received a bachelor's degree) further data may be identified demonstrating the influence first-generation status has on student persistence.

While enrollment in the College Experience course and participation in the TRIO program did not show statistical significance in the regression model, they did demonstrate a positive impact on student retention. These results serve as solid support for the continuation and need for these programs. Both programs are grounded in the principles of engagement through faculty/student interactions and student/student interactions and should continue as high priorities in community college retention efforts.

Factors in the logistic regression that demonstrated a negative impact on student persistence should also be addressed. Not surprisingly, testing into a developmental math course and socioeconomic status were both negative predictors of persistence. Recently, supplemental instruction has been added to the developmental math courses that students are enrolling in at IVCCD as a mechanism to provide additional instruction and higher success rates for students. This also could be a sign that students are academically unprepared in math and are simply not enrolling in the developmental math course at all. Grimes and

David (1999) discussed how unprepared students often demonstrate lower self-ratings of ability and lower predictions of future accomplishment. Scoring low on placement tests could serve as another negative in terms of self-efficacy and student success.

It was unexpected that student academic interactions were a negative predictor of persistence. The questions from the SENSE survey that make up this variable are all at the heart of what happens in the classroom and falls into the SENSE benchmark of engaged learning. It is critical that academic affairs professionals establish instructional approaches that foster engaged learning in our classrooms. For our students to be successful, we must provide opportunities for them to be an active participant in purposeful learning experiences in their classes.

There are a variety of formats of the first-year experience course that are different from the one used in this study, the one-credit hour College Experience course. Community colleges have one, two, and three-credit hour courses designed to meet the needs of their students. A cost-benefit analysis of these courses would be beneficial to identify what best meets the needs of both the student and the community college and the impact on student success.

This study grouped students into three distinct categories in research question 3, (a) attended neither precollege orientation nor the College Experience, (b) attended either precollege orientation or the College Experience but not both, or (c) attended both precollege orientation and the College Experience. To further explore the impact of these programs, it may be beneficial to have a fourth group to show the influence of each program independently (precollege orientation or the College Experience course). This could provide another measure of the impact on persistence these programs have.

Because of the highly diverse population found in this study, a qualitative component focused on critical race theory (CRT) should be explored. CRT shifts the lens away from viewing the communities of color as disadvantaged, and instead focuses on and learns from the cultural knowledge, skills, and abilities possessed by socially marginalized groups that often go unacknowledged. As the population in this study as well as across the United States continues to become more diverse, researchers should continue to search for the necessary tools to effectively analyze and transform how we serve students of color in our classrooms.

Final Thoughts & Reflection

Students who feel a connection to other students and the campus community have a greater likelihood to persist and graduate (Astin, 1993). That statement has served as the underlying basis for this research and for many of the practices and programs that have been put into place at IVCCD.

IVCCD has participated in the CCSSE survey since 2004 (Iowa Valley Community College District, 2012b). Involvement in the CCSSE was one of the first steps taken that provided some best practices information and benchmark data that could serve as comparison data with other colleges. This prompted the beginning of the discussions about the first-year experience course. It became the natural exploratory topic for this researcher upon entering a doctoral degree program. After reviewing the literature and researching the success surrounding the first-year experience course, it was appropriate to begin to educate our internal stakeholders.

A district-wide committee was appointed to meet and establish the learning objectives of the SDV108 course along with the student population most at risk. A power point presentation was developed and shared with all faculty and staff to begin the exploration of

the positive impact the course would have on retention and engagement based on the literature. A number of well-respected faculty came forth to support and move this process forward. After about a year of meeting, consensus was found to make it mandatory for all students enrolling in an Associate of Arts degree program. In the Spring of 2012 the faculty senate and the curriculum committee approved it as a requirement for all students seeking an Associate of Arts degree.

In an effort to continuously improve the first-year experience course, faculty were surveyed with respect to topics of the course. Topics that instructors felt students should know on Day 1 included understanding the learning management system (ANGEL), the importance of maintaining electronic communication, the attendance policy and expectations of college course work, and knowing policies such as the drop/add timeframe, etc. As was mentioned earlier in this chapter, a multi-day first-year experience program has recently been designed to bring students in on Sunday, have them be involved in the first-year experience class for four hours on Monday and again on Tuesday with classes starting on Wednesday. The first-year experience class will continue on into the fall semester, maintaining that "cohort" feel of keeping the class together.

This fall's administration of the SENSE survey will provide good feedback and benchmarking data for our district as it relates to student experiences in the first few weeks of classes. During the subsequent spring term, IVCCD will administer the CCSSE survey which serves to provide additional data for the decision-making process. For both the SENSE and CCSSE surveys, the Center for Community College Student Engagement provides a publication with best practices information. These booklets provide programs that other community colleges have developed and are showing favorable results.

All of these initiatives are prominent in the literature as they relate to engagement and student success. Based on this, the researcher will continue to search for best practices, reading the literature, and following the leaders in education as a model to improve the education that we provide.

Terenzini stated, "Do not zero in on finding the silver bullet. There aren't any. The effects of college are cumulative across a range of activities" (Center for Community College Engagement, 2012, p. 1). The mission of the community college is to take students from whatever point they are at in their academic journey and move them forward. This research has pointed out characteristics such as race/ethnicity, being a first-generation college student, coming from a low socioeconomic background, and being academically unprepared which appear to have an impact on student success. There are many initiatives in the literature that provide us with a greater chance of connecting with students and keeping them moving forward on their educational journey. Terenzini's (Center for Community College Engagement, 2012) advice to keep implementing new ways to engage and serve our students better are the best reminders for those of us that participate in the academy.

APPENDIX A. 2009 SURVEY OF ENTERING STUDENT ENGAGEMENT (SENSE)

(Copyright © Community College Survey of Student Engagement. Reprinted with permission.)

