# THE IMPACT OF AN INAUGURAL FIRST YEAR EXPERIENCE PROGRAM ON THE RETENTION OF FULL-TIME AND PART-TIME COMMUNITY COLLEGE STUDENTS

**By**

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## ABSTRACT

Student retention has been studied widely as an intermediate process to address the student completion issue in community colleges. Retaining an existing student is much less costly than recruiting a new student, in keeping the same enrollment level. Since time to completion of a credential is the most common way to measure student success, a retained student should finish his or her education faster than a new student.

The purpose of this study was to examine the impact of an inaugural first-year experience program on first-time college student retention of full-time and part-time students in a community college. Three sets of interrelated retention data were analyzed, namely: multi-year macro retention, first-year experience inaugural year micro retention, and first-year success seminar faculty survey.

The multi-year macro retention data set established historical retention rates as a basis for comparison with the retention rate of the first-year experience inaugural year. The first-year experience inaugural year micro retention data set included student intrinsic academic and non-academic factors. The non-academic factors were a combination of many factors, including the socioeconomic and environmental factors. The first-year success seminar faculty survey data set comprised faculty rated student non-academic quantitative data and first-year success seminar focused qualitative data.

Astin's input-environment-outcome framework was used to structure the investigation. A mixed-method approach was carried out by conducting quantitative research of student academic factors and faculty survey responses based on interactions

with students, as well as observations and perceptions of student non-academic factors. Open-ended responses to questions in the survey were analyzed by a qualitative method.

Key findings revealed that the impact of the inaugural first-year experience program on student retention was not statistically significant. However, the outcomes of the first-year success seminar influencing student retention were statistically significant. Students who passed the first-year success seminar had a higher retention rate than those who failed the seminar. It was also statistically significant that full-time students had a higher retention rate than part-time students.

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**TABLE OF CONTENTS**

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

# CHAPTER 1: INTRODUCTION

## PROBLEM STATEMENT

Guan Zhong (685-645 B.C.), a Chinese philosopher and state minister, wrote "When planning for one year, there is nothing better than planting grain. When planning for ten years, there is nothing better than planting trees. When planning for a lifetime, there is nothing better than planting men" (Rickett, 2001, p. 97). "Planting men" was a direct Chinese-to-English translation by Rickett. Other scholars may have interpreted it to mean "educating children." This ancient philosopher emphasized the importance of education for a society in any long range plans.

Nelson Mandela, a former President of South Africa and 1993 Nobel Peace Prize Laureate, said: "Education is the most powerful weapon which you can use to change the world" (Mandela, 2003). Not many people have deep convictions like the great anti-apartheid revolutionary who had the courage to change the world, but many recognize the transformative power of education, including former New York City Mayor Michael Bloomberg who indicated that education can effect a life transformative experience (Louttit, Chong, & Walsh, 2011).

Arne Duncan (2013), former United States (U.S.) Secretary of Education, commented that:

> Education is the key to eliminating gender inequality, to reducing poverty, to creating a sustainable planet, to preventing needless deaths and illness,

> and to fostering peace. And in a knowledge economy, education is the new currency by which nations maintain economic competitiveness and global prosperity (p. 1).

A quarter of a century ago, the U.S. led the world in college education attainment. Its educational leadership position slipped to the 12th place in 2013 (U.S. Department of Education, 2013). Access has been, by default, primarily the sole mission of community colleges. Under President Obama's administration, community colleges have been asked to do more in the areas of student success to prepare students for the knowledge economy and to compete globally for national prosperity. Success of community college students can be the learning of a new skill or the completion of a course. The completion of a short-term certificate or certificate of proficiency is also a success. Ultimately, it could mean the completion of an associate degree. For that to happen, students need to follow and complete their programs of study—one term at a time—until they graduate.

However, the reality is that students are dropping out or stopping out at a high rate after the first semester. According to the National Student Clearinghouse Research Center (2014), only 47% of community college degree-seeking students who enrolled in the fall semester returned to the same community college the following fall semester and 10% transferred to other colleges.

This is a serious student retention issue when more than half of the degree-seeking student body drops out, stops out, or transfers out of the college during the first year. Worse yet, this attrition trend will continue in subsequent years. In order to enable student success, the student retention issue must first be rectified. The problem statement in this study is: how can community college leaders create the right environment centered

about first-year experience in the institution to effectively support students in persevering from the inception to the completion of their educational goals.

## PURPOSE OF THE STUDY

Student retention has been a significant challenge for community colleges because their students are mostly non-traditional (Allison, 1999; Amos, 2010; Bean & Metzner, 1985; Chaves, 2006; Cohen & Brawer, 2008; Ishitani, 2006; Thayer, 2000). A majority of students attend community college part-time, and they are older than traditional students (AACC, 2015; Cohen & Brawer, 2008). Many students work to support themselves and some work to support their families. College is not the only priority but one of the many priorities that shift around for students from day to day. Students often miss classes because of unexpected family or work events that can often take over as the focus of the day. Many community college students are the first in their family who go to college. They are unfamiliar with the college environment and unprepared for the rigors of higher education. They are underprepared in academic areas as well as non-academic areas. The population of students older than the age of 24 is especially susceptible to attrition; this adult population makes up about a half of the total community college student population (AACC, 2015; Chaves, 2006; Howell, 2001).

Many researchers have studied the student retention problem in four-year institutions where it is standard practice for students to attend full-time (Townsend, Donaldson, & Wilson, 2005). Most of these students live on campus and are involved with campus activities. The average student comes from a middle-class family background. Findings from research on part-time students attending baccalaureate institutions may not be readily applicable to community college student retention.

Community colleges serve disproportionally more part-time students. Students at community colleges and four-year institutions have different levels of social and cultural capital, which affect student persistence in higher education (Burns, 2010; Wells, 2008). Wells (2008) showed a 54 percentage point difference in the probability of persistence between high- and low-capital part-time students at four-year institutions. However, that difference was only 17 percentage points at two-year institutions.

Many studies show student retention to be related to academic factors (Cofer & Somers, 2001; Coladarci, Willet, & Allen, 2013; Heiman, 2010; Hoyt, 1999; Jamelske, 2009; Klein, 2013; McKinney, 2013; Miller, 2015; Molnar, 1993; Nakajima, Dembo, & Mossler, 2012; Popiolek, Fine, & Eilman, 2013; Stratton, O'Toole, & Wetzel, 2007). Yet, studies of student retention impacted by non-academic factors are limited. ACT (2010) reported the top seven non-academic factors responsible for student attrition and they were student study skills, personal financial resources, level of student commitment to earning a degree, level of student motivation to succeed, student family responsibilities, level of job demands on students, and student socioeconomic status. Some of these non-academic factors may be addressed by putting systems in place, such as a first-year experience (FYE) program to support student persistence.

The purpose of this study is to examine the effect of an inaugural first-year experience program on the first-time college student retention effort in a mid-western urban community college. The investigation incorporates demographic, socioeconomic, environmental, academic, as well as other non-academic factors, which may impact part-time students differently than full-time students. Data sources for this study come from three areas. The first data source comes from the multi-year college student retention

statistics. The second data source includes all student factors and comes from the College's student records. The third data source comes from a survey of FYE instructors. The first part of the survey concerns student non-academic factors based on instructor observations and perceptions; and the second part of the survey looks for qualitative responses regarding non-academic factors, student retention, and FYE program attributes. Since the FYE program is in its inaugural year, qualitative responses are most useful to identify efficacies and areas for continuous improvement.

## RESEARCH QUESTIONS

Astin (1984), Bean and Metzner (1985), Pascarella and Terenzini (2005), Tinto (1975), and Wilder (1993) concluded previously that student retention was a complex phenomenon. One complexity stems from the definition of student retention. The days of students starting and finishing at the same institution (without stopping in and stopping out) are no longer the norm, particularly for community college and non-traditional students. Students switch among institutions of higher education and swirl around in the selection of a major.

Retention from the perspective of the institution can be vastly different from the student's perspective of retention. The institution focuses on the retention rate and the time-to-credential completion. The student cares less about those concerns but cares more about his or her own personal end goals. Some of the most capable students at University of Texas Pan American treated it as a "community college" and transferred out early to pursue their educational goals at more prestigious universities (Salinas & Llanes, 2003). In McClenney's research, adults 25 years and older utilized community college to pursue multiple goals in obtaining specific knowledge, obtaining a degree, transferring to a

baccalaureate institution, obtaining job-related skills, completing a certificate, updating job skills, changing careers, and making self-improvement (Hamm, 2004). Many students interrupt their pursuit of education due to academic and non-academic reasons, which may be financial, family, health, or personally related.

The focus of this retention study concerning the impact of an inaugural first-year experience program is on the retention of full-time and part-time community college students. This study includes: developing a set of research questions to guide the research, differentiating the study from prior knowledge, and further understanding this complex phenomenon. With this intention in mind, the two research questions as well as their subcategories include:

1. How well does an inaugural first-year experience program work to retain first-time college students in a large mid-western community college? Retention is determined by tracking the fall re-enrollment of each student who enrolled initially in the previous fall semester as a first-time college student.
    a. What is the impact of the overall program?
    b. What is the impact, if any, of the delivery modality of the first-year success seminar? Aggregate student retention data are compared among those who took the seminar in the classroom, online, or blended (hybrid) format.
    c. What is the difference in retention rates between students who passed the first-year success seminar and those who failed the first-year success seminar?

2. Which student characteristics, including academic and non-academic factors, influence student retention in this community college?
    a. What is the impact, if any, of enrollment intensity? Enrollment intensity is measured by the number of credit-hours enrolled in the initial fall semester. An enrollment intensity with 12 or more credit-hours is considered full-time, whereas less than 12 is considered part-time for financial aid purposes.
    b. What is the impact, if any, of delayed college enrollment? Most traditional students start college during the fall term following high school graduation; delayed college enrollment signifies those who take a break between high school and college, regardless of the duration.

The key words from Question 1 are inaugural, program, and first-time. Being the first-ever FYE program for the College in this study, the outcomes may be quite unpredictable. The FYE program is made up of four components that include the new student convocation, first-year success seminar (FYSS), new student orientation, and peer mentoring. Specifically, the first-year success seminar is offered in multiple modes, including a standard classroom setting, online, and a blended version of both (hybrid). First-time college students are those who are new to college as either recent high school graduates or as delayed college attending students. Students attend with different enrollment intensities, which may be classified as full-time or part-time. Effects of these secondary factors on retention are taken into consideration in this study.

The student characteristics in Research Question 2 include student demographics, educational goals, socioeconomic factors, academic factors, and non-academic factors.

Specifically, the 12 non-academic factors included in the instructor (faculty) survey are goal striving, general determination, achievement motivation, academic discipline, study skills, communication skills, emotional control, academic self-confidence, social involvement, perceived social support, financial support, and commitment to college.

## SIGNIFICANCE OF THE STUDY

This study is significant because, most recently, community colleges are in a crossroads of maintaining the traditional open access to students and simultaneously trying to enable student success under a resource-strapped environment. The three primary sources of funding for community colleges are state government appropriations, federal government aid and grants, and student tuition and fees (Barr & McClellan, 2011). Many states are gradually appropriating less money to community colleges due to lower tax revenues. As an extreme, the State of Arizona has voted to defund, starting 2016, the Maricopa County Community College System and Pima Community College, two of the state's largest community college districts (Chen, 2015). Other states try to reduce appropriations by tying some portion of college or university funding to educational completions rather than traditional enrollment counts. Community colleges now have to compromise their resources to strike a balance between open access and student success.

Retaining an existing student is much less costly than recruiting a new student, in keeping the same enrollment level (Allison, 1999). Since time to completion of a credential is the most common way to measure student success, a retained student should finish his or her education faster than a new student. Perhaps the most monumental measure of student success, in the eyes of the public and the government, is the

graduation rate as defined by the Integrated Postsecondary Education Data System (IPEDS).

While the graduation rate is most quoted by the general public, it is also the least understood by most, including college staff, faculty, and administrators. Cook and Pullaro (2010) recounted the short history of the graduation rate and pointed to its narrow IPEDS definition as follows: (a) for full-time, first-time, degree or certificate seeking students; (b) completion at 150% (or 200%) of normal time, that is three (or four) years for a two-year associate degree; (c) yearly cohorts entering the fall semester; (d) those who start and complete in the same institution; and (e) possible part-time enrollment in subsequent terms.

Students who dropout, stop-out, and transfer-out can reduce the graduation rate significantly. Although student retention is one of the most studied higher education phenomena, it is also one of the most complex. First-year experience (FYE) programs, have been documented as an effective means to improve student retention (Goodman & Pascarella, 2006). This research is important in that academic factors, non-academic factors, and environmental factors are all included in the impact study. With the ever-increasing community college enrollment of part-time students, these factors may impact them more than their full-time counterparts concerning retention.

## FIRST-YEAR EXPERIENCE

Over the years, community colleges have developed various programs aiming to improve student retention and completion. First-year experience programs have demonstrated effectiveness in easing the transition from high school to college. Various first-year experience programs have been evaluated by more than 300 institutions. Goals

for FYE programs include student appreciation of liberal education, engaging students in academic pursuits, student campus engagement, community engagement, and skills acquisition needed for academic and life success (Gardner, 2006).

The heart of the FYE program at this mid-western urban community college is the first-year one-semester-credit-hour course named "first-year success seminar." The FYE program was launched officially during the fall semester of 2014. The first-year success seminar (FYSS) helps students engage with the college community, and introduces resources and skills necessary for student success. Topics include personal responsibility, motivation, student support services, career and academic planning, time management, and study skills. The seminar is designed to actively involve students in life-long learning skills. Connecting them with resources and people helps in achieving their academic goals. Their time, both in and out of class, is spent practicing those skills and engaging with campus resources.

The purpose of the seminar is to enrich students with practical skills and techniques that enable them to learn more effectively. The content of the seminar includes material to help students to transition to college and to know what to expect from their experience. Students learn to plan for a career and map out an academic plan. Learning the responsibilities as a student and the resources available to accomplish one's goals is included in the seminar. Information literacy and critical thinking are two life-long skills necessary for students. Upon satisfactory completion of the first-year success seminar, the student should be able to perform the following tasks:

A. Explain characteristics of a college education.
    a. Identify the value of college education.

b. Differentiate between college and other educational experiences.

B. Recognize classroom and college expectations.

a. Locate the academic and student affairs policies in the student handbook.

b. Identify student rights and responsibilities.

C. Engage with student support services and technologies in areas of need.

a. Identify tutoring resources available to students.

b. Identify mentoring programs available to students, by faculty, peer, staff, and student success specialists.

c. Identify resources which may include, but are not limited to, Career Center, Counseling Center, Veteran's services, TRIO (student support services), and Student Life.

d. Use the library and web-based library resources.

e. Use the Blackboard online learning management system.

f. Locate campus-based technologies available to students at college computing service centers.

D. Construct an academic plan through a formalized process.

a. Identify career interests.

b. Identify academic goals.

c. Prepare an academic plan.

E. Evaluate skills required for student success.

a. Identify successful time management skills.

b. Define study skills for success.

c. Identify computer-literacy skills.

d. Develop a plan to improve time management, technology, and study skills.

F. Apply financial literacy skills.

a. Determine student financial responsibility for cost of college attendance.

b. Discuss utilizing financial aid and scholarship funding to finance for college.

## CONCEPTUAL FRAMEWORK

The topic of undergraduate student retention was first studied in a systematic way involving 60 institutions, by John McNeely in 1938 (Demetriou & Schmitz-Seiborski, 2011). Then, in 1975 when Tinto (1975) published his seminal theory on dropout from higher education, retention research intensified. Over the following 40 years, retention models developed by researchers included (Kracher, 2009):

- Tinto's original student integration model,
- Tinto's student departure theory,
- Pascarella and Terenzini's model of student persistence and voluntary dropout,
- Pascarella and Terenzini's model on reconceptualization of college withdrawal,
- Astin's theoretical framework in longitudinal study of student retention efforts,
- Bean's student attrition model,
- Bean and Metzner's model of nontraditional undergraduate student attrition,
- Bean and Eaton's psychological model of college student retention,
- Cabrera's college persistence model of student retention,

- Aitken's conceptual model of nontraditional undergraduate student attrition,
- Berger's theory of capital, social reproduction, and undergraduate persistence,
- Other retention related models.