SENSE Survey of Entering Student Engagement — a CCCSE Initiative

SURVEY OF ENTERING STUDENT ENGAGEMENT

Instructions: It is essential that you use a No. 2 pencil to complete this survey. Mark your answer as shown in the following example:

CORRECT MARK ●
INCORRECT MARKS ✓ ✗ ⊖ ⊙

1. **Have you taken this survey in another class THIS SEMESTER/QUARTER?**
   ○ Yes ○ No

2. **Thinking about THIS SEMESTER/QUARTER, how would you describe your enrollment *at this college*?**
   ○ Full-time ○ Less than full-time

3. **Did you begin college at this college or elsewhere?**
   ○ Started here ○ Started elsewhere

4. **While in high school, did you earn college credit for one or more courses?** (Mark all that apply)
   ○ No
   ○ Yes, at this college
   ○ Yes, at a different college
   ○ Yes, at my high school

5. **In addition to taking courses at this college, were/are you also enrolled at a 4-year college or university during YOUR FIRST SEMESTER/QUARTER?**
   ○ Yes ○ No

6. **How many semesters/quarters have you been enrolled *at this college*?**
   ○ This is my first semester/quarter
   ○ This is my second semester/quarter
   ○ This is my third semester/quarter
   ○ This is my fourth semester/quarter
   ○ I have been enrolled more than four semesters/quarters

7. **How many courses did you enroll in for YOUR FIRST SEMESTER/QUARTER *at this college*?**
   ○ One ○ Three
   ○ Two ○ Four or more

8. **Did you add or drop any classes within the FIRST THREE WEEKS OF YOUR FIRST SEMESTER/QUARTER *at this college*?**
   ○ Yes, without discussing my decision with a college staff member or instructor
   ○ Yes, after discussing my decision with a college staff member or instructor
   ○ No, I did not add or drop any courses

9. **Of the courses you enrolled in during YOUR FIRST SEMESTER/QUARTER *at this college*, how many did you drop after the first day of class?**
   ○ None ○ Two ○ Four or more
   ○ One ○ Three

10. **When did you register for your courses for YOUR FIRST SEMESTER/QUARTER *at this college*?** (Mark only ONE)
    ○ More than one week before classes began
    ○ During the week before classes began
    ○ During the first week of classes
    ○ After the first week of classes

3/8" spine perf

SAMPLE

PLEASE DO NOT MARK IN THIS AREA

SERIAL #

11. **The following statements are about this college's orientation for new students.** (Mark all that apply)
- ○ I took part in an online orientation prior to the beginning of classes
- ○ I attended an on-campus orientation prior to the beginning of classes
- ○ I enrolled in an orientation course as part of my course schedule during my first semester/quarter at this college
- ○ I was not aware of a college orientation
- ○ I was unable to participate in orientation due to scheduling or other issues

12. **This set of items asks you about your earliest experiences *at this college*. To respond, please think about your experiences FROM THE TIME OF YOUR DECISION TO ATTEND THIS COLLEGE THROUGH THE END OF THE FIRST THREE WEEKS OF YOUR FIRST SEMESTER/QUARTER.**

	Yes	No
a. Before I could register for classes I was *required* to take a placement test (COMPASS, ASSET, ACCUPLACER, SAT, ACT, etc.) to assess my skills in reading, writing, and/or math	○	○
b. I took a placement test (COMPASS, ASSET, ACCUPLACER, SAT, ACT, etc.)	○	○
c. I was exempt from taking a placement test at this college	○	○

13. **My placement test scores indicated that I needed to take a Developmental course (also referred to as Basic Skills, College Prep, etc.) in the following areas.** (Mark all that apply)
- ○ Didn't take a placement test
- ○ Developmental Reading
- ○ Developmental Writing
- ○ Developmental Math
- ○ Didn't place into any Developmental courses

14. **This college *required* me to enroll in classes indicated by my placement test scores during my FIRST SEMESTER/QUARTER.**
○ Yes ○ No

15. **With regard to financial assistance (scholarships, grants, or loans, etc.) to help with your college costs, mark a response for each of the following items.**

	Yes	No
a. I applied for financial assistance (scholarships, grants, or loans, etc.)	○	○
b. I was notified I was eligible to receive financial assistance (scholarships, grants, or loans, etc.)	○	○
c. I received financial assistance funds (scholarships, grants, or loans, etc.) before classes began	○	○

16. **When did you first apply for financial assistance.** (Mark only ONE)
- ○ 3 or more months before classes began
- ○ 1 to 2 months before classes began
- ○ Less than 1 month before classes began
- ○ After classes began
- ○ I did not apply for financial assistance

17. **In which of the following types of courses were you enrolled during your FIRST SEMESTER/QUARTER *at this college*?** (Respond to each item)

	Enrolled	Not enrolled
a. Developmental Reading (also referred to as Basic Skills, College Prep, etc.)	○	○
b. Developmental Writing (also referred to as Basic Skills, College Prep, etc.)	○	○
c. Developmental Math (also referred to as Basic Skills, College Prep, etc.)	○	○
d. An English course taught specifically for students whose first language is not English (ESL, ESOL)	○	○
e. A course specifically designed to teach skills and strategies to help students succeed in college (e.g., a college success or student success course)	○	○
f. An organized "learning community" (two or more courses that a group of students take together)	○	○

3/8" spine part

18. This set of items asks you about your earliest experiences ***at this college***. To respond, please think about your experiences FROM THE TIME OF YOUR DECISION TO ATTEND THIS COLLEGE THROUGH THE END OF THE FIRST THREE WEEKS OF YOUR FIRST SEMESTER/QUARTER. (Respond to each item)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
a. The very first time I came to this college I felt welcome	○	○	○	○	○
b. The instructors at this college want me to succeed	○	○	○	○	○
c. All the courses I needed to take during my first semester/quarter were available at times convenient for me	○	○	○	○	○
d. I was able to meet with an academic advisor at times convenient for me	○	○	○	○	○
e. An advisor helped me to select a course of study, program, or major	○	○	○	○	○
f. An advisor helped me to set academic goals and to create a plan for achieving them	○	○	○	○	○
g. An advisor helped me to identify the courses I needed to take during my first semester/quarter	○	○	○	○	○
h. A college staff member talked with me about my commitments outside of school (work, children, dependents, etc.) to help me figure out how many courses to take	○	○	○	○	○
i. The college provided me with adequate information about financial assistance (scholarships, grants, loans, etc.)	○	○	○	○	○
j. A college staff member helped me determine whether I qualified for financial assistance	○	○	○	○	○
k. All instructors had activities to introduce students to one another	○	○	○	○	○
l. All instructors clearly explained academic and student support services available at this college	○	○	○	○	○
m. All instructors clearly explained course grading policies	○	○	○	○	○
n. All instructors clearly explained course syllabi (syllabuses)	○	○	○	○	○
o. I knew how to get in touch with my instructors outside of class	○	○	○	○	○
p. At least one college staff member (other than an instructor) learned my name	○	○	○	○	○
q. At least one other student whom I didn't previously know learned my name	○	○	○	○	○
r. At least one instructor learned my name	○	○	○	○	○
s. I learned the name of at least one other student in most of my classes	○	○	○	○	○
t. I have the motivation to do what it takes to succeed in college	○	○	○	○	○
u. I am prepared academically to succeed in college	○	○	○	○	○

3/8" spine perf

SERIAL # PLEASE DO NOT MARK IN THIS AREA

19. During the FIRST THREE WEEKS OF YOUR FIRST SEMESTER/QUARTER *at this college*, about how often did you do the following? (Respond to each item)

	Never	Once	Two or three times	Four or more times
a. Ask questions in class or contribute to class discussions	○	○	○	○
b. Prepare at least two drafts of a paper or assignment before turning it in	○	○	○	○
c. Turn in an assignment late	○	○	○	○
d. Not turn in an assignment	○	○	○	○
e. Participate in supplemental instruction (extra class sessions with an instructor, tutor, or experienced student)	○	○	○	○
f. Come to class without completing readings or assignments	○	○	○	○
g. Work with other students on a project or assignment during class	○	○	○	○
h. Work with classmates outside of class on class projects or assignments	○	○	○	○
i. Participate in a required study group outside of class	○	○	○	○
j. Participate in a student-initiated (not required) study group outside of class	○	○	○	○
k. Use an electronic tool (e-mail, text messaging, Facebook, MySpace, class Web site, etc.) to communicate with another student about coursework	○	○	○	○
l. Use an electronic tool (e-mail, text messaging, Facebook, MySpace, class Web site, etc.) to communicate with an instructor about coursework	○	○	○	○
m. Discuss an assignment or grade with an instructor	○	○	○	○
n. Ask for help from an instructor regarding questions or problems related to a class	○	○	○	○
o. Receive prompt written or oral feedback from instructors on your performance	○	○	○	○
p. Receive grades or points on assignments, quizzes, tests, or papers, etc.	○	○	○	○
q. Discuss ideas from your readings or classes with instructors outside of class	○	○	○	○
r. Discuss ideas from your readings or classes with others outside of class (students, family, co-workers, etc.)	○	○	○	○
s. Skip class	○	○	○	○

3/8" spine perf

PLEASE DO NOT MARK IN THIS AREA

SERIAL #

20. This section asks three questions about a variety of college services. Answer ALL THREE QUESTIONS for each service indicating (1) whether you knew about it, (2) how often you used it, and (3) how satisfied you were. To respond, please think about your experiences FROM THE TIME OF YOUR DECISION TO ATTEND THIS COLLEGE THROUGH THE END OF THE FIRST THREE WEEKS OF YOUR FIRST SEMESTER/QUARTER.

	(1) Did you KNOW ABOUT it?		(2) How often did you USE it?				(3) How SATISFIED were you with it?			
	Yes	No	Never	Once	Two or three times	Four or more times	Very	Some-what	Not at all	N/A
a. Academic advising/planning	○	○	○	○	○	○	○	○	○	○
b. Career counseling	○	○	○	○	○	○	○	○	○	○
c. Job placement assistance	○	○	○	○	○	○	○	○	○	○
d. Face-to-face tutoring	○	○	○	○	○	○	○	○	○	○
e. Online tutoring	○	○	○	○	○	○	○	○	○	○
f. Writing, math, or other skill lab	○	○	○	○	○	○	○	○	○	○
g. Financial assistance advising	○	○	○	○	○	○	○	○	○	○
h. Computer lab	○	○	○	○	○	○	○	○	○	○
i. Student organizations	○	○	○	○	○	○	○	○	○	○
j. Transfer credit assistance	○	○	○	○	○	○	○	○	○	○
k. Services to students with disabilities	○	○	○	○	○	○	○	○	○	○

21. This set of items asks you about your earliest experiences ***at this college***. To respond, please think about your experiences FROM THE TIME OF YOUR DECISION TO ATTEND THIS COLLEGE THROUGH THE END OF THE FIRST THREE WEEKS OF YOUR FIRST SEMESTER/QUARTER. (Respond to each item)

Within a class, or through another experience at this college:	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
a. I learned to improve my study skills (listening, note taking, highlighting readings, working with others, etc.)	○	○	○	○	○
b. I learned to understand my academic strengths and weaknesses	○	○	○	○	○
c. I learned skills and strategies to improve my test-taking ability	○	○	○	○	○

22. Thinking about your experiences FROM THE TIME OF YOUR DECISION TO ATTEND THIS COLLEGE THROUGH THE END OF THE FIRST THREE WEEKS OF YOUR FIRST SEMESTER/QUARTER, what has been your MAIN source of academic advising (help with academic goal-setting, planning, course recommendations, graduation requirements, etc.)? (Mark only ONE)

- ○ Instructors
- ○ College staff (not instructors)
- ○ Friends, family, or other students
- ○ Computerized degree advisor system
- ○ College Web site
- ○ Other college materials

3/8" Spine perf

23. **Was a specific person assigned to you so you could see him/her each time you needed information or assistance?**
Yes No

24. **During the FIRST THREE WEEKS OF YOUR FIRST SEMESTER/QUARTER *at this college*, about how many hours did you spend in a typical 7-day week doing each of the following?**