The conceptual framework employed for this study was based on Astin's input-environment-outcome (I-E-O) model. Inputs reference the characteristics of the student arriving at the institution. Environment represents the elements within the institution system that may include, but are not limited to, policies, programs, faculty, peers, and educational experiences encountered by the student. Outcomes are the transformed characteristics of the student after an exposure period through the environment. Astin classified further the outcomes into a two by two matrix of:

- Type of Outcome
  - Cognitive
  - Affective (or non-cognitive)
- Type of Data
  - Psychological
  - Behavioral

Examples of classified outcome measures can be found in Table 1. The upper left quadrant shows the entries for the psychological-affective type; the upper right, entries for the psychological-cognitive type; the lower left, entries for the behavioral-affective type; and the lower right, entries for the behavioral-cognitive type (Astin, 1993, p. 10).

## RETENTION THEORIES

This is an appropriate place to elaborate more on the theories of retention. Cuseo and Farnum (2011, pp. 2-5) gave the following seven myths about student retention:

- Myth #1: Attrition is a "student problem," not a campus or institutional problem.
- Myth #2: Retention would not be a problem if we just admitted "better students."
- Myth #3: And while we're at it, richer students would help, too.
- Myth #4: Most students drop out because they "flunk out."
- Myth #5: Profiling "leavers" is the best method of understanding attrition.
- Myth #6: It's not the faculty's job to "retain" students but to promote student learning.
- Myth #7: Campuses are already doing all that they can do to improve student retention.

Table 1
*Classification of Student Outcomes by Type of Outcome and Type of Data*

| | Outcome | |
|---|---|---|
| Data | Affective | Cognitive |
| Psychological | Self-concept | Knowledge |
| | Values | Critical thinking ability |
| | Attitudes | Basic skills |
| | Beliefs | Special aptitudes |
| | Drive for Achievement | Academic achievement |
| | Satisfaction with college | |
| Behavioral | Personal habits | Career development |
| | Avocations | Level of educational attainment |
| | Mental health | Vocational achievement |
| | Citizenship | |
| | Interpersonal relations | |

*Note*. Adapted from "What Matters in College?" by A. W. Astin, 1993, San Francisco, CA: Jossey-Bass.

They are called myths because they are not completely true. While there is some truth to them, the other side of each statement needs to be examined. Retention is a

complex phenomenon, especially with community college students. It is a system issue in which solutions involve coordinated efforts by administrators, faculty, and staff.

Based on synthesis of Durkheim's Theory of Suicide and Spady's Descriptive Dropout Model, Tinto (1975) developed a Predictive Theory of Dropout. In Tinto's Predictive Theory, both intrinsic and extrinsic student factors were used to predict student dropout. The intrinsic factors included family background, pre-college schooling, and individual attributes. The extrinsic factors were academic integration and social integration. The intrinsic factors influenced how well the student could be integrated academically and socially into the higher educational institution. These integrations in turn influenced the student's commitment to his or her educational goal and the student's commitment to the institution.

Bean and Metzner (1985) developed a conceptual attrition model for nontraditional undergraduate students. While traditional students were affected by social integration, nontraditional students were affected more by the external environment. Stuart, Rios-Aguilar, and Deil-Amen (2014) built upon Tinto's persistence model and incorporated three foundational areas: human capital theory, social integration, and socio-academic integration, in order to come up with a new framework taking into account the dynamic influence of job markets.

Chaves (2006) completed a survey of theories that focused on adult community college student involvement, development, and retention. This survey included an examination of Tinto's Interactionalist Theory in which student persistence hinged upon his or her integration into the social and intellectual life of the institution. For adult students, the classroom became the institution because their life responsibilities outside of

the classroom limited their amount of time spent on campus. The second theory examined was Astin's Involvement Theory, which included five categories of involvement: academic involvement, faculty involvement, involvement with peers, involvement in work, and involvement elsewhere. The learning and development of the students related directly to both the quality and quantity of student involvement. Additional theories explored by Chaves (2006) included:

- Sanford's Person-Environment Theory
- Schlossberg's Theory of Marginality and Mattering
- Rendón's Theory of Validation
- Chickering's Theory of Identity Development
- Belenky, Clinchy, Goldberger, and Tarule's Theory of Women's Ways of Knowing
- Knowles's Theory of Andragogy
- Kolb's Theory of Experiential Learning and Adults

Demetriou and Schmitz-Sciborski (2011) gave a historical overview on the development of retention theories. Prior to the Morrill Land Grant Act of 1862, the higher educational focus was on institutional survival. Because of the growth of cities and the demand for trained scientists, from 1862 onward, undergraduate retention and graduation became a serious interest of institutions of higher education. One of the first studies of undergraduate retention involved 60 institutions in 1938 and was carried out by John McNeely who examined demographic characteristics, social engagement, and reasons for departure.

The GI Bill, the Civil Rights Movement, the War on Poverty, and the antiwar protests on campus simultaneously created enrollment growth as well as retention concerns. Large scale studies of student attrition in the second half of the 1960s were conducted by Alexander Astin and Alan Bayer. For the subsequent three decades, retention theories emerged in the forms of Spady's social integration, Tinto's academic and social integration, Bean's background characteristics, Swail's integrated student support services, Wyckoff's student, faculty, and staff interactions, and Anderson's academic advising.

In the new millennium, many researchers investigated the benefits of wide-range cross-departmental programming on student retention. Habley found interactions between students and concerned individuals on campus to improve retention. Tinto suggested that the easily accessible academic, personal, and social support services in institutions of higher education should improve undergraduate retention (Demetriou & Schmitz-Sciborski, 2011).

## DEFINITION OF TERMS

*Academic Factors*—are factors related to formal education such as subject matter knowledge, high school grades, college placement test scores, and GPA (Lotkowski, Robbins, & Noeth, 2004, Sommerfeld, 2011).

*Attrition*—means the continual reduction in the number of students from the original cohort, over time.

*Blackboard*—is a web-based learning management system (LMS) software product that offers course management and integrates with student information systems.

*COMPASS*—is an acronym for Computer-adaptive placement assessment and support system, a placement test system used primarily in community colleges.

*Enrollment Intensity*—signifies a full-time or part-time status based on the student's earliest reported enrollment intensity within the entering fall term.

*Environmental Factors*—are made up of policies, programs, faculty, peers, and educational experiences encountered by students, as well as the resources available to students (Astin, 1993).

*First-Year Experience*—is a program that includes first-year success seminar, new student convocation, new student orientation, and peer mentoring for the new entering students.

*First-Year Success Seminar*—is a one-semester-credit-hour course that helps new incoming students with personal responsibility, motivation, student support services, career and academic planning, time management, and study skills.

*Full-time*—is student enrollment status for someone who enrolls to study 12 or more semester credit-hours.

*Grade Point Average*—or GPA is understood to be cumulative throughout this report.

*Likert Scale*—is a psychometric, arbitrary scale used commonly in research to measure relative significance of a statement or question. Intervals between scaling points may be considered equal (Brown, 2010; Colman, Norris, & Preston, 1997).

*Leavers*—are students who withdraw from a course or do not return to the college the next term.

*Non-Academic Factors*—are affective or non-cognitive factors that can be psychological or behavioral. Examples of non-academic factors are self-concept, dispositions,

habits, foundational skills, general knowledge, and interpersonal relations (Lotkowski et al., 2004, Sommerfeld, 2011).

*Modality*—denotes the course delivery format which includes the classroom, online, or hybrid mode.

*Part-time*—is a student enrollment status for someone who enrolls to study less than 12 semester credit-hours.

*Persisters*—are students who complete a course and/or return to the college the next term.

*Retention*—is a condition for a first-time college student who first enrolls in the fall term and enrolls again in the following fall term in the same college.

*Retention Rate*—is calculated based on the ratio of the number of students who return in the following fall term with respect to the original size of the fall cohort of new students, using the Integrated Postsecondary Education Data System (IPEDS) definition.

*SPSS*—stands for statistical package for the social sciences, an IBM software for statistical analysis.

## ORGANIZATION OF STUDY

Chapter 1 provides the overview and rationale of the study. It introduces major components of the study that include student characteristics, the first-year experience program, research questions, the conceptual framework, and their relationships to student retention. A local definition of terms used completes this chapter.

Chapter 2 offers a review of the literature, which is preceded by the state of community colleges. Among other topics, such as community colleges in America and

institutional characteristics, the literature concentrates on two areas. The first area relates to student factors that hamper retention. The second area deals with the various institutional initiatives devised to improve student retention, including first-year experience programs.

Chapter 3 outlines the research methodology for this study of student retention. All high-level elements and their relative hierarchy are depicted in the research design section. The design is influenced directly by the two research questions. The planning part of the research is made up of the data source, population and sample, and survey instrument sections. The implementation part consists of the data collection and data analysis sections. Finally, this chapter ends with discussions on limitations and ethical considerations.

Chapter 4 gives the results and the various analyses used to produce them. Using the IBM SPSS Version 22 statistics software, descriptive analysis is conducted to examine statistics of all variables. In the factor analysis section, quantitative analysis of factors through correlations and regressions is used to study the impact of the first-year experience program on the retention of students. Classical content analysis is the primary technique used for qualitative analysis of the open-ended responses from the instructor survey. Results of Research Questions 1 and 2 are elaborated at the end of this chapter.

Chapter 5, the final chapter, focuses on the discussion, implications, recommendations, and conclusion of the overall study. Major findings concerning student demographic characteristics, differences for full-time and part-time students, academic factors, non-academic factors, first-year success seminar, and student retention are

discussed. Finally, based on the learning from the study, recommendations for future research are proposed, and concluding remarks for this research are provided.

## SUMMARY

This chapter highlighted the need for the student retention study. Student characteristics of community colleges were briefly introduced. Part-time enrollment intensity and non-academic factors of community college students, and full-time status and academic factors—though more common to four-year institution students—were the study priority. The first-year experience program implemented for the first time at this mid-western urban community college to improve student retention was described. Two research questions were introduced to buttress the purpose of this study. Then, the conceptual framework based on Astin's I-E-O model showed the integration of various elements and set the stage for the study.

# CHAPTER 2: REVIEW OF LITERATURE

## INTRODUCTION

This research examines the impact of an inaugural first-year experience program on the retention of full-time and part-time community college students. The literature review starts with a brief history and the state of community colleges in America, then continues with the implications of retention on student success, and ends with the various student and institutional retention related factors, implications, characteristics, and initiatives. The review of the first-year experience program is elaborated.

The literature review is organized and focused first with students, their demographics, their goals, academic factors, and non-academic factors. Next, the impact of student economic situations on student retention is reviewed. Finally, the environment of institutions in terms of their characteristics and initiatives are explored. First-year experience programs, which are one of the most common institutional initiatives deployed to address student retention, are a standalone category.

Academic research conducted at the sites of community colleges are disproportionately sparse compared to that of four-year institutions (Bailey & Alfonso, 2005; Townsend, Donaldson, & Wilson, 2005). According to Townsend, Donaldson, and Wilson, during the period from 1990 to 2003, only eight percent of the journal articles published in five higher education journals could be identified with community colleges.

In spite of this challenge, this literature review includes articles from both community colleges and four-year institutions with emphasis on the former.

## COMMUNITY COLLEGES IN AMERICA

Joliet Junior College was established in 1901 as essentially the first public community college in the nation. There were many reasons for the development of community colleges. The rapid growth of high school graduates seeking additional schooling was one reason. The ready supply of workers needed by businesses and trained at the public expense was another reason. Other claims also included community development, industry attraction, and even class segregation. Students from diverse backgrounds had gained access to institutions of higher education without the democratized promise of equal opportunity in the broader society. Sociologists have spent the past several decades criticizing the class-based system that operates within the community colleges, particularly in those located in large urban populations mainly composed of working class minorities. The traditional mission and purposes of community colleges—open access, developmental education, academic transfer, vocational/technical education, continuing education, and community service—are still relevant today, serving especially those from the lowest socioeconomic classes (Cohen & Brawer, 2008).

Currently, there are more than one thousand community colleges serving over 12 million students a year, in which 60% of students enroll for credit programs and 40% enroll for non-credit programs. Of the for-credit students, 61% attend part-time and 39% enroll full-time. While the median age of a student is 24, the average age is 28. Female students outnumber male students 57% to 43%. The race distributions for White,

Hispanic, Black, Asian/Pacific Islander, and Native American are 50%, 21%, 14%, 6%, and 1% respectively. The remaining eight percent is made up of multi-race at 3%, unknown race at 4%, and nonresident alien at 1%. Thirty-six percent of the student population are the first generation of their families to attend college and 58% receive some form of need-based financial aid (AACC, 2015).

In 2010, President Obama called community colleges unsung heroes and his administration set a target of increasing the number of associate degrees and certificates from community colleges by an additional 5 million over the next 10 years (The White House, 2010). That would be about a 40% increase over the current level. The President's educational attainment initiative aims to achieve the following goals:

- To regain the status of being the most educated nation by 2020
- To allow our citizens to compete effectively in the global economy
- To contain sky-rocketing student debt
- To rebuild the American dream for the middle class

Currently, community college students represent 46% of all U.S. undergraduates (AACC, 2015). However, the six-year completion rate for combined full-time and part-time community college students who started in the fall of 2007, was only 26.5%. One of the reasons for this low attainment is that many students may start out full-time in the first semester but reduce their enrollment intensity for subsequent semesters. Additionally, it seems to be normal for community college students to need to work to support themselves or their families while taking classes. Seventy-three percent of part-time students and 62% of full-time students hold either a full-time or a part-time job. It is worthwhile to note that the six-year completion rate for exclusively full-time students

who started in the fall of 2007 was 42.9%, much higher than the overall average of 26.5% (Juszkiewicz, 2014). Note also that, typically, the three-year (150% of normal time) period is used to show and compare community college outcomes.

While research universities are credited for the technology revolution and the creation of tremendous wealth for a small group of people, community colleges that train factory and healthcare workers in the manufacturing and healthcare sectors are responsible for the sustainability of the middle class. A prosperous manufacturing sector, in particular, helps the nation to compete in the global economy and to drive exports to narrow the four-decade long trade deficit.

In 2012, the estimated outstanding educational debt was $962 billion. Associate degree and certificate completers were each responsible for only 9% of the total. The remaining debt distributions were 15%, 31%, and 35% to those still enrolled with no degree, those who attained a bachelor's degree, and those who dropped out with no degree respectively. So community college completers are a lesser problem in terms of educational debt (Baum & Payea, 2013).

Education attainment correlates strongly with earning potential. The obvious reason is that higher paying jobs require higher levels of education, beyond high school. Another reason is character-related. Those who are successful to complete a college education will likely be more successful in their careers.

The average cost of tuition and fees at a community college is about one-third of the cost at a four-year public institution. Community colleges are the primary, or sometimes the only, option for low-income, first-generation students. There are many program selections to cover industry demands or student interests. Extensive student

services, such as remedial education and bridge programs, are available to those who are socially and/or academically underprepared.

Unfortunately, state funding for community colleges has been shrinking steadily over the past two decades. Most colleges survive by raising tuition, hiring fewer full-time faculty members, and cutting staff positions. Ultimately, these cost saving actions impact the general mission of community colleges—student access and success. Community college students are non-traditional, so many of them encounter barriers daily. Working for a paid job and taking remedial classes are among the most serious barriers. Federal Pell Grant awards are the lifeblood of community college students; 37.7% of them received a Pell Grant in 2011-2012 (Juszkiewicz, 2014).

Under the circumstances described previously, community colleges have been remarkable in providing higher educational opportunities especially to those who are socioeconomically disadvantaged. Measuring graduation rates alone does not give the full picture. When the tracking of students across institutions over six years started in 2007, the National Student Clearinghouse data showed:

- 26.5% completed with degree or certificate at starting two-year institution
- 10% completed at a different four-year institution
- 3.4% completed at a different two-year institution
- 18.9% still enrolled
- 41.2% did not enroll

Some students took longer to complete a credential as in the 18.9% of those who still enrolled (Juszkiewicz, 2014).

Completion after transfer should also be considered a successful outcome for the starting two-year institution. It is interesting to know the different outcomes of the national 2007-2008 cohort of students who transfer with an associate degree versus those without a degree from two-year institutions to four-year institutions. Four years after transfer, 71% of associate degree holders earned a bachelor's or higher degree and 8% still enrolled. In contrast, only 55% of transfers without associate degrees earned a bachelor's or a higher degree and 14% still enrolled (NSCRC, 2012). Students who are persistent at community colleges also tend to be persistent at transfer institutions.

## STUDENT RETENTION

Retention, persistence, attrition, dropout, persister, leaver, non-returning, and withdrawal are some of the most common terms used by researchers to describe the "trimming" process of students in their pursuit of an educational credential. For traditional students, "trimming" may be a good descriptive word, but for non-traditional students, the word "pruning" may be more appropriate to distinguish the relative difference. However, using these terms loosely sometimes is counterproductive trying to advance the knowledge of this attrition phenomenon.

Students of the 21st Century have become either more sophisticated or more elusive. Hagedorn (2006) gave examples of the following types of students: those who take a break from their education, transfer to a different institution, stitch together an education from two institutions, fail an initial college attempt, leap from a community college to a four-year institution but retreat at a later time, partially unload their course load, repeat an unsuccessful attempt of remedial courses, are suspended involuntarily,

and are expelled. While these scenarios are vastly different, to the institution, they are counted as cases of attrition.

The term persistence places the burden on the student but retention is more relevant to the duties of the institution. Institutions have adopted the philosophy of student retention because it is economically sensible and fulfills the requirement of having a system of accountability. Institutions have been developing initiatives one after another aiming to improve student retention. Hagedorn (2006) proposed better definitions and measurements of retentions. The researcher rationalized the use of full-time-equivalent count of students, instead of full-time headcount of students to account for the ever increasing number of non-traditional students. Furthermore, the researcher called for a "pure institutional" and a "pure system" formula to measure persistence at the institutional and national levels.

Nevertheless, the National Student Clearinghouse Research Center provides the current definitions for retention, persistence, and enrollment intensity as follows:

- Retention is defined as continued enrollment (or degree completion) within the same higher education institution in the fall semesters of a student's first and second year.
- Persistence is defined as continued enrollment (or degree completion) at any higher education institution, including one different from the institution of initial enrollment, in the fall semesters of a student's first and second year.
- Enrollment intensity makes the distinction that a student is classified as having started college in a full-time or part-time status based on his or her earliest reported enrollment intensity within the entering fall term. The part-

time grouping comprises half-time and less-than-half-time students, some of whom may be non-degree-seeking (NSCRC, 2014, p. 7).

The recent national 2012 entering fall cohort retention and persistence rates between full-time and part-time enrollment, among all institutional sectors are shown in Table 2 (National Student Clearinghouse Research Center, 2014).

Table 2
*First-Year Retention and Persistence Rates for Students Who Start College in Fall 2012*

| | Two-Year Public | Four-Year Public | Four-Year Private Non-Profit | Four-Year For-Profit |
|---|---|---|---|---|
| Overall Retention Rate | 47% | 68% | 73% | 46% |
| Full-Time Retention Rate | 58% | 77% | 78% | 50% |
| Part-Time Retention Rate | 39% | 39% | 40% | 37% |
| Overall Persistence Rate | 57% | 79% | 83% | 51% |
| Full-Time Persistence Rate | 67% | 86% | 88% | 55% |
| Part-Time Persistence Rate | 52% | 57% | 55% | 42% |

*Note*. All rates are rounded to the whole percent. Adapted from "Snapshot Report: Persistence-Retention" by National Student Clearinghouse Research Center, 2014.

## STUDENT DEMOGRAPHIC FACTORS

Student demographics have been some of the most studied independent variables in education. With the passage of each decade, student demographics are getting more diverse. Community colleges, in particular, are heavily populated with non-traditional students because of their open access mission. Non-traditional students are multi-faceted and are best identified as those who do not conform to the characteristics of a traditional student. A traditional student is one who is single, between the ages of 18 to 22, financially dependent on parents; attends college immediately after high school graduation; enrolls full-time, taking college level courses; and lives on campus (Deil-Amen, 2011; Pelletier, 2010). In the most general sense, students who deviate from any

of the above traditional characteristics can be considered non-traditional. Many non-traditional students are also the first generation in their family to attend college.

Community college students are at risk in terms of retention and success. Many of the risk factors are related to demographics and non-traditional students. These risk factors are worse at two-year institutions than at four-year institutions. Table 3 provides the risk level of each factor in percent (Price, 2004; Seppanen, 1995).

Table 3
*Greater Percentage Distribution of Attrition*

| Risk Factor | WSBCTC[a] State 1993 | 2-yr. Institution[b] Public 2003 | 4-yr. Institution[b] Public 2003 |
|---|---|---|---|
| Part-time Attendance | 74% | 47.40% | 11.20% |
| Delayed Enrollment | - | 45.60% | 18.00% |
| Work Full-time | 43% | 35.10% | 1.50% |
| Financial Independence | - | 34.50% | 8.10% |
| One or More Children | 9% (couple with) | 20.60% | 4.20% |
| GED/HS Dropout | 66% (lack diploma) | 12.10% | 1.80% |
| Single Parent | 7% | 10.00% | 2.40% |
| Minority Students | 37 – 58% | - | - |
| Older Students (>21) | 14 – 23% | - | - |
| Males | 8% | - | - |

*Note*. WSBCTC = Washington State Board for Community and Technical Colleges.
[a] Adapted from "Implications for Retention Strategies of Differential Student Progress Rates and the Literature on Student Retention," by L. Seppanen, 1995, Washington State Board for Community and Technical Colleges, Research report No. 95-4.
[b] Adapted from "Defining the Gaps: Access and Success at America's Community Colleges," by Derek V. Price, 2004. In "Keeping America's Promise: A Report on the Future of the Community College," by K. Boswell and C. D. Wilson. Denver, CO: Education Commission of the State and the League for Innovation in the Community College. Source: NCES, 2013.

For two-year institutions, including both the 1993 and 2003 data, the greatest risk to student retention was part-time enrollment. Working a full-time job was a high-risk indication for attrition also. Surprisingly, couples with one or more children had a higher attrition risk than single parents. Students without a high school diploma were much

worse in 1993 at WSBCTC than the 2003 national trend. Delayed enrollment happened to be the greatest risk for public four-year institution students. In general, the risk distribution of two-year institutions was about four times higher than that of four-year institutions. Not shown in the table from the 2003 data is that more than 70% of new students in public two-year institutions had at least one risk factor as opposed to only 28% of new students in public four-year institutions (Price, 2004).

In general, traditional-age students had higher retention rates than older non-traditional students (Cofer & Somers, 2001; DeWinter, 2013; Feldman, 1993; Fike & Fike, 2008; Hoyt, 1999; Jamelske, 2009; Jepson, Patel, & Troske, 2010; Nakajima et al., 2012; Seppanen, 1995; Stratton et al., 2007; Strayhorn, 2012; Windham, Rehfuss, Williams, Pugh, & Tincher-Ladner, 2014). Data from the 1993 National Postsecondary Student Aid Survey at two-year institutions tended to support this but data from the 1996 survey contradicted and indicated that students over the age of 30 were more persistent (Cofer & Somers, 2001). Seppanen's (1995) 1993 WSBCTC data also contradicted the notion that older students were less persistent. Some researchers indicated that student age is a nonlinear phenomenon concerning retention (Feldman, 1993; Windham et al., 2014). For community college students, Feldman (1993) showed that students between the ages of 20 to 24, or older than 40 had a higher risk. Windham et al. (2014) found agreement in the slightly expanded 19 to 24 age group but contradicted Feldman in the older than 40 age group. The recent national 2012 entering fall cohort data showed that there was little difference in fall to fall retention rate at about 46% between the "21 to 24" age group and the "greater than 24" age group. However the 20 or under age group was much better at 63%. The retention rate of the national average of all ages was about 58%

(NSCRC, 2014). This set of NSCRC data integrated all two-year and four-year institutional sectors, and did not discriminate enrollment intensity.

It was almost universally true that retention of female students was higher than male students (Bremer, Center, Opsal, Medhanie, Jang, & Geise, 2013; Jepson et al., 2010; Mertes & Hoover, 2014; Porter & Swing, 2006; Seppanen, 1995; Smith, 2010; Stratton et al., 2007; Windham et al., 2014). Using the 1990/1994 Beginning Postsecondary Students survey data from the National Center for Education Statistics, Stratton et al. (2007) observed that there was no gender difference in retention for 18 year old students but older female students did persist longer than older male students. The researchers claimed that the reason could have been due to: "Delayed enrollment may be more of a planned event for woman seeking to enter or reenter the labor market after a period of time spent raising children than it is for men" (Stratton et al., 2007, p. 481).

In general, concerning retention with respect to race, racial minorities except Asian had lower retention rates that non-Hispanic White (Bremer et al., 2013; D'Amico, Morgan, Robertson, & Rivers, 2013; Feldman, 1993; Grosset, 1989; Hoyt, 1999; Mertes & Hoover, 2014; Porter & Swing, 2006; Seppanen, 1995). Analyzing the data from a 2001 first-year initiative survey of 20,000 students at 45 four-year institutions, Porter and Swing (2006) found it statistically significant that Black, Asian, multiracial, and unknown race/ethnicity groups were less persistent compared to the White group. Seppanen (1995) identified the Hispanic, Native American, and African American groups of students at WSBCTC having a greater chance of being early leavers. Fike and Fike (2008) studied retention of the 2001, 2002, 2003, and 2004 fall semester populations of students at a Texas public urban community college; the researchers found that upon

controlling for covariates, student age, gender, and race were mostly not statistically significant concerning fall to spring and fall to fall student retentions.

In the category of marital status, using data from the 1990/1994 Beginning Post-Secondary Survey, there were great differences between gender and enrollment intensity but they were not statistically significant, except for the following cases. Male students who got married after initial full-time enrollment in college were 9.4 times more susceptible to dropping out than single male students. The situation for married female students attending college was similar in magnitude; full-time enrollment resulted in a 9.3 times higher propensity of risk for attrition than part-time enrollment, an opposite trend compared to single female students (Stratton et al., 2007).

More than one-third of community college students are first generation students whose parents did not complete a higher education credential other than a high school diploma. The percentage of baccalaureate or higher educated children is proportional to the educational level of parents. Data from the 1999 Chronicle of Higher Education showed that 52.9% of children with baccalaureate educated parents attained a bachelor's degree or higher but only 17.3% of children with high school educated parents attained a bachelor's degree or higher (Abele, 2012). Attrition rates, ordered from lowest to highest, were students with both college educated parents, with one college educated parent, with parents of some college education, and of first generation. First generation students were 8.5 times more likely than students with both college graduated parents to drop out during the second year of college (Ishitani, 2006).

In addition to lower college credential attainment and higher attrition than their peers whose parents were college educated, first generation students had lower high

school grade point averages, scored lower in college admission tests, were less academically prepared, and were more likely required to take remedial courses. First generation students had lower pre-college critical thinking levels and poorer non-academic skills, such as college finances and time management, as compared to their non-first generation peers. They also came from lower socioeconomic backgrounds (Amos, 2010; Thayer, 2000).

## STUDENT CATEGORY

Community college has lower student retention compared to the four-year institution because students at the two types of institutions are different and have different educational goals. While the primary goal of students at four-year institutions is a bachelor's or graduate degree, the goal of students at community colleges varies according to the following distribution (Hoachlander, Sikora, & Horn, 2003):

- Vocational certificate 11%
- No degree or certificate 16%
- Transfer (to a bachelor's degree offering institution) 25%
- Associate degree 49%

The retention characteristics of these four categories of students carry different meanings. Researchers found it statistically significant that students enrolled in vocational programs had higher persistence than those enrolled in transfer programs, true for new college students (Bremer et al., 2013) as well as dual enrollment students (D'Amico et al., 2013). Enrolled students without the desire for a completed degree did so for the purpose of either sampling the college experience, gaining personal enrichment, or improving job-related skills; as such, their relation to the retention statistic

would serve to have little or no meaningful (Hoachlander et al., 2003; Salinas, & Llanes, 2003; Stratton et al., 2007). Community college students with an educational goal of a bachelor's degree are likely to transfer at any time to four-year institutions prior to completing an associate degree. Pennsylvania College of Technology (1993) conducted a survey of first-semester student departures and found 26% of that population had transferred to four-year institutions. Similarly, the San Diego Community College District found in 2001 that 45.9% of all dropouts or stop-outs transferred to other institutions for the next semester (Zhai & Monzon, n.d.). Without the benefit of surveys or longitudinal studies, these persisters may be counted by the debited institution as dropouts. The associate degree category of students is considered the standard in most retention studies of community college students.

## STUDENT ACADEMIC FACTORS

There have been extensive studies of student retention related to student academic factors. These factors can be grouped into three major categories: high school academic standing, college remedial study, and college academic performance. Ishitani (2006) studied attrition and degree completion of more than four thousand first generation college students, and found their high school class ranking a significant attrition factor. Those students ranked in the lowest quintile had almost two times the departure rate of those who ranked in the first quintile. In her study of Washington State community and technical college students, Seppanen (1995) found that students without a high school diploma had the second highest chance of being early leaver right behind part-time enrolled students.

The effect of high school GPA and SAT/ACT score on retention varied from one study to another. In general, higher SAT/ACT college admission test scores correlate to higher retention (Grosset, 1989). However, a meta-analysis by Lotkowski et al. (2004) showed that the relationship between high school GPA as well as ACT assessment scores and retention was only moderate when compared to some of the non-academic factors, such as academic-related skills, academic self-confidence, and academic goals. In studying students at the University of Texas Pan American where the ethnic population was mostly Hispanic, Salinas and Llanes (2003) claimed that SAT/ACT were not factors concerning student retention. With the exception of the studies by DeBerard (2004) and McKinney (2013), many researchers claimed strong positive correlation between college retention of students and their high school GPA (ACT, 2007; Feldman, 1993; Porter, 2006; Mertes & Hoover, 2014).

Based on the responses of 305 out of 949 community colleges in a national survey, ACT (2010) reported that the top reason for student attrition was the low level of student preparation for college level work. Colleges addressed the issue of attrition by using placement test results to place students in the required remedial/developmental coursework. Studying academically underprepared students from three community colleges across three different states, Bremer et al. (2013) summarized the following:

> Math ability at the time of college entrance was a powerful predictor of student success. The utility of reading placement as a predictor, and the utility of developmental English, reading, and writing classes as an intervention, were both limited to retention into the second term and/or second year (p. 154).

Other research found positive correlation between student retention and the successful completion of a developmental reading or mathematics course; specifically, successful completion of a developmental reading course gave the strongest correlation among all other factors studied (Fike & Fike, 2008). Hoyt's (1999) study of students at Utah Valley State (Community) College showed that the need for remedial education had a detrimental effect on student retention. Based on multi-year cohort data, 12% of students needed a remedial reading course, 32% a remedial English course, and 44% a remedial mathematics course. Student dropout rates correlated strongly and positively with the number of needs in remedial areas, from one to three. Contrarily, Grosset's (1989) study of student attrition at the Philadelphia Community College found that students who participated in remedial programs, regardless of outcome, persisted the same as college-ready students.

Student performance in the form of higher college GPA or credits earned correlated with student retention at community colleges as well as at four year institutions (Jepsen, Patel, & Troske, 2010; Sidle & McReynolds, 2009). In most studies, cumulative GPA was one of the top academic factors that influenced student persistence. The higher the college GPA, the longer the student persisted (Cofer & Somers, 2001; Coladarci et al., 2013; Heiman, 2010; Hoyt, 1999; Jamelske, 2009; Klein, 2013; McKinney, 2013; Miller, 2015; Molnar, 1993; Nakajima et al., 2012; Popiolek et al., 2013; Stratton et al., 2007). Cofer and Somers (2001) and Jamelske (2009) found the effect of GPA on retention especially strong for below-average students. While Stratton et al. (2007) projected a strong GPA to retention effect on full-time students, they projected this effect would not be significant for part-time students. The research by Salinas and Llanes

(2003) contradicted the positive GPA to retention correlation trend. Students with some of the highest grade point averages did not return after the first and second years at the University of Texas Pan American. However, this contradiction was artificial. These students failed to return because they used University of Texas Pan American as a stepping stone to transfer and finish at more selective universities.

In some studies, both student retention and college GPA improved because of college initiatives, such as the tutor program in the study by Coladarci et al. (2013), the learning to learn system in Heiman (2010), the first year experience program in Jamelske (2009), and the learning communities in Popiolek et al. (2013). College GPA was such a dominant academic factor on student retention that Nakajima et al. (2012) found cumulative GPA the strongest predictor of student persistence at a community college located in southern California. Klein's (2013) results of the Iowa Valley Community College District study revealed that "only the student's fall grade point average is a significant predictor of retention" (p. xi).

## STUDENT NON-ACADEMIC FACTORS

Bean (1985) conducted a student survey at a Midwestern research university to study a dropout syndrome. The target population consisted of students who were White, U.S. citizens, below the age of 24, and not married. The dependent variable was dropout and the independent variables included two academic factors, five socio-psychological factors, three environmental factors, and three socialization/selection factors. He found that only the environmental and the socialization/selection factors correlated significantly to student dropout; specifically, the propensity for a student to dropout increased in proportion to the amount of transfer opportunities, and the amount of peer relationships

maintained outside of the institution. Bean found also that the better the student finances, the better the college grades, the better the institutional fit, and the better the institutional commitment, the lower the propensity of student dropout.