	None	1-5	6-10	11-20	21-30	More than 30
a. Preparing for class (in a typical 7-day week)						
b. Working for pay (in a typical 7-day week)						

25. **When do you plan to take classes *at this college* again?**
I will accomplish my goal(s) during this semester/quarter and will not be returning
I have no current plans to return
Within the next 12 months
Uncertain

26. While in high school, did you	Yes	No	N/A
a. Take math every school year?			
b. Take math during your senior year?			

27. **Would you recommend this college to a friend or family member?**
Yes No

28. **In what range was your overall high school grade average?**
A A- to B+ B B- to C+ C C- or lower

29. **Your sex:**
Male Female

30. **Mark your age group.**
Under 18 20 to 21 25 to 29 40 to 49 65+
18 to 19 22 to 24 30 to 39 50 to 64

	Yes	No
31. Are you married?		
32. Do you have children who live with you and depend on you for their care?		
33. Is English your native (first) language?		
34. Are you an international student or nonresident alien?		

35. **What is your racial/ethnic identification?** (Mark only ONE)
American Indian or Native American
Asian, Asian American, or Pacific Islander
Native Hawaiian
Black or African American, Non-Hispanic
White, Non-Hispanic
Hispanic, Latino, Spanish
Other

36. **What is the highest academic certificate or degree you have earned?** (Mark only ONE)
None Vocational/technical certificate Bachelor's degree
GED Associate degree Master's/Doctoral/Professional degree
High school diploma

37. **Please indicate whether your goal(s) for attending *this college* include the following:** (Respond to all three)

	Yes	No
a. To complete a certificate	○	○
b. To obtain an Associate degree	○	○
c. To transfer to a 4-year college or university	○	○

38. **Who in your family has attended at least some college?** (Mark all that apply)

- ○ Mother
- ○ Father
- ○ Brother/Sister
- ○ Child
- ○ Spouse/Partner
- ○ Legal Guardian
- ○ None of the above

39. **Please provide your student identification number by filling in the corresponding ovals. For example, in the first column, indicate the first number or letter in your student ID number, and so forth.** (OPTIONAL)

(Please begin here)

1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K
L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z

3/8" spine perf

Additional Items
(Please respond to these items if requested)

1	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	13	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
2	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	14	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
3	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	15	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
4	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	16	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
5	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	17	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
6	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	18	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
7	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	19	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
8	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	20	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
9	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	21	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
10	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	22	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
11	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	23	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
12	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	24	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ

3/8" spine perf

Your responses will remain confidential.
No individual responses will be reported.

Thank you for sharing your views.

PLEASE DO NOT MARK IN THIS AREA

SERIAL #

APPENDIX B. TOPICAL CATEGORIES OF SENSE SURVEY AND CORRESPONDING QUESTIONS

Academic Advising/Planning
Q. 18d-g, 20a, 23

Barriers to Persistence
Q. 18h, 24b, 32

Career Counseling
Q. 20b

Educational Goals
Q. 37a-c

Financial Assistance
Q. 15a-c, 16, 18i-j, 20g

Job Skills/Job Placement
Q. 20b-c

Orientation and Registration
Q. 7, 8, 9, 10

Peer-to-Peer interaction in class
Q. 18k, 18q, 18s, 19a, 19g, 19s

Peer-to-Peer interaction out of class
Q. 19h, 19i, 19j, 19k, 19r

Placement (Developmental, ESL)
Q. 12a-c, 13, 14, 17a-d

Reasons for attending college
Q. 37a-c

Relationships
Q. 18a, 18p, 18r

Student–Faculty Interaction
Q. 18b, 18r, 19l, 19m, 19n, 19q

Student Satisfaction
Q. 25, 27

Support Services
Q. 20a-k

Technology
Q. 19k, 19l, 20h

Withdrawing
Q. 25

Work for Pay/Course Load Q. 24b

Writing
Q. 19b

APPENDIX C. STUDY CODEBOOK

Column	Variable Name	Variable Description
	INPUT VARIABLES	
A	Gender	0=Male 1=Female
B	Race/Ethnicity	2=Race & Ethnicity Unknown 3=Hispanic of any race 4=American Indian or Alaskan Native 5=Asian 6=Black or African American 7=Native Hawaiian or Other Pacific Islander 8=White/Caucasian 9=Two or More Races
C	Age	## Blank=No Response
D	High School GPA	0-4.00
E	Year of HS Graduation	CCYY
F	Size of HS Graduating Class	##
G	ACT Score, Math	2-digit number
H	ACT Score, English	2-digit number
I	COMPASS Score, Pre-Algebra	2-digit number
J	COMPASS Score, Algebra	2-digit number
K	COMPASS Score, English	2-digit number
L	Socioeconomic Status	1=Pell Grant Eligible 0=Not Pell Grant Eligible
M	First Generation Student	1=Yes 0=No
N	Residency	1=Iowa Resident 0=Non-Iowa Resident
	ENVIRONMENT VARIABLES	
O	Living Arrangements	1=Living on Campus 0=Commuter
P	TRIO Participant	1=Yes 0=No
Q	Developmental Math Course Grade, Fall 2012	A-F, W Blank—No Developmental Math Course Taken in Fall 12
R	Developmental English Course Grade, Fall 2012	A-F, W Blank—No Developmental English Course Taken in Fall 12
S	Credit Hours Attempted	##
T	Credit Hours Earned	##
U	Enrolled in SDV108	1=Yes 0=No
V	Grade in SDV108	A-F, W Blank—SDV108 Not Taken
W	Athletic Participant	1=Yes 0=No