Many researchers studied retention issues with respect to students' non-intellectual, non-cognitive, and psychosocial skills (Amos, 2010; Cabrera, Castaneda, Nora, & Hengstler, 1992; Lotkowski et al., 2004; Miranda, 2014; Robbins, Lauver, Le, Davis, Langley, & Carlstrom, 2004; Sommerfeld, 2011; Wilder, 1993). Sommerfeld (2011) questioned the general use of the non-cognitive term and recommended factors be categorized as either academic or non-academic. Sommerfeld believed that most of the non-cognitive factors should be called non-academic factors, which were composed of dispositions, habits of mind, executive functioning abilities, external resources, and college knowledge.

In a national survey of Chief Academic Affairs Officers at community colleges, ACT (2010) shared the top eight rank-ordered factors related to student attrition as follows:

1. Level of student preparation for college-level work
2. Student study skills
3. Adequacy of personal financial resources
4. Level of student commitment to earning a degree
5. Level of student motivation to succeed
6. Student family responsibilities
7. Level of job demands on students
8. Student low socio-economic status

Other than the top-most factor, the other seven factors can be considered as non-academic in nature. Similar observations were recounted in interviews of faculty, staff, and administrators in a community college by Martin, Galentino, and Townsend (2014). Subsequent interviews of successful graduates revealed that students could overcome poor academic preparation through having clear goals, strong motivation, ability to manage external demands, and self-empowerment. In a qualitative study, Amos (2010) interviewed ten first generation students to determine factors that enhanced persistence. The researcher's findings included good time management skills, having an advocate, financial knowledge, taking standardized tests to qualify for scholarship, and having earned college credits at high school through dual enrollment.

In a data mining effort of the 1992-1993 and 1995-1996 National Postsecondary Student Aid Surveys, Cofer and Somers (2001) found having aspirations an important factor in student persistence. Students who aspired to pursue an advanced or bachelor's degree were seven to ten percentage points more likely to persist than students with lesser educational aspirations. Similar attrition behavior due to lower educational expectation was observed in Ishitani's (2006) research. Furthermore, delayed matriculation after high school also had a detrimental effect on second-year retention.

In Lotkowski et al.'s (2004) meta-analysis based on 109 applicable studies, they found the following non-academic factors: academic self-confidence, academic goals, academic-related skills, social support, institutional selectivity, financial support, social involvement, and institutional commitment, to have a strong influence on retention. Robbins, Allen, Casillas, Peterson, and Le (2006) completed a large scale study of student retention based on student academic records and self-reported psychosocial factor

scores; a total of 14,464 students from 48 two-year and four-year institutions participated in the study. Findings indicated that academic discipline (effort) and commitment to college had a strong positive effect on retention in both two-year and four-year institutions. Students' high school GPA and those ACT tested also had a strong positive effect on retention. Social activity had a negative effect on student retention. Social connection had a weak effect on student retention at four-year institutions only.

Kracher (2009) studied non-academic factors in the form of emotional intelligence of students. In this study of health science undergraduate students, the researcher hypothesized that emotional intelligence of students linked to college GPA and in turn linked to retention. Results showed marginal significance with three variables on GPA. When comparing students with a 3.0 GPA or higher to students with less than 3.0 GPA, the higher GPA group of students on average had lower interpersonal relations, higher impulse control, and lower flexibility scores of emotional intelligence. This correlation was intriguing. It seemed that students with higher GPA were more focused. Of the 109 students who participated in the study, three graduated and three did not return a semester later. Student retention with respect to GPA and emotional intelligence was inconclusive. The retention was 103 out of 106 students, not counting those graduated. The researcher reasoned that those students who responded to the survey were more motivated, leading to higher retention.

Using data from the National Educational Longitudinal Study from 1988 to 1994, Wells (2008) identified five out of nine social and cultural capital factors that were statistically significant in student persistence from their first year to second year enrollment. These significant factors were: parent's college education, student

expectations of college, the importance of college to others, test prep tools used, and family resources available. The four insignificant factors were: the high number of college-bound friends, expectations of the parents, high school quality, and parental involvement. The researcher also found community colleges versus four-year institutions and part-time versus full-time enrollment insignificant in terms of student persistence. Burns (2010) cited similar social capital factors as a cause for lack of student success because these students were less capable of utilizing the available student support services.

## ECONOMIC IMPLICATIONS

A majority of community college students work and study at the same time. According to American Association of Community Colleges (2015), 35.1% of students work a part-time job and 22.6% of students work a full-time job. Students who work have a higher attrition rate than students who do not work. Studies showed an inversely proportional relationship between students' work hours and their retention rates (Cofer & Somers, 2001; Hoyt, 1999; Jepsen, Patel, & Troske, 2010; Miller, 2015; Nakajima et al., 2012; Pennsylvania College of Technology, 1993; Seppanen, 1995; Zhai & Monzon, n.d.). Jepsen, Patel, and Troske (2010) studied the relationship of retention and work earnings of students in the Kentucky Community and Technical College System. The number of credits earned in the first semester and the first-term GPA correlated positively with retention. However, every percent increase in earnings led to a 0.662% decrease in retention. The researchers stated further that:

> Even after controlling for student intentions and college characteristics, a percentage increase in earnings reduces attendance by 0.528%. Due to the

> time constraint, hours worked and hours spent on studying act as substitutes. Hence, working students are assumed to spend more hours working and are more likely to stopout (p. 22).

Cofer and Somers (2001) confirmed through regression analysis that community college students who worked full-time were less persistent within-year than those who did not work a full-time job. Within the same population, financially dependent students were more persistent than financially independent students. Hoyt (1999) completed a study of student attrition and remedial education. The population of students who needed remedial education had a lower attrition rate for living at home or receiving financial aid. Students who worked full-time had a higher attrition rate regardless of their needs for remedial education or not. The logistic regression result of students working part-time was not statistically significant.

In a single community college study of student persistence supplemented by a survey of 427 students, single independent factor comparison tests showed that students who received financial aid out-persisted those students who did not by 85% to 73%, and persisters worked fewer hours off campus as well as fewer total hours compared to leavers. However, using a multivariate logistic regression analysis, these financial and other student background, academic integration, and psychosocial factors became insignificant in the presence of cumulative GPA, which was the most dominant factor for student persistence (Nakajima et al., 2012).

Miller (2015) examined spring to spring retention of 22,221 students from 22 community colleges. One of the nine variables that had a negative retention effect was "student having an employment status of full-time, off campus" (p. 4). Seppanen (1995)

cited students working full-time as the fourth out of 12 reasons for having greater chance of being early leavers.

Survey responses from 373 former students from Pennsylvania College of Technology (1993) revealed reasons why they were enrolled in spring 1992 and did not return in the fall the same year. The reasons were rank-ordered based on the frequency cited as follows: (1) 26% had transferred to another institution, (2) 24% claimed tuition and costs as financial reasons, (3) 14% mentioned personal and family problems, (4) 6% found satisfactory employment, and (5) 30% gave other miscellaneous or no reasons. In another similar study of students in the San Diego Community College District, Zhai and Monzon (n.d.) surveyed students who either withdrew from all classes during the fall 2000 semester or did not return in the spring 2001 semester. The reasons for withdrawal were: conflict with work schedule (31.0%), personal reasons (21.1%), parking issues (16.5%), family obligations (16.0%), financial difficulties (14.5%), and dissatisfaction with instructions. The reasons for not returning were: transfer to another institution (28.5%), conflict with work schedule (19.2%), course scheduling issues (10.7%), personal reasons (10.7%), and fulfillment of educational goals (10.7%). Among these students, 41 to 44 percent of them held part-time jobs and 34 percent of them held full-time jobs.

Student retention and work opportunities are interrelated. While traditional students choose education before work, non-traditional students may favor work over education by necessity. In their logistic regression analysis of student data at the Kentucky Technical and Community College System, Jepsen, Patel, and Troske (2010) derived the relationship that “an increase in the county unemployment rate by 1%

increases the probability of continuous enrollment by 0.036%, holding other variable constant" (p. 22). Using data from the 1990/1994 Beginning Post-Secondary Survey of 4655 students from both community colleges and four-year institutions, Stratton et al. (2007) found the attrition rate of full-time students to have a negative and significant correlation to the local unemployment rate. Though not statistically significant, the attrition rate of part-time students had a positive correlation with the local unemployment rate. It should be noted that unemployment rate is determined independently from the labor force participation rate, which measures the shares of the 16-and-older population who are either employed or looking for work. Wyman (1997) analyzed student data from the 16 colleges of the South Carolina Technical College System and found that retention rate improved 0.905% for every percent increase in regional employment per capita.

## INSTITUTIONAL CHARACTERISTICS

In general, retention of on-campus resident students is higher than off-campus commuter students. Since most community college students are commuter type, this is one of the factors that impacts student retention in community colleges more than four-year institutions. Retention rates of resident students and commuter students were 92.9% and 88.6% respectively at Florida State University (Abele, 2012). Students living on-campus had an 11.8% higher retention rate than students living off-campus at a mid-size Midwestern public university (Jamelske, 2009).

Campus diversity and culture are important for community colleges since 36% of student population is first generation to attend college (AACC, 2015). An unfriendly or unwelcome environment can make it difficult to retain these students. Cox and Ebbers (2010) interviewed five adult, female, part-time students enrolled at a Midwest

community college to learn about their educational experience and factors influencing their persistence. One of the negative experiences in suburban campuses was the lack of diversity in terms of race, age, and cultural differences. On the other hand, these five students felt that the experiences at the downtown campus were positive, populated with supportive instructors and a diverse student body.

The College Board (2012) identified three constructs in the foundational structures organized for student success in community colleges and they were: supporting institutional leadership and intensity of effort, cultivating a positive institutional climate for diversity, and fostering a culture of evidence. Specifically, initiatives to cultivate a positive institutional climate for diversity included:

> Developing a formal plan to assess and support racial/ethnic and cultural diversity on campus, designating an individual or committee to assess diversity initiatives, clarifying antidiscrimination policies and practices, and providing faculty development opportunities focused on racial/ethnic and cultural diversity on campus (p. 13).

Student satisfaction and positive experience are important for retention. Miller (2015) used the data from the Noel-Levitz Student Satisfaction Inventory to predict student persistence at community colleges. Two clusters of variables that predicted retention were:

- Satisfaction with the relationships between students and campus staff, and
- Satisfaction with the college culture.

Through interviews, observations, and focus groups conducted of administrative assistants who had the opportunities to interact with students, Schmitt and Duggan (2011)

summarized that "classified staff members enhance the educational process by empowering students with information, offering individual support, and holding students accountable. Interactions with classified staff appear to have a positive impact on the student experience" (p. 179).

In a case study of successful programs at an urban community college struggling with retention, Nitecki (2011) interviewed 13 faculty members and 21 students concerning the general college culture, but was surprised to discover a unique institutional subculture that nurtured the success of the early childhood education and paralegal programs. While the college diversity was a major strength, the researcher also found that "the large size of Fairview Community College resulted in overwhelming bureaucracy and institutional confusion… some professors recognized the disconnect between vital student services… advisement was ineffective" (p. 105). The difference between the two successful programs and the other programs in general was the approach, of focusing on student success. The faculty members engaged students and provided direct advisement and job readiness internship experiences. Each program modeled after the culture of its respective profession, specifically a cradled culture in early childhood education and a professionalism culture in paralegal.

## INSTITUTIONAL INITIATIVES

Retention is a pathway to student success. Without retention, there would be no student success. Both two-year and four-year institutions recognize this fact and have invested a significant amount of resources in various initiatives and programs to facilitate student retention. Some of the programs, such as Pell Grant for financial aid and TRIO

for student support services, are funded by the federal government. These initiatives and programs can be categorized into the following types:

- developmental education,
- academic support,
- enrollment related initiatives,
- faculty involvement,
- financial aid, and
- integrated peer support and socialization.

## Developmental Education

When Chief Academic Officers at community colleges were asked to identify three practices each, making the greatest contribution to retention, the overall top four practices were developmental-education related. These top four practices and their percentages, selected among the aggregates of identified practices were: mandated placement of students in courses based on test score at 36%, tutoring at 22%, required remedial/developmental coursework at 20%, and comprehensive learning assistance center/lab at 14% (ACT, 2010, p. 8). Allison (1999) also found placement test scores along with college GPA and financial aid among the most significant predictors of persistence (p. 1).

In a developmental education study of three community colleges across three different states, the researcher found that math placement scores correlated positively with student retention. Math ability of incoming students was a strong predictor of student success; yet developmental math education was not helpful to those with lower math ability. Higher math placement test scores were a good predictor of better retention.

However, that was not the case with higher writing placement scores. Reading placement test scores and enrollment in developmental English, reading, and writing classes correlated positively with initial retention to the second year but not to the third year. The ultimate finding was that tutoring and financial aid led to student success much more than developmental coursework (Bremer et al., 2013). In a single institution study of 1,740 community college students, the researchers found reading placement scores based on ACT COMPASS a significant predictor of fall to fall retention (Windham et al., 2014).

## Academic Support

In 2010, the College Board with the support of the Bill & Melinda Gates Foundation commissioned a study of community college structures for student success. Survey questions were sent to small, midsize, and large community colleges to address ten topics related to student retention and success: (1) coordination of student success efforts, (2) assessment and reporting, (3) climate for diversity, (4) financial aid, (5) student orientation, (6) academic advising, (7) early warning and academic support, (8) developmental education, (9) student support, and (10) curriculum (College Board, 2012, p. 14). Highlights of the survey results corresponding to each of the ten topics are summarized as follows:

1. The level of involvement by members of the college community in the planning for student retention, a part of student success efforts, from high to low were student services professionals, midlevel administrators, senior administrators, faculty, staff, and students.

2. The average numbers of FTE institutional research professionals employed in assessment and reporting were 0.7, 1.1 and 2.5 respectively for small, midsize, and large institutions.
3. About 45% of institutions included hiring practices to reflect the racial and ethnic diversity of the student body, which illustrated a climate for diversity.
4. At least 90% of small, midsize, or large institutions provided institutional financial aid for part-time students. The student to financial aid counselor ratios were 539; 1,000; and 1,738 respectively for small; midsize; and large institutions.
5. More than 95% of institutions offered a student orientation program. About 69% of small institutions, 59% of midsize institutions, and 54% of large institutions included individual meetings between students and advisors in their orientations.
6. Degree-seeking students were required to meet with academic advisors each term in about 56% of small institutions, 32% of midsize institutions, and 10% of large institutions. Larger institutions were more likely to have academic advising available during evening hours.
7. Although more than half of all institutions had a variety of early warning mechanisms in place, 30% of institutions did not implement them. Academic support was provided in the form of formal peer tutoring at more than 85% of institutions and supplemental instruction services at more than half of the institutions.

8. Mandatory placement in developmental education was in effect at about 83%, 92%, and 93% of small, midsize, and large institutions, respectively. About half of all institutions offered each of the three following forms of developmental educations: self-paced, short-term, and online.
9. Student support structures included subsidies to buy textbooks and supplies, transportation subsidies, child care subsidies for low income students, on-campus child care services, and employment placement services. These structures were in place roughly at half of the institutions.
10. A majority of institutions offered a cohort-based curricular structure and nearly all institutions provided courses in practical career-related experiences. Accelerated degree programs were offered at about 49%, 33%, and 27% of small, midsize, and large institutions respectively.

Heiman (2010) documented the dramatic effect on retention of a learning strategies course, which guided students from rote-memory learning to inquiry-based learning. The course was known as "Learning to Learn," in which learners engaged in an ongoing, internal dialogue with new information to (Heiman, 2012, p. 5):

- Generating questions,
- Looking for feedback, and modifying questions based on new feedback,
- Breaking complex concepts into component parts, and
- Working towards explicit learning goals, taking feedback on progress toward reaching these goals, and generating more refined questions.

The results of Learning-to-Learn were statistically significant and showed improvements in student retention, GPA across the curriculum, and overall academic achievement.

The California Community College Extended Opportunities Programs and Services (EOP&S) successfully addressed persistence and retention of under-privileged students who came from low income families; were educationally disadvantaged, participated in remedial instruction; and were a member of either an under-represented ethnic group, of first generation attending college, or with non-English speaking parents. Elements of the EOP&S were extensive and included outreach/recruitment, orientation, registration assistance, mandatory multiple counseling contacts, progress monitoring, basic skills and special instruction, transition services, needs assessment, tutoring, ethnic diversity staff training, financial aid grants, cultural events, child care, book service, peer advising, academic advising, mentoring, and single parent support groups. The 1993 to 1997 four year average persistence rate was 83% for EOP&S students compared to 54% for non-EOP&S students (Crawford, 1999).

Student Support Services, a federal funded TRIO program, gave evidence of improved student retention (Fike & Fike, 2008; Gulf Coast Community College, 2011). University of North Carolina at Charlotte started a learning community initiative in 2003 to improve student retention and academic performance. The learning community involved block schedules and linked courses to improve contact between students and faculty, to facilitate cooperation among students, and to promote active learning techniques. Learning community participants demonstrated higher GPAs, class success rates, and better retention than non-participants. These results were statistically significant (Buch & Spaulding, 2011). A similar study at a suburban Maryland community college reaffirmed that learning community participants had higher course GPAs, lower course attrition rates, and higher fall to spring persistence rates compared to

non-learning community participants. Another learning community study was conducted in an urban university. The learning community featured peer mentoring to help the transition of new students to college life. Findings were significant, showing correlation between retention and learning community involvement. Retention also correlated to a lesser extent positively with high school GPA (Hill & Woodward, 2013).

In a multi-state community college study, tutoring, financial aid, and occupational major were credited with student retention. Along with other factors, tutoring also improved student overall GPA (Bremer et al., 2013). Coladarci et al. (2013) performed regression analyses on data from the University of Maine Tutor Program and found that first-time full-time students who used the Tutor Program had higher retention rates but their GPA gain was modest.

Zhai and Monzon (n.d.) administered a survey of students from San Diego Community College District, who either applied but had not enrolled or withdrew from all the classes. Students suggested the following ideas the college could do to retain more students: more flexible evening or weekend class schedules, more online classes, better financial aid support, more short term courses, more parking facilities, and more career-oriented programs. Noel-Levitz (2011) conducted a web-based poll of higher educational institutions on effective practices. The top 10 rank-ordered practices rated as very effective by two-year public institutions were:

1. Institution-wide emphasis on the teaching of undergraduates and undergraduate learning
2. Academic support program or services
3. Programs designed specifically for first-year students

4. Providing each continuing student a written academic plan/roadmap of remaining courses needed
5. Title III or Title V funding
6. Using web-based course engagement tools such as Blackboard, WebCT, etc.
7. Honors programs for academically advanced students
8. Academic advising program
9. Mandatory advising, one-on-one and face-to-face, between faculty and students
10. Using student life evaluations to make changes to student life programs and services

Enrollment Related Initiatives

Cohort-based structured programs and accelerated degree programs were found to be effective for student retention (College Board, 2012). Dual-enrollment college credits earned in high school incentivized high school graduates to enroll in college and to persist longer (Hoyt, 1999). D'Amico et al. (2013) performed logistic regression analysis of previous dually enrolled students at a South Carolina Technical College and found the following institutional setting and course type impacts:

- Those students who attended classes at the college campus while dually enrolled persisted 1.3 times better than those who attended classes at high school.
- Those students who took a transfer course while dually enrolled were only 0.7 times likely to persist as compared to those who took a career course.

In their study of 9,200 first time in college community college students, Fike and Fike (2008) found positive correlation between retention and students taking an internet course. Mertes and Hoover (2014) reviewed student records of a rural Midwestern community college trying to identify the links to student retention and found that students who passed an "Introduction to Information Technology" course with a "C" or better had the strongest correlation to fall-to-fall retention.

## Faculty Involvement

Service-learning courses involve students and faculty engaging in meaningful community services to enhance their learning experience. Bringle, Hatcher, and Muthiah (2010) conducted a service-learning study comparing student retention between those who enrolled in a service-learning formatted course and those who enrolled in a standard (non-service-learning) course. A pre-course questionnaire was used to generate the index of intention to graduate from this campus and a post-course questionnaire for the index of the quality of the learning environment of the course. They found that the index of intention to graduate correlated positively with the fall to fall retention. Students enrolled in a service-learning course responded to have a higher index of intention to graduate than students enrolled in a standard course. Taking a service-learning course correlated positively with fall-to-fall retention and the result was statistically significant. Fall-to-fall re-enrollments were 87% for students who took a service-learning course and 80% for students who took a standard course.

Mansfield, O'Leary, and Webb (2011) conducted a survey of faculty focusing on retention intervention programs and instructional methods, and a survey of students focusing on their personal experiences at the community college. According to the

survey, 89.4% of faculty either agreed or strongly agreed that taking a basic computer literacy class would be beneficial to students. The faculty perceived that the mandatory student success courses should help students to become successful, be marginally helpful in student retention, and have no effect on student attendance. Seventy-two percent of the faculty agreed that the mandatory academic advising had helped students in their understanding of their degree and academic program requirements. A student survey indicated that new student orientation was a good experience for the majority of students and 89% agreed or strongly agreed that they would graduate. The rank-ordered responses by students starting with the most significant item related to student persistence were:

1. Instructors
2. Financial stability
3. Academic advisors
4. Student success courses
5. Making new friends
6. New student orientation
7. Study groups
8. Work-study program
9. Extracurricular activities

Faculty concern about students and their hands-on experiences inside and outside of the classroom was shown to have a positive effect in student retention (Nakajima et al., 2012; Nitecki, 2011; Hopper, 2011; Wilder, 1993). In their study based on a sample of 427 community college students, Nakajima et al. (2012) found that students were more likely to persist in their college education when they sensed the genuine care from their

faculty. Nitecki (2011) confirmed the effect of faculty concern by quoting a student, “It seems like it is so important to them that you do well.” Students felt the connection in a family-like environment. Faculty involvements in the form of student advisement, job and internship placement, and informal student-faculty interactions helped to reduce significantly student attrition rates.

Supplemental courses involving interactive hands-on experiences within the classroom, whether student to student or faculty to student, improved student retention and success. The supplement course covered topics pertaining to personal and professional goals, communication skills, collaboration, academic resources, time management, organization skills, study skills, and problem solving skills (Hopper, 2011).

Another retention initiative was the integrated learning program developed by Van Sickle and Mehs (1994). It was a seventeen-credit multidisciplinary program at Fort Lewis College that was co-taught by five faculty members and included an out of the classroom five-day field trip to the Grand Canyon. Participants were more likely to stay in college and go on to perform better in subsequent courses than non-participants. The integrated learning program improved student retention. “Believing that their teachers genuinely care about them, about what they think and how they’re performing encourage students to work hard and feel worthwhile in an academic setting” (Van Sickle & Mehs, 1994, p. 14).

Not many papers were published on community college faculty development for improving student achievement. Perez, McShannon, and Hynes (2012) documented that those faculty members who went through a semester-long faculty development program promoted better student achievement. Achievement was measured by the percentage of

the passing grades in the 20 classes taken by students and the one-year retention rate of students in 12 courses. The classes taught by faculty prior to faculty development training had a passing rate of 73.7% and had a retention rate of 75.4%. After the faculty development training, the passing rate was 81.6% and the retention rate was 79.3%. The 7.9% passing rate improvement was statistically significant, but the 3.9% retention rate improvement was not statistically significant. The magnitude of improvements was higher for male students as well as for minority students.

Many researchers have investigated the topic of student advising and its relation to student retention and success (Jones, 1998; Noel-Levitz, 2011; O'Gara, Karp, & Hughes, 2009; Ryan, 2013). In an experiment where freshman seminar classes were taught either by experimental instructors serving as academic advisors or by control instructors with no advising responsibilities, Ryan (2013) found that the experimental group of 35 students had a 69% spring to fall retention rate compared to the control group of 30 students with a 40% retention rate. Spring to spring retention rates were 63% for the experimental group and 50% for the control group. The personalized approach to advising had appeared to make a difference. O'Gara, Karp, and Hughes (2009) studied qualitative interviews of 30 students and found that instructors of student success courses, serving as informal advisors, provided higher quality advising than non-student success instructing advisors. The researcher recommended formalizing this advising relationship.

Jones (1998) conducted a survey of 40 faculty members and 279 students concerning student academic advising by faculty members. The researcher provided the following highlights:

- 60% of students felt positive or neutral on the faculty advising experience

- 45% of faculty felt neutral or inadequate to advise students
- 75% of faculty felt the need for more training in advising students
- 53% of faculty felt neutral or negative on retention improvement through faculty advising

Noel-Levitz (2011) conducted a web-based institutional survey and found that two of the most significant retention issues were: 1) student's academic preparation and motivation, and 2) collaboration and agreement among faculty, staff, and administrators. The academic advising program was one of the top ten most effective retention practices used at two-year public institutions.

## Financial Aid

Financial aid was one of the frequently studied factors relating to student retention (Allison, 1999; Bremer et al., 2013; Cofer & Somers, 2001; College Board, 2012; Fike & Fike, 2008; Grosset, 1989; Hoyt, 1999; McKinney, 2013; Mertes & Hoover, 2014; Miller, 2015; Nakajima et al., 2012; Noel-Levitz, 2011; Salinas & Llanes, 2003; Zhai & Monzon, n.d.). Financial aid came in the forms of federal grants, college work-study programs, federal and state loans, and scholarships. In general, students receiving financial aid persisted at higher rates than those who had none.

The study of community college structure for student success by College Board (2012) showed that 90 to 93.6 % of part-time students were eligible for financial aid but was hampered by not having a sufficient number of financial counselors available. Students who filed for the free application for federal student aid (FAFSA) had a higher probability of fall to spring persistence than those who did not do so, especially for part-time students (McKinney, 2013).

In a study of academically underprepared community college students, the researchers found that financial aid and tutoring were more important than developmental coursework with regard to student success (Bremer et al., 2013). Equally important, Fike and Fike (2008) reported that the completion of a developmental reading course by first-year community college students had the strongest effect on student retention. The completion of a developmental math course or students receiving financial aid had the second strongest effect on student retention.

The insufficient availability of financial aid information was the top fifth reason why students applied but did not enroll in a community college, and insufficient financial aid was the top fourth reason why students withdrew (Zhai & Monzon, n.d.). Grosset (1989) studied the causes of attrition and found that, on the one hand, students receiving financial aid were more likely to graduate but, on the other hand, they were more likely to be dismissed for academic reasons. In their study of student persistence at two-year colleges, Cofer and Somers (2001) found contrarily that the amount of financial aid did not indicate a positive effect on student persistence.

### Integrated Peer Support and Socialization

The California Community College Extended Opportunities Program and Services (EOP&S) for low income students featured extensive student integration and involvement, which included recruitment, orientation, registration assistance, counseling, special instruction, needs assessment, tutoring, grants, cultural events, child care, book service, peer advising, academic advising, mentoring, and single parent support groups. While the EOP&S group had a lower GPA than the non-EOP&S group, the EOP&S

group average persistence rate at 82.64% was much higher than the non-EOP&S group at 53.95% (Crawford, 1999).

Through qualitative focus group interviews with students and faculty, Anderson (2013) attributed the success of community college students to social integration, academic integration, college services integration, skill development, and academic and career planning. Students considered college services integration most important; yet faculty considered academic and career planning most important. Both students and faculty also considered social integration most important.

Milem and Berger (1997) examined the relationship between Astin's theory of involvement and Tinto's theory of student departure by conducting freshman year student surveys two times in the fall and once in the spring. They found that social integration, not academic integration, was the reason for students' intent to reenroll. The intent to reenroll formed the basis for institutional commitment. Their study was limited to one highly selective private residential university whose student body was highly affluent as well as academically prepared.

Eliciting from Tinto's retention theory and Astin's input-environment-outcome model, Strayhorn (2012) studied the 2004-2005 Community College Student Experiences Questionnaire to correlate academic and social integrations of African American men with college satisfaction, a strong indicator for retention. The researcher found that academic integration, or grades, correlated marginally to satisfaction with college. Social integration with other students correlated strongly, but negatively, to satisfaction with college.

In a qualitative study of retention of students of color in STEM by Palmer, Maramba, and Dancy II (2011); peer group support, involvement in STEM activities, and high school preparation were found to be responsible for student retention and persistence. Using data from the 1990/1994 Beginning Post-Secondary Survey for regression analysis, Stratton et al. (2007) found that both social and academic integration measures were not significant predictors of student attrition.

## FIRST-YEAR EXPERIENCE

The first-year experience program helps to strengthen the position of the student in an institution so that he or she feels like an integral part of the institution. The strengthening process takes the form of academic and social integration. The central part of the first-year experience program is the first-year seminar. With a 43 year history, first-year seminars have been tested repeatedly to be an effective cure for student attrition. Consequently, first-year seminars have been adopted by 95% of four-year institutions.

Pascarella and Terenzini (2005) found statistically significant evidence that first-year seminars improved student persistence and retention. Participants of first-year seminars reenrolled for the second year of college at higher rates than nonparticipants by seven percentage points in one study and by as much as 13 percentage points in another study. Same was true for university graduation rate, participants had a higher probability, about five to 15 percentage points higher than nonparticipants, to graduate in four years. While these impressive results did not take into account pre-college characteristics, a controlled experiment conducted at the University of Maryland, College Park confirmed

the positive effect of the first-year seminar on student persistence (Goodman & Pascarella, 2006).

The first-year seminar was launched in 1972 at University of South Carolina (USC) known at the time as the University 101 course. According to John Gardner, the first faculty director of the University 101 course, the course was not originally designed for the purpose of student retention but to humanize the University. It was created in response to a student riot on the USC campus protesting the invasion of Cambodia authorized by President Nixon and other local USC issues in May 1970. The objectives of the University 101 course were (Gardner, 2006, p. 5-6):

- to teach new students to love the University and not to riot and trash it;
- to teach the roles and purposes of higher education and the institution in particular;
- to form new and functional human relationships;
- to create a support group;
- to learn and use student support services;
- to encourage the joining of co-curricular organizations;
- to increase out of class faculty-student contact;
- to provide an extraordinary degree of academic freedom to teach the course that the faculty had always wanted to teach but had not previously been able to;
- to provide an antidote to the large, unengaging, archetypal lecture courses in the first year which so successfully bore students and faculty alike;

- to change a large university culture to make it more student-centered, more humane;
- to accomplish this through mandatory faculty and staff development as a precondition for teaching the course;
- to bring together faculty, academic administrators, and student affairs officers in a new partnership for the greater common good.

In 1975, three years after the launch of the course, the surprise benefits of student retention were discovered. The retention effect of the course more than compensated for students who were less integrated academically. In addition to retention, the course participants had a higher propensity to graduate (Gardner, 2006).

Over the next 40 years, extensive research on first-year seminars and first-year experience programs were carried out at all kinds of higher education institutions including community colleges (Barefoot, 2000; Center for Community College Student Engagement, 2012; Cuseo, 1997; Cuseo, n.d.; Derby & Smith, 2004; Hanover Research, 2011; Hanover Research, 2014; Harran, 1990; Mayo, 2013; Pascarella & Terenzini, 2005; Schrader & Brown, 2008; Tobolowsky, Cox, & Wagner, 2005; Wild & Ebbers, 2002). In their assessment of an orientation course designed to acclimate students to the campus environment at a community college, Derby and Smith (2004) found that the course had a positive effect on persistence; student reenrollment after a one, two, or three semester break; and degree attainment.

Harran (1990) documented a successful freshman seminar at Chapman College that involved students studying the thought provoking topic of war and peace. The seminar was team taught by 20 faculty members in areas of history, geography, literature,

and other fields. Speakers included historian and political analyst John Stoessinger, Pulitzer Prize winning author Neil Sheehan, civil rights activist Mary King, Pulitzer Prize winning author and journalist Stanley Karnow, Nobel Peace Prize recipient Betty Williams, and Emmy Award winning documentary producer Pat Mitchell. Not only did students transition smoothly from high school to college, students and faculty members formed a tight-knit academic and social community. As a result, student term-to-term persistence rate went from 64% to 92%.

Spector (2005) examined the results of a three-credit University 100 course and found that participants had higher GPA, better academic standing, and stronger personal/emotional adaptation to college as compared to non-participants. Sparks (2005) also showed similar results where participants of a three-credit first-year seminar had higher GPA and retention than non-participants. Lashley (2005) found positive retention, in four out of five years, of participants in a three-credit first-year seminar compared to non-participants. Guell (2005) reported that participants of first-year seminar showed no statistically significant change in retention but their higher GPAs was statistically significant compared to non-participants.

Other studies of first-year seminars also showed higher retention rates (Dolinsky, 2005; Jackson, 2005; Rugg, 2005; Curtis-Tweed, 2005). In addition to higher retention rates, first-year seminars also improved the GPA of participants (Staley, 2005; Ward, 2005). Still, in addition to higher retention rates and GPAs, further studies showed improvement in graduation rates (Blowers, 2005; Pattengale, 2005; Verduin, 2005; Wood, 2005).