X	Major Code	5-letter major code
Y	Attended Pre-College Orientation	1=Yes 0=No
Z	Fall 2012 GPA	0-4.00
AA	Enrolled Spring 13	1=Yes 0=No
AB	Academically Unprepared Math	1=Yes 0=No
AC	Academically Unprepared English	1=Yes 0=No
AD	Enrolled Math Developmental Course	1=Yes 0=No
AE	Enrolled English Developmental Course	1=Yes 0=No
AF	Hispanic of any Race	1=Yes 0=No
AG	Black/African American	1=Yes 0=No
AH	White/Caucasian	1=Yes 0=No
	SENSE VARIABLES	
AB	Academic Interactions	Recoded 19n+19m+19r+19a+19q (all 4-pt scale)
AC	Social Interactions	Recoded 18q+18s+18r (all 5-pt scale)
AD	Interactions Outside of Class	Recoded 19h+19i+19j (all 4-pt scale)

APPENDIX D. HUMAN SUBJECTS APPROVAL

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-2207
515 294-4566
FAX 515 294-4267

Date: 11/14/2012

To: Barb Klein
1606 Hidden Valley Dr
Iowa Falls, IA 50126

CC: Dr. Larry Ebbers
N256 Lagomarcino Hall
Dr. Daniel Robinson
N247 Lagomarcino

From: Office for Responsible Research

Project Title: Building Student Connections--A Successful Orientation Course and Community College Retention

The Co-Chair of the ISU Institutional Review Board (IRB) has reviewed the project noted above and determined that the project:

☐ Does not meet the definition of research according to federal regulations.

☒ Is research that does not involve human subjects according to federal regulations.

Accordingly, this project does not need IRB approval and you may proceed at any time. We do, however, urge you to protect the rights of your participants in the same ways you would if IRB approval were required. For example, best practices include informing participants that involvement in the project is voluntary and maintaining confidentiality as appropriate.

If you modify the project, we recommend communicating with the IRB staff to ensure that the modifications do not change this determination such that IRB approval is required.

APPENDIX E. ADDITIONAL RESULTS

Table E.1

Post Hoc Tests: Multiple Comparisons of Student Retention and Involvement in First-Year Experience Programming

Test	(I) OrientCE	(I) OrientCE	Mean Difference	Std. Error	*p*
Tukey HSD					
	Attended Neither FYE Programs	Attended One FYE Program	–.150*	.044	.002
		Attended Both FYE Programs	–.284*	.042	.000
	Attended One FYE Program	Attended Neither FYE Programs	.150*	.044	.002
		Attended Both FYE Programs	–.133*	.030	.000
	Attended Both FYE Programs	Attended Neither FYE Programs	.284*	.042	.000
		Attended One FYE Program	.133*	.030	.000
Scheffe					
	Attended Neither FYE Programs	Attended One FYE Program	–.150*	.044	.003
		Attended Both FYE Programs	–.284*	.042	.000
	Attended One FYE Program	Attended Neither FYE Programs	.150*	.044	.003
		Attended Both FYE Programs	–.133*	.030	.000
	Attended Both FYE Programs	Attended Neither FYE Programs	.284*	.042	.000
		Attended One FYE Program	.133*	.030	.000

Table E.2

Cross-tabulations of High School Grade Point Average and Enrollment in Spring 2013 Term

High school final grade point average	*n*	Enrolled Spring 13	% enrolled
3.50–4.00	95	87	91.6
3.00–3.49	148	128	86.5
2.50–2.99	194	156	80.4
2.00–2.49	178	141	79.2
<2.00	126	73	57.9

Table E.3
Chi-square Analysis of First Generation Students and Low Socioeconomic Status

Variable	*n*	Socioeconomic Status		χ^2	*p*
		Non-Pell Elig.	Pell Grant Elig.		
Socioeconomic Status				9.44	.002
Non-First Gen	721	297	424		
First Generation	169	48	121		
Totals	890	345	545		

REFERENCES

Aizenman, N. C. (2008, February 12). U.S. Latino population projected to soar. *The Washington Post,* p. A03.

Alexander, B. C., Garcia, V., Gonzalez, L., Grimes, G., & O'Brien, D. (2007). Barriers in the transfer process for Hispanic and Hispanic immigrant students. *Journal of Higher Education, 6*(2), 174–184.

Allen, D. (1999). Desire to finish college: An empirical link between motivation and persistence. *Research in Higher Education, 40*, 461–485.

American Association of Community Colleges (2013). Community college fast facts. Retrieved from http://www.aacc.nche.edu/AboutCC/Pages/fastfactsfactsheet.aspx.

Aron, A., Aron, E. M., & Coups, E. J. (2005). *Statistics for the behavioral and social sciences: A brief course* (3rd ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Astin, A. W. (1975). *Preventing students from dropping out.* San Francisco, CA: Jossey-Bass.

Astin, A. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel, 25*(4), 297–308.

Astin, A. W. (1991). *Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education.* New York, NY: Macmillan.

Astin, A. W. (1993). *What matters in college? Four critical years revisited.* San Francisco, CA: Jossey-Bass.

Astin, A. W., Korn, W., & Green, K. (1987). Retaining and satisfying students. *Educational Record, 48*(1), 36–42.

Austin, D. (1988). Building an orientation program from the ground. *Campus Activities Programming, 21,* 41–45.

Bailey, T., & Weininger, E. B., (2002). Performance, graduation, and transfer of immigrants and natives in City University of New York community colleges. *Educational Evaluation and Policy Analysis, 24*(4), 359–377.

Barefoot, B. O. (2000). The first-year experience: Are we making it any better? *About Campus, 4*(6), 12–18.

Barefoot, B., & Fidler, P. (1996). The 1994 national survey of freshman seminar programs: Continuing innovations in the collegiate curriculum (The National Resource Center for the Freshman Year Experience, Monograph No. 20). Columbia: The University of South Carolina.

Bean, J. (1983). The application of a model of turnover in work organizations to the student attrition process. *Review of Higher Education, 6*, 129–148.

Bean, J. P. (2005). Nine themes of college student retention. In A. Seidman (Ed.), *College student retention* (pp. 215–243). Westport, CT: Praeger.

Bensimon, E. M. (2007). The underestimated significance of practitioner knowledge in the scholarship on student success. *Review on Higher Education, 30*, 441–469.