Casady (2005) reported strong retention of participants of the one-credit first-year academic seminar at Southwest Missouri State University and provided the topics of the seminar as follows:

- Orientation to college
- Effective communication skills
- Time management and setting priorities
- Identification and application of personal learning style
- Reading, listening, note-taking, and test-taking skills
- Academic decision making
- Health and wellness
- Personal responsibility
- Computers use and technology
- Library research
- Writing and speaking skills
- Positive relationships
- Career planning
- Campus involvement
- Money management
- Diversity

By correlating student survey responses and student academic achievement in terms of GPA, topical categories responsible for student academic achievement at a statistically significant level were identified (Casady, 2005, p. 141-142):

- Course load: Students who carried at least 15 credit hours a term achieved higher GPAs than full-time students who carried 12 credit hours and part-time students.
- Study hours: Those who reported studying at least two hours outside class for every one hour in class earned the highest GPAs.
- Employment: Working at a job no more than 20 hours a week did not have an effect on GPA, but employment hours over 20 hours a week had a negative impact on GPA.
- Class attendance: Students who attended classes regularly with no more than one absence per term in a course achieved the highest GPAs.
- Sleep: Students who slept seven to eight hours a night earned the highest GPAs.
- Nutrition: Students who reported eating three nutritious meals a day earned the best grades.
- Academic advisement: Students with the highest GPAs reported the most positive experiences with academic advisement.
- Campus resources: Use of three campus resources—(a) computer lab, (b) campus library, and (c) writing center—had a significant impact on students' GPAs.
- Spiritual practices: Students who regularly attended or participated in a religious center—on or off campus—had the highest GPAs.

- Campus activities: Students who participated in out-of-class activities or events achieved better grades. They were more committed to returning to college the next year and to graduating within five years.

## SUMMARY

An extensive review of the literature is provided in this chapter. The selection of literature is both relevant and extensive to the topic of this study. The student retention issue has been examined in all types of institutions of higher education but the emphasis is on community college. Student demographic factors of all kinds have been reviewed to understand historical trends.

The implications of both student academic factors and non-academic factors on retention are foundational to the retention study. Economic implications and institutional characteristics are especially important to part-time community college students. Over the years, colleges have developed all sorts of initiatives to address the retention issue. Many initiatives are effective but do not have adequate sustaining power. First-year experience programs are effective and most institutions are committed in continuing the programs to improve on student retention.

# CHAPTER 3: METHODOLOGY AND LIMITATIONS

## INTRODUCTION

The purpose of the research is to determine the impact of an inaugural First-Year Experience (FYE) program, specifically during the fall of 2014, on the retention of full-time and part-time community college students. Moreover, this research seeks to identify student characteristics, including academic and non-academic factors, which may influence student retention at a community college. The methodology proposed in finding answers to the research questions was a mixed-method investigation by conducting quantitative research of student academic factors and faculty survey responses based on interactions with students, as well as taking into account the observations and perceptions of student non-academic factors. Open-ended responses to questions in the survey were analyzed by a qualitative method.

The dependent variable of this research is student retention. Using the IPEDS retention definition, retention rates are calculated from the percentage of fall-enrolled, first-time college students who return to the college to continue their education the subsequent fall term, one year after the initial enrollment. The Fall-2014 retention rates prior to the inaugural FYE program do not have the FYE impact as the Fall-2015 retention rates do. The inaugural FYE impact on student retention can be determined by comparing the retention rates (assuming no other retention influencing factors) between these two years.

Another way to determine the FYE impact is by comparing the retention rates, in the same year, between two groups of students—those who took the first-year success seminar and those who did not. However, the relevancy of the latter method is questionable because those students who did not attend the seminar did so out of personal choice and the sample was not random.

A more accurate method is to use retention rates from multiple years and incorporate other independent variables, in addition to FYE, in a multivariable regression analysis. The other independent variables are the new policy for tuition payment schedule and the local county unemployment rate. The effect of each independent variable on retention can then be examined to avoid interactions.

## RESEARCH DESIGN

The research was designed to study the effectiveness of a first-year experience program in retaining students. Student retention in this longitudinal study spanned just over a year using the IPEDS definition. The cycle started with the fall term of 2014 and ended at the fall term of 2015. Retention rates were calculated based on the fall term to fall term return rates of the first-time college student cohort. The theoretical framework used was the Astin's (1993) I-E-O model. The layout of the research design is depicted best graphically in Figure 1.

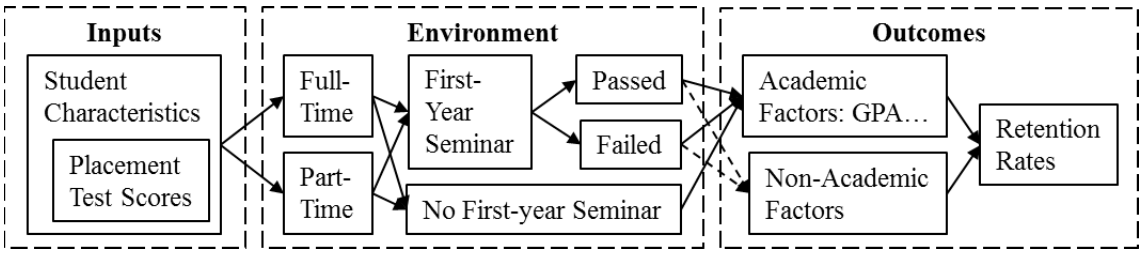



*Figure 1*. The Input-Environment-Outcome model design of the research.

The inputs to the model are the student characteristics, in which student placement test scores are included. Other student characteristics include demographics, socioeconomic factors, and intrinsic non-academic factors. Educational goals of students and enrollment patterns (new or delayed) make up the student intrinsic non-academic factors.

The elements in an environment can be extremely extensive. The first-year experience is considered the primary element in this study. The three possible scenarios are (a) those who took and passed the FYSS, (b) those who took but failed the FYSS, and (c) those who did not take the FYSS. There was actually a fourth outcome; those who enrolled in the FYSS but had never attended a class. Secondary elements include unemployment rate, tuition payment policy, class shift schedule, and enrollment intensity. For various reasons, a student may enroll either full-time or part-time. Financial aid is a common factor that a community college student uses to decide the enrollment intensity. Many community college students choose to max out their short term financial aid as their number-one reason when considering enrollment intensity. Academic readiness is another factor that limits the number of courses in a major that a student is eligible to take. Again, for financial aid reasons, some students may register for courses they do not need for their majors in order to maintain a full-time student status.

The outcomes in the model are made up of two intermediate outcomes and one ultimate outcome. The first intermediate outcome is classified collectively as academic factors, in which grade point average (GPA) is the focus and understood as cumulative. The second intermediate outcome is classified collectively as student non-academic factors, which are faculty-rated and include goal striving, general determination,

achievement motivation, academic discipline, study skills, communication skills, emotional control, academic self-confidence, social involvement, perceived social support, financial support, and commitment to college. The ultimate outcome is student retention measured by retention rates.

The boundary for the I-E-O model elements is represented by dotted lines because the factors are placed somewhat subjectively. The location of the factors is not precisely bounded per the current depiction. For example, the "passed" and "failed" factors could be considered as outcomes. In this research design, the retention rates are based on direct calculations. The influence of retention rates by student characteristics is based on correlation and not by "design of experiment." However, retention rates influenced by FYE can be considered a design of experiment if the only dominant variable is the FYE program. Academic factors refer to the actual outcome from either the first fall term or the first full year of the student's study; since some students may not return after the first semester. Non-academic factors are characterized by the student's level of competency based on the observations and perceptions of the FYE instructors. Furthermore, non-academic factors refer to the two collective groups of students: persisters and leavers.

## RESEARCH QUESTIONS

Here are the two research questions:

1. How well does an inaugural first-year experience program work to retain first-time college students in a large mid-western community college? Retention is determined by tracking the fall re-enrollment of each student who enrolled initially in the previous fall semester as a first-time college student.
    a. What is the impact of the overall program?

b. What is the impact, if any, of delivery modality of the first-year success seminar? Aggregate student retention data are compared among those who took the seminar in the classroom, online, or blended (hybrid) format.

c. What is the difference in retention rates between students who passed the first-year success seminar and those who failed the first-year success seminar?

2. Which student characteristics, including academic and non-academic factors, influence student retention in this community college?

   a. What is the impact, if any, of enrollment intensity? Enrollment intensity is measured by the number of credit-hours enrolled in the initial fall semester. An enrollment intensity with 12 or more credit-hours is considered full-time, whereas less than 12 is considered part-time for financial aid purposes.

   b. What is the impact, if any, of delayed college enrollment? Most traditional students start college during the fall term following high school graduation; delayed college enrollment signifies those who take a break between high school and college regardless of the duration.

**DATA SOURCES**

Three sources of data were used in this study. The first source was the institutional yearly retention data for the past eight years. The second source was the relevant parameters in the student records of the 2014 first-time college student cohort. The third source was the response gathered from the instructor (faculty) survey. Supplemental data sources such as local county unemployment rate and median

household income based on student address zip-code, were used to explore correlations. More details are as follows:

- Multiple-year First-time College Enrollment and Fall-to-Fall Retention Data
  - Data are accessed and produced by the Office of Evidence and Inquiry.
  - Eight years of aggregated fall enrollment data from 2007 to 2014 and the respective fall re-enrollment data from 2008 to 2015 are used to compute the year to year retention rates.
  - Multivariate correlation and regression of the data are performed using the IBM SPSS Version 22 Statistics software to determine the impact of FYE on student retention.
- Academic as well as Environmental Factors using Student Record Data
  - Data are accessed and produced by the Office of Evidence and Inquiry. All student identifier information is removed before it is provided to the researcher.
  - There are approximately 4,000 first-time college student records for the Fall-2014 term. Full-time enrollment is 12 credit-hours or more and part-time enrollment is less than 12 credit-hours.
  - Those who return in the Fall-2015 term are categorized as persisters and those who do not return are categorized as leavers.
  - Factors shall include academic preparedness, GPA, student demographics, socioeconomic status, enrollment intensity, and financial aid information.

- Multivariate regression and correlation of the data are performed using the IBM SPSS Statistics software to identify factors that impact retention, separately for full-time and part-time students.

- Non-Academic Factors through Faculty or Instructor Survey.
  - The full sample size is made up of approximately 140 faculty, administrative, or staff members who taught the First Year Success Seminar in fall of 2014.
  - An invitation email is sent to all instructors in the sample (Appendix B). SurveyMonkey is used as the online survey instrument (Appendix C), in which the informed consent is embedded (Appendix D).
  - The survey includes a quantitative part where a seven point Likert scale is used, and a qualitative part through an open-ended comment section.
  - The types of non-academic factors are predetermined and consist of the following 12 competencies: goal striving, general determination, achievement motivation, academic discipline, study skills, communication skills, emotional control, academic self-confidence, social involvement, perceived social support, financial support, and commitment to college.
  - The levels of competency for the 12 non-academic factors are requested in the survey for the persister (those who return) group and leaver (those who stop out) group based on observations and perceptions by instructors.
  - Altogether there are 24 quantitative questions (12 questions for each group) and six qualitative questions

- SPSS is also used to perform statistical analysis of the data for the 24 non-academic factors.
- The "classical content analysis" technique is used to analyze the responses of the six qualitative (open-ended) questions for emergent themes and frequency of them (Leech & Onwueghuzie, 2007).

## POPULATION AND SAMPLE

There were two populations in this study. The first population was the first-time college students who enrolled in the fall term of 2014 for the first time at the College. This population was required to sign up for the inaugural First-Year Success Seminar during the first term of their college enrollment. The full sample of students was used in correlation analysis of student retention.

The second population was all of the instructors who taught one or more of the First-Year Success Seminars during the fall term of 2014. The total count of the sample was 137 instructors. An online survey was sent to this group to collect their responses used for statistical analysis of the non-academic factor path of the student retention.

## SURVEY INSTRUMENT

Over the years, extensive research has been carried out on student retention related to academic and socioeconomic status factors. Further research on student retention, concerning its dependence on non-academic factors of students, is required to advance the knowledge of student retention. Student non-academic factors relate well to many topics covered in the first-year success seminar.

Based on faculty interactions with, observations of, or in some cases perceptions of students in their first-year success classes, on a Likert scale of one to seven, instructors were asked to rate the competency on the non-academic factors of the group of students who would likely to persist in the College (Persisters) and the group of students who would likely to stop out of the College (Leavers). The seven points of Likert scale are:

1. Almost Never Competent
2. Usually Not Competent
3. Rarely Competent
4. Occasionally Competent
5. Often Competent
6. Usually Competent
7. Almost Always Competent

The non-academic factors were built upon the nine broad categories of non-academic factors derived from meta-analysis techniques. These original factors were used in the correlation of full-time students enrolled in four-year institutions (Lotkowski et al., 2004, Robbins et al., 2004). In order to adopt their use in a community college setting including both full-time and part-time students, additional factors were added to reflect potential student readiness inventory, a measure of psychosocial factors. A large number of both two-year and four-year institutions participated in a student readiness inventory study to predict college outcomes (Robbins et al., 2006).

There were 12 non-academic factors total in this study and they were:

- Goal Striving (reflects the strength of a student's effort to achieve objectives and end goals)

- General Determination (reflects the extent to which a student strives to follow through on commitments and obligations)
- Achievement motivation (reflects one's motivation to achieve success; enjoyment of surmounting obstacles and completing tasks undertaken; the drive to strive for success and excellence)
- Academic Discipline (reflects the amount of effort a student puts into schoolwork and the degree to which he or she sees himself or herself as hardworking and conscientious)
- Study Skills (reflects the extent to which a student believes he or she knows how to assess an academic problem, organize a solution, and successfully complete academic assignments)
- Communication Skills (reflects how attentive a student is to others' feelings and how flexible he or she is in resolving conflicts with others)
- Emotional Control (reflects how a student responds to strong feelings and how he or she manages those feelings)
- Academic Self-Confidence (reflects the extent to which a student believes he or she can perform well in school)
- Social involvement (reflects the extent that students feel connected to the college environment; the quality of students' relationships with peers, faculty, and others in college; the extent that students are involved in campus activities)
- Perceived social support (reflects students' perception of the availability of the social networks that support them in college)

- Financial support (reflects the extent to which students are supported financially by an institution)
- Commitment to College (reflects a student's commitment to staying in college and getting a degree)

A second part of the survey included six open-ended questions and they were:

- What areas went well for the inaugural GEN-1803 First Year Success Seminar?
- What areas would you suggest for continuous improvement in the GEN-1803 First Year Success Seminar?
- What are the top two or three reasons students failed the GEN-1803 First Year Success Seminar?
- What classroom best practices do you know or have tried, can help make a difference in better student retention?
- What two or three things can the college do to inspire students to return in subsequent semesters?
- Other Comments:

**DATA COLLECTION**

Data were collected at three separate stages. At the end of the Fall 2014 term, academic factors including socioeconomic status for the entire student population were collected by the College. The socioeconomic status information was captured during the initial enrollment application process. The survey of the instructor group was conducted

during the summer months of 2015. The final stage took place at the beginning of the Fall 2015 term to record those students who returned from the Fall 2014 term.

## DATA ANALYSIS

The three primary components of data analysis were data preparation, descriptive statistics, and inferential statistics. Data preparation included the removal of obvious data entry errors, appropriate range grouping of some continuous data, and recoding of variables. Formulated sets of data were summarized in the codebook feature provided by the SPSS software. Descriptive statistics gave the quantitative summaries about independent variables and dependent variables. Variables were classified into either the numerical type or the categorical type.

Inferential statistics were supported by correlation analyses and regression models. They involved the application of various statistical methods used to explore the following relationships:

- The relationship between two variables
- The strength of the relationship
- The direction and magnitude of the relationship
- The predictability of the regression models
- The external validity of the models and findings

### Research Question 1

The first research question was: How well does an inaugural first-year experience program work to retain first-time college students in a large mid-western community college? Specifically, (a) what is the impact of the overall program; (b) what is the

impact, if any, of delivery modality of the first-year success seminar; and (c) what is the difference in retention rates between students who passed the first-year success seminar and those who failed the first-year success seminar?

In Part (a), the dependent variable was retention rate and the independent variable was the first year experience program. Two moderating variables were evaluated and they were unemployment rate and tuition payment schedule. The analysis was conducted with multi-year data to examine the effect of the inaugural FYE program on retention rates; that is the rate of the most recent year with respect to the rates of previous years. Descriptive statistics and Chi-Square analyses were carried out to address this part of the question.

In both Parts (b) and (c), cross-tabulations (within the analyze-descriptive statistics menu in SPSS) were used to determine the effect size and the level of statistical significance of the delivery modality and FYSS outcome on retention. Additionally one-way ANOVA (analysis of variance) within the analyze-compare means menu was conducted to examine the retention rates based on outcomes of the FYSS.

Research Question 2

The second research question was: Which student characteristics, including academic and non-academic factors, influence student retention in this community college? Specifically, (a) what is the impact, if any, of enrollment intensity and (b) what is the impact, if any, of delayed college enrollment?

Descriptive statistics and one-way analysis of variance were conducted to compare retention rates and levels of statistical significance with respect to each of the academic and non-academic factors. Statistical methods require that all factors be coded

as either a categorical type or a numerical type. Cross-tabulation analysis was used to determine the effect size of the categorical-type factors. Means analysis within the analyze-compare means menu was conducted to determine the effect size of the numerical-type factors. A logistic regression model was constructed by fitting the student data to address Parts (a) and (b) of Research Question 2.

The review of literature in this study indicated that college GPA is the most dominant factor affecting student retention. Therefore a linear regression model of GPA as a function of the most relevant factors was developed to identify the key factors. Retention is a binary event where the student either returned or did not return to the College. A logistic regression retention model was created appropriately to reveal these binary retention phenomena. Finally, a qualitative style classical content analysis of the faculty survey response to the open-ended questions was carried out to reveal important phenomena captured through the inaugural FYE program.

## LIMITATIONS

This study was limited to a single institution. Instructor rated non-academic factors were based on instructor observations and perceptions regarding two collective groups of students: persisters and leavers. The first-year success seminar was a compulsory course for all first-time college incoming students. Those students who chose to skip taking the first-year success seminar were not a random sample. The validity of the retention outcome for this sample of students was questionable. Therefore retention rates with respect to the FYE program must be determined by between years and not by within year.

## ETHICAL CONSIDERATIONS

The study was based on data mining student records and an online survey of instructors. Student records were produced by the College Office of Evidence and Inquiry. All student identity related fields were removed before the researcher received the data. Students under the age of 18 were not included in this study. The instructor survey was conducted anonymously and voluntarily. The instructor's perceptive view on the psychosocial factors of students was based on collective groups and not on individual students. The researcher was aware of these ethical considerations and completed the Collaborative Institutional Training Initiative (CITI) curriculum requirements (Appendix E). The Institutional Review Board of the Ferris State University approved this research study (Appendix A).

## SUMMARY

This chapter gives a detailed account of the methodology used in this study. Astin's I-E-O framework was used in the research design. Three primary data sources were described in general terms. Their details are covered in the next two chapters. This study of the FYE program and retention involved two populations. The first population was the Fall 2014 first-time college student cohort and the second population was all the instructors who taught the inaugural FYSS course to these students. All students 18 years and older in the cohort were used in the first population. Instructors who chose to participate in the survey formed the self-selected group sample for the second population. The survey instrument included a quantitative part concerning student non-academic factors and a qualitative part concerning FYSS reflections by instructors.

Data were collected from the institution database and the FYSS instructors. Supplemental data were collected from governmental municipal websites. Three stages of data analysis: data preparation, descriptive statistics, and inferential statistics were described. Limitations and ethical considerations furnished the rest of the chapter.

# CHAPTER 4: RESULTS AND ANALYSIS

## INTRODUCTION

Three sets of interrelated retention data were analyzed, namely: the multi-year macro retention, FYE inaugural year micro retention, and FYSS faculty (i.e. instructors) survey. The multi-year macro (college) retention data set established historical retention rates as a basis for comparison with the retention rate of the FYE inaugural year. The FYE inaugural year micro (student) retention data set included academic and non-academic factors that influenced student retention. The non-academic factors were a combination of many factors including also the socioeconomic and environmental factors. The FYSS faculty survey data set comprised faculty rated non-academic quantitative data and FYSS focused qualitative data.

This chapter is organized in an analytical format instead of a topical format. The first section outlines the data preparation or screening process. It is followed by the descriptive analysis section to provide an overview of the three data sets. The next section is the factor analysis section, which includes the development of two regression models: a FYE logistic retention model and a FYE linear GPA model.

The factor analysis section is followed by the classical content analysis, a qualitative method used to integrate and consolidate the faculty survey responses into meaningful codes. Finally, relevant results are presented to address the two research questions. A summary of findings concludes the chapter.

## PRE-ANALYSIS DATA SCREENING

Three data sets from a large mid-western community college were used in this study, namely: the multi-year retention data set, the 2014 first-time college student cohort data set, and the FYE faculty survey data set. The data screening process included the elimination of erroneous data, the discarding of data for ethical considerations, the incorporation of crucial supplemental data, and data transformation using the recoding process. However, no actions were taken for missing data. The SPSS program had provisions to handle data sets with missing data.

The multi-year retention data set was small and comprised just the numbers of first-time fall semester student cohorts and those who returned the next fall for the past eight-year cycles starting 2007-2008. The fundamental categorical variable was the FYE program, which was implemented in 2014. A supplemental categorical variable called "Drop No Pay" was added to represent the change in tuition payment schedule effective 2014. Registered classes in the students' schedule used to be dropped for no tuition payment two weeks prior to class start. Starting 2014, registered and unpaid classes were dropped on a weekly basis regardless of the date of registration. The new tuition payment policy is shown in Appendix F. Anticipating the unemployment impact on enrollment (Jepsen, Patel, & Troske, 2010), a second supplemental factor, local county unemployment rate during the month of September, was incorporated as a numerical variable for each corresponding year (Bureau of Labor Statistics, n.d.).

The 2014 first-time student cohort data set contained 3,828 records after the reduction by 103 records of students under 18 years old. The age entry of a 118 year old student was likely a mistake; it was discarded and treated as a missing data point. A

median household income variable was created by cross referencing the U.S. Census Bureau (n.d.) with the zip code of the student's residence. Multiple numerical variables were recoded into categorical variables to create alternative for analysis. Racial data were recoded due to a small sample of 12 American Indian/Alaskan Native students and 217 unknown entries. The combined 229 records were treated as missing data for race categorical specific analysis. Categorical variables were dummy coded from "1" to "n" except for the case of yes and no, in which "1" and "0" were used respectively. Math or English readiness was declared if the student's placement test placed the student at the one thousand level or higher.

The FYE faculty survey data set had minimal adjustments. Non-academic attributes were based on a Likert scale of one to seven signifying "almost never competent" to "almost always competent" respectively. Persisters were coded as one and leavers were coded as zero. A pilot survey was taken by two faculty members. Their responses were included in the overall data set because they indicated that they would respond the same way in the actual survey. Thirty-six out of 137 faculty members responded to the survey, which gave a response rate of 26%.

## DESCRIPTIVE ANALYSIS

This section provides descriptive analyses of all three data sets: the multi-year college retention data, the 2014 first-time college student cohort academic and non-academic factor data, and the FYE faculty non-academic survey response data. Basic statistical measures and frequency of occurrences are illustrated. Inferential statistics are presented in the next factor analysis section.

Multi-Year College Retention Data

Table 4 shows the complete multi-year college data set. The unemployment rate reflected the local county rate in the September month of each corresponding year. It correlates quite strongly with the first-time enrollment number (analysis not shown). The retention rate is simply the ratio of the number of fall returned students with respect to the number of first-time college students from the previous fall cohort. The retention rate for the inaugural FYE (most recent) year was 46.5% (subsequent micro data analysis may show 46.4% when students younger than 18 were not included).

Table 4

*Multi-year College Retention Case Summaries*

| | Fall Term | Unempl Rate % | Drop No Pay | First Year Exp | First Time Enroll | Return Enroll | Retention Rate |
|---|---|---|---|---|---|---|---|
| 1 | 2007 | 5.7 | Once | No | 3844 | . | . |
| 2 | 2008 | 6.1 | Once | No | 3989 | 1584 | .412 |
| 3 | 2009 | 8.7 | Once | No | 5386 | 1874 | .470 |
| 4 | 2010 | 8.1 | Once | No | 5025 | 2367 | .439 |
| 5 | 2011 | 7.6 | Once | No | 5190 | 2150 | .428 |
| 6 | 2012 | 6.4 | Once | No | 4486 | 2101 | .405 |
| 7 | 2013 | 6.4 | Once | No | 3959 | 1835 | .409 |
| 8 | 2014 | 5.8 | Periodic | No | 3931 | 1826 | .461 |
| 9 | 2015 | 5.1 | Periodic | Yes | . | 1829 | .465 |
| Total N | 9 | 9 | 9 | 9 | 8 | 8 | 8 |

Table 5 shows the descriptive statistics of the multi-year college retention data. The results are self-explanatory. The statistics for the fall term as well as other categorical variables including “Drop No Pay” and “First Year Exp” are not meaningful. The first-time enrollment and return enrollment are offset by one year as shown in the previous table. It should be noted that the mean or average retention rate over the past eight year cycles was 43.6% ranging from the low of 40.5% to the high of 47.0%.

Table 5

*Multi-year College Retention Descriptive Statistics*

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Fall Term | 9 | 2007 | 2015 | 2011.00 | 2.739 |
| Unempl Rate % | 9 | 5.1 | 8.7 | 6.656 | 1.2074 |
| Drop No Pay | 9 | 1 | 2 | 1.22 | .441 |
| First Year Exp | 9 | 0 | 1 | .11 | .333 |
| First Time Enroll | 8 | 3844 | 5386 | 4476.25 | 636.991 |
| Return Enroll | 8 | 1584 | 2367 | 1945.75 | 244.809 |
| Retention Rate | 8 | .405 | .470 | .43620 | .026685 |
| Valid N (listwise) | 7 | | | | |

2014 First-Time College Student Cohort Academic and Non-Academic Factor Data

Table 6 shows the descriptive statistics of student academic and non-academic factors, which represent a subset that is applicable for use in statistical analysis to produce meaningful results. The remaining factors are purely categorical nature and their descriptive statistics are meaningless. They are presented next, correlating with retention rates by cross-tabulation analysis. The "N" in Table 6 indicates the sample size, less missing values. The description of the factors is listed as follows:

- Age – age of students
- English P Test – English placement test, one thousand level or higher is college English
- English Readiness – zero for not ready, and one for college English ready
- Fall 2015 Reenroll – (retention), zero for not retained, and one for retained
- Fin Aid Amount – financial aid amount in U.S. dollars
- Financial Aid – zero for no, and one for yes

- FYSS Attended – first-year success seminar enrollment in the 2014 fall semester, less the "never attended" students
- GPA – cumulative grade point average for the first three terms starting with the fall of 2014 (Fall 2014, Spring 2015, and Summer 2015)
- Hrs Attempted Fall 2014 – officially recorded credit-hours enrolled during the 2014 fall semester
- Math P Test – Mathematics placement test, one thousand level or higher is college math
- Math Readiness – zero for not ready, and one for college math ready
- Online Exp – one for experienced in taking an online course, and zero for no
- Zip Median HH Income – median household income at zip code of student address

At 21.98 years, the mean age of students is near the borderline between traditional and non-traditional. While 50% of the 2014 first-time college student cohort was college English ready, only 12% was college math ready. Again, the retention rate (Fall 2015 Reenroll) was 46.4%. Sixty-four percent of students received financial aid and the maximum amount awarded was $12,230. Sixty-six percent of students attended the first-year success seminar. The mean cumulative GPA for the population of students was 2.168. The 2014 fall term mean number of credit-hours attempted by students was 11.07, just short of the full-time status at 12 credit-hours. Thirty percent of students had prior experience in taking online classes. There was almost a factor of ten difference between the minimum and maximum inferred median household incomes based on the zip-code address provided by students.

Table 6

*2014 First-time College Student Cohort Descriptive Statistics*

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Age | 3827 | 18 | 82 | 21.98 | 7.778 |
| English P Test | 2835 | 800 | 1015 | 984.35 | 39.446 |
| English Readiness | 2835 | 0 | 1 | .50 | .500 |
| Fall 2015 Reenroll | 3828 | 0 | 1 | .46 | .499 |
| Fin Aid Amount | 3828 | $0 | $12,230 | $3,580 | $3,085 |
| Financial Aid | 3828 | 0 | 1 | .64 | .481 |
| FYSS_Attended | 3828 | 0 | 1 | .66 | .473 |
| GPA | 3534 | .00 | 4.00 | 2.1680 | 1.23645 |
| Hrs Attempted Fall 2014 | 3828 | 0 | 24 | 11.07 | 3.686 |
| Math P Test | 3061 | 800 | 2010 | 972.95 | 171.184 |
| Math Readiness | 3061 | 0 | 1 | .12 | .326 |
| Online Exp | 3828 | 0 | 1 | .30 | .460 |
| Zip Median HH Income | 3800 | $12,457 | $112,794 | $48,430 | $18,836 |
| Valid N (listwise) | 2546 | | | | |

Tables 7, 8, 9, and 10 give the remaining categorical factors used in the descriptive analysis and factor analysis. Student population and fall-to-fall retention rate for each category of each factor were computed. The last row in Table 10 provided the overall population and retention rate of the 2014 first-time college student cohort. Description of these factors is as follows:

- GPA_Group – GPA values were recoded into three separate groups. The first 0-1.99 GPA group identified with students who would not meet the graduate requirement. The second 2.00-2.99 group and the third 3.00-4.00 group were GPA aggregates used to explore retention differences.
- FYSS_Outcome – four possible outcomes were coded
  - Not Enrolled: did not enroll in a FYSS
  - Never Attended: enrolled but never attended a single FYSS class

    - Failed: those who failed or received a “F”, “D”, incomplete, or withdraw grade
    - Passed: those who passed a FYSS or received an “A”, “B”, or C” grade
- Age Group – The eight separate age groups came as a part of the institutional data set
- Race Recode – the five dominant racial groups were dummy coded in the order according to ascending order of retention rates
- FT or PT – enrollment intensity, full time (FT) or part time (PT)
- New or Delayed HS – First-time college students who enroll immediately upon high school graduation (new) or those who take a break for one or more semesters (delayed)
- HS_Type – nine separate high school categories, ICSD stands for an inner-city school district
- Ed Goal – the educational goals as identified by incoming students
- Multi Mono Shift – Mono shift stands for students who only take day, evening, or weekend classes; multi shift means two or three of the above schedules
- FYSS Modality – FYSS delivery formats, hybrid is partially online and partially classroom

In Table 7, math placement test levels ranged from 800 for basic arithmetic to 2010 for calculus. Those students who were college math ready had a 21.1% higher fall-to-fall retention rate than those who were not math ready. That difference in English readiness was 11.0%.

Table 7

*Academic Factor (Pre-college Placement Test)*

| | | Not Retained | Retained | Total | Retention Rate |
|---|---|---|---|---|---|
| Math P Test | 800 | 6 | 4 | 10 | 40.0% |
| | 801 | 260 | 171 | 431 | 39.7% |
| | 802 | 86 | 73 | 159 | 45.9% |
| | 910 | 551 | 299 | 850 | 35.2% |
| | 930 | 1 | 0 | 1 | 0.0% |
| | 950 | 50 | 36 | 86 | 41.9% |
| | 980 | 0 | 2 | 2 | 100.0% |
| | 981 | 12 | 12 | 24 | 50.0% |
| | 990 | 534 | 594 | 1128 | 52.7% |
| | 1060 | 5 | 2 | 7 | 28.6% |
| | 1190 | 28 | 70 | 98 | 71.4% |
| | 1250 | 8 | 7 | 15 | 46.7% |
| | 1270 | 46 | 90 | 136 | 66.2% |
| | 1470 | 12 | 24 | 36 | 66.7% |
| | 1521 | 4 | 16 | 20 | 80.0% |
| | 1580 | 17 | 21 | 38 | 55.3% |
| | 2010 | 8 | 12 | 20 | 60.0% |
| Math Readiness | No | 1500 | 1191 | 2691 | 44.3% |
| | Yes | 128 | 242 | 370 | 65.4% |
| English P Test | 800 | 5 | 0 | 5 | 0.0% |
| | 900 | 244 | 194 | 438 | 44.3% |
| | 960 | 87 | 18 | 105 | 17.1% |
| | 980 | 147 | 101 | 248 | 40.7% |
| | 989 | 60 | 52 | 112 | 46.4% |
| | 990 | 317 | 198 | 515 | 38.4% |
| | 1000 | 16 | 8 | 24 | 33.3% |
| | 1010 | 493 | 474 | 967 | 49.0% |
| | 1015 | 189 | 232 | 421 | 55.1% |
| English Readiness | No | 860 | 563 | 1423 | 39.6% |
| | Yes | 698 | 714 | 1412 | 50.6% |

The populations in the three GPA groups shown in Table 8 were almost evenly distributed. The retention rates for the two 2.00 GPA and above groups were the same at 65.2%, but the retention rate for the 1.99 GPA or less group was significantly lower at

24.1%. Passing the FYSS with a "P, A, B, or C" grade made all the difference in retention rate, at 62.4%; it was about two times those of the other three categories.