Berkner, L., & Choy, S. (2008). *Descriptive summary of 2003–04 beginning postsecondary students: Three years later* (NCES 2008-174). Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.

Bonham, L. A., & Luckie, J. I. (1993). Taking a break in schooling: Why community college students stop out. *Community College Journal of Research and Practice, 17*(3), 257–270.

Boylan, H. R. (2008). Relentless leader's focus on developmental education: An interview with Byron McClenney. *Journal of Developmental Education, 31*(3), 16-18.

Braxton, J. M., Hirschy, A. S., & McClendon, S. A. (2004). *Understanding and reducing student departure.* San Francisco, CA: Jossey-Bass.

Cabrera, A. F., Castañeda, M., Nora, A., & Hengstler, D. (1992). The convergence between two theories of college persistence. *Journal of Higher Education, 63*, 143–164.

Cabrera, A. F., & La Nasa, S. M. (2001). On the path to college: Three critical tasks facing America's disadvantaged. *Research in Higher Education*, *42*, 119–149.

Center for Community College Engagement. (2012). *A matter of degrees: Promising practices for community college student success (a first look).* Austin, TX: The University of Texas at Austin, Community College Leadership Program.

Chen, H. (2005). *Practical program evaluation.* Thousand Oaks, CA: Sage.

Chickering, A. W., & Gamson, Z. F. (1987). Seven principles for good practice in undergraduate education. *AAHE Bulletin, 39*(1), 3-7.

Choy, S. P., & Bobbit, L. G. (2000). *Low-income students: Who they are and how they pay for their education.* Washington, DC: National Center for Education Statistics.

Cofer, J., & Somers, P. (2001). What influences student persistence at two-year colleges? *Community College Review, 29*, 56–76.

Cohen, A., & Brawer, F. B. (2008). *The American community college* (5th ed.). San Francisco, CA: Jossey-Bass.

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches.* Thousand Oaks, CA: Sage.

Cuseo, J. B. (1991). *The freshman orientation seminar: A research-based rationale for its value, delivery, and content* (Monograph No. 4). Columbia: The National Research Center for the Freshman Year Experience, University of South Carolina.

Cuseo, J. B. (1997). Freshman orientation seminar at community colleges: A research-based rational for its value, content and delivery. (ERIC Document Reproduction Service No. ED411 005)

Cuseo, J., Williams, M., & Wu, S. (1990). *Program assessment of the freshman seminar* (Institutional research report). Rancho Palos Verdes, CA: Marymount College.

DeBerard, M. S., Spielmans, G. I., & Julka, K. L. (2004). Predictors of academic achievement and retention among college freshmen: A longitudinal study. *College Student Journal, 38*(1), 66–81.

Deil-Amen, R. J. (2011). Socio-academic integrative moments: Rethinking academic and social integration among two-year college students in career-related programs. *Journal of Higher Education, 92*(1), 54–91.

Derby, D. C., & Smith, T. (2004). An orientation course and community college retention. *Community College Journal of Research and Practice,* 28, 763–773. doi:10.1080 /10668920390254771

Duncan, A. (2011). *Iowa's wake up call: Remarks by U.S. Secretary of Education Arnie Duncan to the Iowa Education Summit.* Retrieved from http://www.ed.gov/news /speeches/iowas-wake-call

Feldman, M. J. (1993). Factors associated with one-year retention in a community college. *Research in Higher Education, 34*, 503–512.

Fry, R. (2004). *Latino youth finishing college: The role of selective pathways.* Pew Hispanic Center. Retrieved from www.pewhispanic.org

Gabrielle, F. (2002). In the business to retain. *Black Issues in Higher Education, 19*(13), 10.

Gerlaugh, K., Thompson, L., Boylan, H., & Davis, H. (2007). National study of developmental education II: Baseline data for community colleges. *Research in Developmental Education, 20*(4), 1–4.

Grimes, S. (1997). Underprepared community college students: Characteristics, persistence, and academic success. *Community College Journal of Research and Practice, 21*(1), 47–56.

Grimes, S. K., & David, K. C. (1999). Underprepared community college students: Implications of attitudinal and experiential differences. *Community College Review, 27*, 73–92.

Hagedorn, L. S., Maxwell, W., & Hampton, P. (2002). Correlates of retention for African American males in community colleges. *Journal of College Student Retention, 3,* 243–263.

Hagedorn, L. S., Cabrera, A., & Prather, G. (2010). The community college transfer calculator: Identifying the course-taking patterns that predict transfer. *Journal of College Student Retention*, *12*(1), 105-130.

Harper, S. R., & Quayle, S. J. (2009). Beyond sameness, with engagement and outcomes for all. In S. R Harper & S. J. Quayle (Eds.), *Student engagement in higher education: theoretical perspectives and practical approaches for diverse populations* (pp. 1–16). New York, NY: Routledge.

Heverly, M. A. (1999). Predicting retention from students' experiences with college process. *Journal of College Student Retention*, *1*, 3–11.

Horn, L., & Nevill, S. (2006*). Profile of undergraduates in U.S. postsecondary education Institutions: 2003–04: With a special analysis of community college students* (NCES 206-184). Washington DC: National Center for Education Statistics, U.S. Department of Education.

Horn, L., & Nunez, A. (2000). Mapping the road to college: First-generation students' math track, planning strategies, and context of support. *Education Statistics Quarterly, 2*(1), 81–86.

Horwedel, D. M. (2008). Putting first-generation students first. *Diverse: Issues in Higher Education, 25*(5), 10–12.

Hoyt, J. E. (1999). Remedial education and student attrition. *Community College Review, 27*(2), 51–72.

Iowa Association of Community Colleges Presidents. (2012). *Iowa Community College Completion Initiative*. Des Moines, IA: Author.

Iowa Department of Education. (2011). *The annual condition of Iowa's community colleges: 2011*. Retrieved from www.educateiowa.gov /ccpublications/

Iowa Department of Education. (2012). *The annual condition of Iowa's community colleges: 2011*. Retrieved from www.educateiowa.gov /ccpublications/

Iowa Valley Community College District. (2012a). *Enrollment reports (Fall 2007 to Fall 2011).* Retrieved from http://www.iavalley.edu/district/research.html

Iowa Valley Community College District (2012b). *Fact book 2011-2012.* Retrieved from http://www.iavalley.edu/district/research.html

Ishitani, T. T. (2006). Studying attrition and degree completion behavior among first-generation college students in the United States. *Journal of Higher Education, 77*(5), 861–885.

Karp, M. M., Hughes, K. L., & O'Gara, L. (2010). An exploration of Tinto's integration framework for community college students. *College Student Retention, 12*(1), 69–86.

Kinzie, J. (2007). *High-impact practices boost learning, involved parents no problem.* Bloomington IN: University Center for Postsecondary Research. Retrieved from http://nsse.iub.edu/NSSE_2007_Annual_Report/docs/withhold/PressRelease2007.pdf

Kirby, D., & Sharpe, D. (2001). Student attrition from Newfoundland and Labrador's public college. *Alberta Journal of Educational Research, 47*, 353–368.

Kuh, G. D. (2001). Assessing what really matters to student learning: Inside the National Survey of Student Engagement. *Change, 33*(3), 10–16, 66.

Kuh, G. D., Pace, C. R., Vesper, N. (1997). The development of process indicators to estimate student gains associated with good practices in undergraduate education. *Research in Higher Education, 38*, 435–454.

Lanni, J. C. (1997, May). *Modeling student outcomes: A longitudinal study.* Paper presented at the Annual Forum of the Association for Institutional Research, Orlando, FL. (ERIC Document Reproduction Service No. ED 410870)

Lee, J. J., Sax, L. J., Kim, K. A., & Hagedorn, L. S. (2004). Understanding students' parental education beyond first-generation status. *Community College Review, 32*(1), 1–20.

Leppel, K. (2002). Similarities and differences in the college persistence of men and women. *Review of Higher Education, 25*, 433–450.

Levitz, R., & Noel, L. (1989). Connecting students to institutions: Keys to retention and success. In M. L. Upcraft, J. N. Gardner, & Associates (Eds.), *The freshman year experience* (pp. 65–81). San Francisco, CA: Jossey-Bass.

Magner, D. (1989, November 29). Colleges try to insure minority students reach graduation. *The Chronicle of Higher Education, 36*(13), A1, A36–37.

McClenney, K. M. (2007). The community college survey of student engagement. *Community College Review, 35*(2), 137-146.

Mertler, C. A., & Vannatta, R. A. (2010). *Advanced and multivariate statistical methods: Practical application and interpretation* (4th ed.). Glendale, CA: Pyrczak.

Milem, J. F., & Berger, J. B. (1997). A modified model of college student persistence: Exploring the relationship between Astin's theory of involvement and Tinto's theory of student departure. *Journal of College Student Development, 38*(4), 387–400.

Morgan, G. A., Leech, N. L., Gloeckner, G. W., & Barrett, K. C. (2007). *SPSS for introductory statistics: Use and interpretation* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

Murphy, R. O. (1989). Academic and student affairs in partnership for freshman success. In M. L. Upcraft, J. N. Gardner, & Associates (Eds.), *The freshman year experience* (pp. 375–388). San Francisco, CA: Jossey-Bass.

Nakajima, M., Dembo, M., & Mossler, R. (2012). Student persistence in community colleges. *Community College Journal of Research & Practice*, *36*(8), 591–613.

National Center for Education Statistics. (2003). *Remedial education at degree-granting postsecondary institutions in fall 2000.* Washington DC: U.S. Department of Education

National Center for Education Statistics. (2012). *The condition of education 2012*. Retrieved from http://nces.ed.gov/pubs2012/2012045_4.pdf

Nunez, A. M., & Cuccaro-Alamin, S. (1998). *First-generation students; Undergraduates whose parents never enrolled in postsecondary education*. Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Obama, B. H. (2009, February). *Remarks of President Barack Obama—as prepared for delivery*. Address to Joint Session of Congress. Retrieved from http://www.whitehouse.gov/the_press_office/Remarks-of-President-Barack-Obama-Address-to-Joint-Session-of-Congress

Pace, C. R. (1984). *Measuring the quality of college student experiences: An account of the development and use of the college student experiences questionnaire.* Los Angeles: Higher Education Research Institute, University of California, Los Angeles. (ERIC Document No. ED255099)

Parker, C. (1997). Making retention work. *Black Issues in Higher Education, 13*(26), 120–128.

Pascarella, E. T., Dub, P., & Iverson, B. (1983). A test in reconceptualization of a theoretical model of college withdrawal in a commuter institution setting. *Sociology of Education, 56*, 88–100.

Pascarella, E. T., Edison, M. I., Nora, A., Hagedorn, L. S., & Terenzini, P. T. (1998). Does work inhibit cognitive development during college? *Educational Evaluation and Policy Analysis, 20*(2), 75-93.

Pascarella, E. T., & Terenzini, P. T. (1983). Predicting voluntary freshman year persistence/ withdrawal behavior in a residential university: A path analytic validation of the Tinto model. *Journal of Educational Psychology, 85, 215–226.*

Pascarella, E. T., & Terenzini, P. T. (1991). *How college affects students: Findings and insight from twenty years of research.* San Francisco, CA: Jossey-Bass.

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research.* San Francisco, CA: Jossey-Bass.

Pascarella, E. T., Terenzini, P. T., & Wolfle, L. (1986). Orientation to college and freshman year persistence/withdrawal decisions. *Journal of Higher Education, 57*, 155–175.

Peng, C. J., So, T. H., State, F. K., & St. John, E. P. (2002). The use and interpretation of logistic regression in higher education journals: 1988–1999. *Research in Higher Education, 43*(3), 259–293.

Perna, L. W. (2000). Differences in the decision to attend college among African-American, Hispanics, and Whites. *Journal of Higher Education, 71*, 117–140.

Plank, S. B., & Jordan, W. J. (2001). Effects of information, guidance, and actions on postsecondary destinations: A study of talent loss. *American Educational Research Journal, 38,* 947–979.

Porter, S. R., & Swing, R. L. (2006). Understanding how first-year seminars affect persistence. *Research in Higher Education, 47*(1), 89–109.

Provasnic, S., & Planty, M. (2008). *Community colleges: Special supplement to the condition of education 2008* (NCES 2008-33). Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Retrieved from http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2008033

Reisberg, L. (1999, October 8). Colleges struggle to keep would-be dropouts enrolled. *The Chronicle of Higher Education, 46*(7), A54.

Rendón, L. I., Jalomo, R. E., & Nora, A. (2000). Theoretical consideration in the study of minority student retention in higher education. In J. M. Braxton (Ed.), *Rethinking the departure puzzle: New theory and research on college student retention* (pp. 127–156). Nashville, TN: Vanderbilt University Press.

Riehl, R. J. (1994). The academic preparation, aspirations, and first-year performance of first-generation students. *College and University, 70*, 14–19.

Saenz, V., & Barrera, D. (2007). What can we learn from UCLA's "First in My Family" data. *Retention in Higher Education, 21*(9), 1–3.

Sanchez, J. R., & Laanan, F. S. (1997). The economic returns of a community college education. *Community College Review, 25*(3), 73–87.

Schmid, C., & Abell, P. (2003). Demographic risk factors, study patterns, end campus involvement as related to student success among Guilford Technical Community College students. *Community College Review, 31*(1), 1–12.

Sidle, M. W., & McReynolds, J. (2009). The freshman year experience: Student retention and student success. *NASPA Journal, 46*(3), 434–446.

Stage, F. K. (1989). Reciprocal effects between the academic and social integration of college students. *Research in Higher Education, 30*(5), 517–530.

Stanton-Salazar, R. D. (1997). A social capital framework for understanding the socialization of racial minority children and youths. *Harvard Educational Review, 67*(1), 1–40.

Stanton-Salazar, R. D. (2001). *Manufacturing hope and despair: The school and kin support networks of U.S.-Mexican youth.* New York, NY: Teachers College Press.

St. John, E. P. (2003). *Refinancing the college dream.* Baltimore, MD: Johns Hopkins University Press.

Summers, M. D. (2003). Attrition research at community colleges. *Community College Review, 30*(4), 64–84.

Swager, S., Campbell, J. W., & Orlowski, M. A. (1995, May). An analysis of student motivations for withdrawal in a community college. Paper presented at the Annual Forum of the Association for Institutional Research, Boston, MA. (ERIC Document Reproduction Service No. ED 387000)

Swail, W. S., Cabrera, A. F., Lee, C., & Williams, A. (2005). *Latino students and the educational pipelines: A three-part series. Part III: Pathways to the bachelor's degree for Latino students.* Stafford, VA: Education Policy Institute.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Pearson Education.

Terenzini, P. T., Springer, L., Yaeger, P. M., Pascarella, E. T., & Nora, A. (1996). First-generation college students: Characteristics, experiences, and cognitive development. *Research in Higher Education, 37*(1), 1–22.

Thayer, P. (2000). Retention of students from first generation and low income backgrounds. *Opportunity Outlook Journal, 3*(1), 2–8.

Tinto, V. (1975). Dropout from higher education. *Review of Educational Research,* 45, 89–125.

Tinto, V. (1987). *Leaving college: Rethinking the causes and cures of student attrition.* Chicago, IL: The University of Chicago Press.

Tinto, V. (1988). Stages of student departure: Reflections on the longitudinal character of student leaving. *Journal of Higher Education, 59*, 438–455.

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd edition). Chicago, IL: University of Chicago Press.

Tinto, V. (1997). Classrooms as communities: Exploring the educational character of student persistence. *Journal of Higher Education, 68*, 599–623.

Tinto, V. (1989). Stages of student departure: Reflections on the longitudinal character of student leaving. *Journal of Higher Education, 59*, 438–455.

Torres, J. B., & Solberg, S. V. (2001). Role of self-efficacy, stress, social integration, and family support in Latino college student persistence and health. *Journal of Vocational Behavior, 59*, 53–63.

Urdan, T.C. (2010). *Statistics in plain English* (3rd ed.). New York, NY: Routledge.

U.S. Census Bureau. (2012). *Current population survey (CPS). 2011 annual social and economic supplement (ASEC).* Washington, DC. Social, Economic, and Housing Statistics Division. U.S. Census Bureau. Retrieved from http://www.census.gov /hhes/www/poverty/about/overview/index.html

U. S. Census Bureau (2013). *Iowa quickfacts from the US Census Bureau*. Retrieved from http://quickfacts.census.gov/qfd/states/19000.html

Upcraft, M. L., Gardner, J. N., & Barefoot, B. O. (2005). *Challenging and supporting the first-year student.* San Francisco CA: Jossey-Bass.

Wild, L., & Ebbers, L. (2002). Rethinking student retention in community colleges. *Community College Journal of Research, 26*, 503–519.

Wilds, D. J., & Wilson, R. (1998). *Minorities in higher education: Sixteenth annual status report.* Washington, DC: American Council on Education.

Windham, P. (1995). The relative importance of selected factors to attrition at a public community college. *Journal of Applied Research in the Community College, 3*(1), 65–78.

Woodlief, L., & Chavez, L. (2002). *California tomorrow fact sheet: Outcomes for students in California community colleges.* Oakland, CA: California Tomorrow.

Woosley, S. A. (2003). How important are the first few weeks of college? The long term effects of initial college experiences. *College Student Journal, 37*, 201–207.

Woosley, S. A., & Miller, A. (2009). Integration and institutional commitment as predictors of college student transition: Are third week indicators significant? *College Student Journal, 43*(4), 1260–1271.

Zhao, J. C. (1999, May). *Factors affecting academic outcomes of underprepared community college students*. Paper presented at the Annual Forum of the Association of Institutional Research, Seattle, WA. (ERIC Document Reproduction Service No. ED 433762).