Table 8
*Academic Factor (First Year)*

| | | Not Retained | Retained | Total | Retention Rate |
|---|---|---|---|---|---|
| GPA_Group | 0 - 1.99 | 1016 | 322 | 1338 | 24.1% |
| | 2.00 - 2.99 | 358 | 672 | 1030 | 65.2% |
| | 3.00 - 4.00 | 406 | 760 | 1166 | 65.2% |
| FYSS_Outcome | Not Enrolled | 837 | 383 | 1220 | 31.4% |
| | Never Attended | 57 | 17 | 74 | 23.0% |
| | Failed | 421 | 153 | 574 | 26.7% |
| | Passed | 737 | 1223 | 1960 | 62.4% |

Table 9 shows the distributions of retention rate for each of the four demographic categories. Both the population and retention rate in the age group seemed to vary inversely with the age of students. Black and White students made up the majority of the racial groups. They also represented the lowest and highest in retention rate respectively, with a 19.2 percentage point difference. The retention rate of female students fared better than male students by 8.7%. Those students receiving no financial aid did slightly better in retention than their counterparts by 3.6%.

Table 10 summarizes the population and retention rate distributions with respect to the category of non-academic factors. FYSS attended students had both higher population and retention rate than non-FYSS attended students. The same trend was true for full-time versus part-time students and new (high school graduate) students versus delayed entering college students. Suburban high schools had the largest number of students and home school had the smallest number of students. The retention rate of private school students was the highest and almost two times that of the lowest seen in GED students.

The top three educational goals of first-time community college students were obtaining an associate degree for transfer, obtaining just an associate degree, and taking classes for transfer. Those students who had transfer in mind had the highest retention rate at 52% or more. Certificate seeking students had the lowest retention rate at 25.9%.

Table 9
*Demographic Factor*

| | | Not Retained | Retained | Total | Retention Rate |
|---|---|---|---|---|---|
| Age Group | 18-19 | 1120 | 1283 | 2403 | 53.4% |
| | 20-24 | 462 | 257 | 719 | 35.7% |
| | 25-29 | 186 | 86 | 272 | 31.6% |
| | 30-34 | 97 | 60 | 157 | 38.2% |
| | 35-39 | 50 | 34 | 84 | 40.5% |
| | 40-59 | 118 | 52 | 170 | 30.6% |
| | 60-74 | 16 | 4 | 20 | 20.0% |
| | 75+ | 2 | 0 | 2 | 0.0% |
| Race Recode | Black | 789 | 429 | 1218 | 35.2% |
| | More Than One Race | 105 | 75 | 180 | 41.7% |
| | Hispanic | 143 | 132 | 275 | 48.0% |
| | Asian & Pacific Islander | 66 | 62 | 128 | 48.4% |
| | White | 819 | 979 | 1798 | 54.4% |
| Gender Code | Male | 1084 | 783 | 1867 | 41.9% |
| | Female | 968 | 993 | 1961 | 50.6% |
| Financial Aid | No | 712 | 675 | 1387 | 48.7% |
| | Yes | 1340 | 1101 | 2441 | 45.1% |

In the multi-mono-shift category, students who were willing to take classes at any time on any day had a higher retention rate than those who took classes at a single shift. The population in the FYSS delivery modality was dominated by the classroom mode, which also accounted for the highest retention rate. The online and hybrid modes combined for about 5% of the FYSS population. Students with online class taking experience did slightly better in retention than those who had none.

Table 10

*Non-academic Factor (Student Actual)*

| | | Not Retained | Retained | Total | Retention Rate |
|---|---|---|---|---|---|
| FYSS_Attended | No | 894 | 400 | 1294 | 30.9% |
| | Yes | 1158 | 1376 | 2534 | 54.3% |
| FT or PT | Part Time | 942 | 547 | 1489 | 36.7% |
| | Full Time | 1110 | 1229 | 2339 | 52.5% |
| New or Delayed HS | Delayed High School | 1029 | 590 | 1619 | 36.4% |
| | New High School | 1023 | 1186 | 2209 | 53.7% |
| HS_Type | ICSD | 319 | 207 | 526 | 39.4% |
| | Suburban | 729 | 767 | 1496 | 51.3% |
| | Private | 81 | 106 | 187 | 56.7% |
| | Out of County | 358 | 318 | 676 | 47.0% |
| | Other US | 80 | 45 | 125 | 36.0% |
| | Foreign | 125 | 127 | 252 | 50.4% |
| | Home School | 37 | 39 | 76 | 51.3% |
| | Unknown | 116 | 79 | 195 | 40.5% |
| | GED | 207 | 88 | 295 | 29.8% |
| Ed Goal | None | 176 | 137 | 313 | 43.8% |
| | Obtain GED | 73 | 62 | 135 | 45.9% |
| | Complete Single Course | 96 | 58 | 154 | 37.7% |
| | Job Skill Courses | 89 | 48 | 137 | 35.0% |
| | Transfer Courses | 293 | 321 | 614 | 52.3% |
| | Certificate | 126 | 44 | 170 | 25.9% |
| | Associate Degree | 553 | 405 | 958 | 42.3% |
| | Associate and Transfer | 646 | 701 | 1347 | 52.0% |
| Multi Mono Shift | Mono | 871 | 605 | 1476 | 41.0% |
| | Multi | 1173 | 1170 | 2343 | 49.9% |
| FYSS Modality | Online | 57 | 60 | 117 | 51.3% |
| | Hybrid | 16 | 7 | 23 | 30.4% |
| | Classroom | 1149 | 1330 | 2479 | 53.7% |
| Online Exp | No | 1454 | 1208 | 2662 | 45.4% |
| | Yes | 598 | 568 | 1166 | 48.7% |
| All Factors | Grand Total | 2052 | 1776 | 3828 | 46.4% |

FYE Faculty Non-Academic Survey Response Data

There was a quantitative part and a qualitative part of the survey response data. Table 11 shows the quantitative part of the faculty rated non-academic descriptive statistics. Faculty members were asked to rate the competent level of the 12 non-academic factors first of the persisters as a group and then second of the leavers as a group based on observations in the classroom or perceptions.

Table 11

*Non-academic Descriptive Statistics*

| | | N | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|---|
| Goal Striving | Leavers | 34 | 2.88 | 1.472 | 1 | 7 |
| | Persisters | 35 | 5.60 | 1.117 | 3 | 7 |
| General Determination | Leavers | 34 | 3.26 | 1.310 | 1 | 5 |
| | Persisters | 35 | 5.34 | 1.056 | 3 | 7 |
| Achievement Motivation | Leavers | 33 | 3.33 | 1.362 | 1 | 6 |
| | Persisters | 35 | 5.54 | 1.094 | 3 | 7 |
| Academic Discipline | Leavers | 35 | 2.77 | 1.087 | 1 | 4 |
| | Persisters | 36 | 5.31 | .980 | 3 | 7 |
| Study Skills | Leavers | 35 | 2.86 | 1.089 | 1 | 5 |
| | Persisters | 36 | 5.11 | 1.410 | 2 | 7 |
| Communication Skills | Leavers | 35 | 3.40 | 1.376 | 1 | 7 |
| | Persisters | 36 | 5.28 | 1.085 | 3 | 7 |
| Emotional Control | Leavers | 34 | 3.12 | 1.343 | 1 | 7 |
| | Persisters | 35 | 5.20 | 1.052 | 3 | 7 |
| Academic Self-Confidence | Leavers | 33 | 2.73 | 1.376 | 1 | 6 |
| | Persisters | 35 | 5.00 | 1.057 | 3 | 7 |
| Social Involvement | Leavers | 34 | 2.82 | 1.141 | 1 | 5 |
| | Persisters | 36 | 4.67 | 1.414 | 2 | 7 |
| Perceived Social Support | Leavers | 33 | 2.82 | 1.185 | 1 | 5 |
| | Persisters | 36 | 4.83 | 1.254 | 2 | 7 |
| Financial Support | Leavers | 31 | 3.29 | 1.395 | 1 | 6 |
| | Persisters | 32 | 4.94 | 1.162 | 3 | 7 |
| Commitment to College | Leavers | 35 | 2.43 | 1.378 | 1 | 5 |
| | Persisters | 36 | 5.47 | 1.298 | 2 | 7 |

*Note.* All factors are statistically significant between groups, $p < .001$.

Again, a rating of one means almost never competent and a rating of seven means almost always competent. Some faculty members chose to skip or answer unsure in parts of the questions as indicated by the count "N". Figure 2 shows the mean values of leavers and persisters for each of the non-academic factors. Commitment to college and goal striving are the first and second factors that had the largest differences in mean values between leavers and persisters.

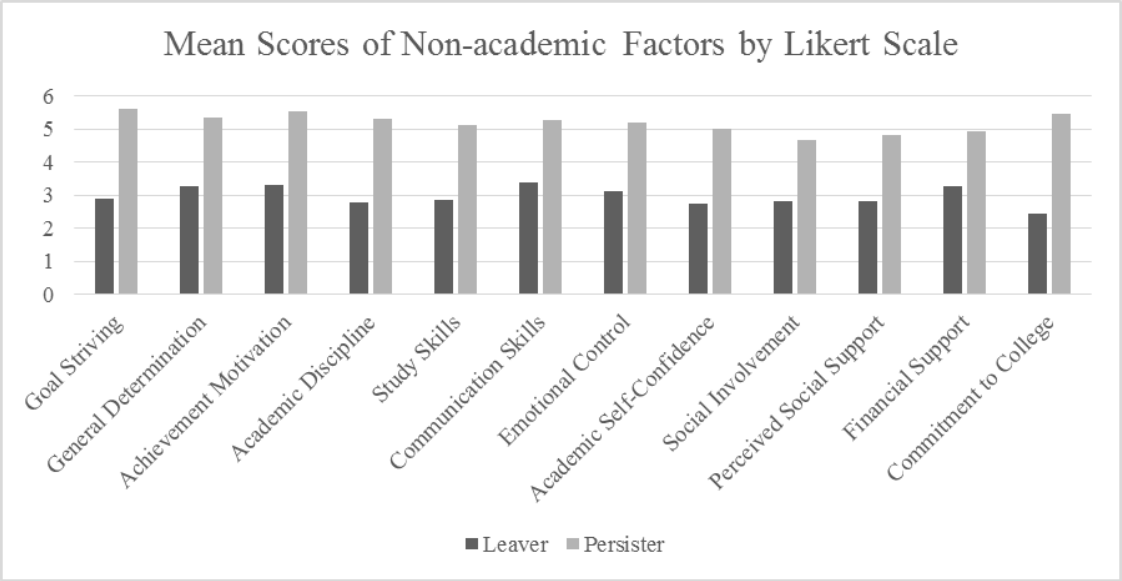



*Figure 2*. Mean scores of non-academic factors between persisters and leavers.

## FACTOR ANALYSIS

Factor analyses were the major part of the study used to investigate retention in the macro level of the College and the micro level of students. The original plan was to construct a linear regression model of retention rate as a function of unemployment rate, "Drop No Pay", and first-year experience. After considering the limited amount of cases, it was determined that such a model might have been susceptible to random errors.

Consequently, cross-tabulation and Chi-Square analyses were used in place of the linear regression model.

Multi-Year College Retention Analysis

The first analysis was the cross-tabulation analysis of the "Drop No Pay" factor and student retention as shown in Table 12. The fall-to-fall retention rate in 2013 was 40.9%, under the previous tuition payment policy (once). The fall-to-fall retention rate in 2014 was 46.1% under the new tuition payment policy (periodic). The retention rate gain due to this policy change was 5.2%. The Chi-Square test results shown in Table 13 indicated that this gain was statistically significant. However, the effect size given by Phi equal to 0.053, in a range between zero and one, is considered small.

Table 12
*Drop No Pay * Retention Cross-tabulation*

| | | | Retention | | |
|---|---|---|---|---|---|
| | | | No | Yes | Total |
| Drop No Pay | Once (Fall 2013) | Count | 2651 | 1835 | 4486 |
| | | % within Drop No Pay | 59.1% | 40.9% | 100.0% |
| | Periodic (Fall 2014) | Count | 2133 | 1826 | 3959 |
| | | % within Drop No Pay | 53.9% | 46.1% | 100.0% |
| Total | | Count | 4784 | 3661 | 8445 |
| | | % within Drop No Pay | 56.6% | 43.4% | 100.0% |

Table 13
*Drop No Pay * Retention Chi-Square Test*

| | Value | df | Asymp. Sig. (2-sided) | Approx. Sig. |
|---|---|---|---|---|
| Pearson Chi-Square | 23.314 | 1 | .000*** | |
| Phi | .053 | | | .000*** |
| Cramer's V | .053 | | | .000*** |
| N of Valid Cases | 8445 | | | |

*Note*. Significance of correlation *** $p < .001$

The same cross-tabulation and Chi-Square analyses were conducted on the first-year experience factor and student retention. The analysis results are shown in Tables 14 and 15. The fall-to-fall retention rate in 2014 prior to the implementation of the first-year experience program was 46.1%. The retention rate in 2015 with the inauguration of the first-year experience program was 46.5%. These results were not statistically significant.

Table 14

*First Year Exp * Retention Cross-tabulation*

| | | | Retention | | |
|---|---|---|---|---|---|
| | | | No | Yes | Total |
| First Year Exp | No (Fall 2014) | Count | 2133 | 1826 | 3959 |
| | | % within First Year Exp | 53.9% | 46.1% | 100.0% |
| | Yes (Fall 2015) | Count | 2102 | 1829 | 3931 |
| | | % within First Year Exp | 53.5% | 46.5% | 100.0% |
| Total | | Count | 4235 | 3655 | 7890 |
| | | % within First Year Exp | 53.7% | 46.3% | 100.0% |

Table 15

*First Year Exp * Retention Chi-Square Test*

| | Value | df | Asymp. Sig. (2-sided) | Approx. Sig. |
|---|---|---|---|---|
| Pearson Chi-Square | .130 | 1 | .718 | |
| Phi | .004 | | | .718 |
| Cramer's V | .004 | | | .718 |
| N of Valid Cases | 7890 | | | |

2014 First-Time College Student Cohort Academic and Non-Academic Factor Analysis

The focus of this study was the impact of the inaugural first-year experience program on student retention. Analyses of variance were performed individually with the FYSS outcomes and Fall 2015 enrollment of students. Tables 16 and 17 show the FYSS outcome ANOVA results. Students (to be understood as on average from here on in this

section) who did not enroll in the FYSS were the oldest group. Students who passed the FYSS were the youngest group.

Gender was coded one and two for male and female respectively. A mean value of 1.5 indicates a 50-50 split between male and female. Accordingly, more female students were successful with the FYSS than male students. Delayed college enrollment students were coded as one, and newly high school graduates (new) were coded as two. A higher percentage of "new" students enrolled in the FYSS with a passed or failed outcome than "delayed" students. The opposite was true for students who had not enrolled in or had never attended the FYSS. Similarly, a higher percentage of students with online experience enrolled in the FYSS than students without online experience. GPA ranking from high to low were students who passed the FYSS, not enrolled in the FYSS, never attended class, and failed the FYSS. Concerning the "Multi Mono Shift" factor, with the exception of those who did not enroll in the FYSS, all other students took classes in more than one shift.

Students who passed the FYSS were 14% college math ready, students who did not enroll were 12% math ready, students who failed were 6% math ready, and students who never attended were 0% math ready. College English readiness followed the same trend as math at 55%, 48%, 41%, and 23%, respectively. Students who did not enroll in the FYSS had the lowest ratio of financial aid recipients at 53% but those who never attended had the highest at 91%. Students who never attended the FYSS also lived in the poorest neighborhood based on median household income by zip-code. Students who passed the FYSS course had a retention rate of 62% against an overall average of 46%. It should be noted that all 12 factors reported were statistically significant between groups.

Table 16
*ANOVA Analysis for FYSS Outcome*

| | | N | Mean | 95% Confidence Interval for Mean | | Min | Max |
|---|---|---|---|---|---|---|---|
| | | | | Lower Bound | Upper Bound | | |
| Hrs Attempted Fall 2014 | Not Enrolled | 1220 | 9.58 | 9.32 | 9.84 | 0 | 24 |
| | Never Attended | 74 | 11.74 | 11.04 | 12.45 | 4 | 19 |
| | Failed | 574 | 11.28 | 11.03 | 11.53 | 1 | 19 |
| | Passed | 1960 | 11.92 | 11.80 | 12.05 | 1 | 20 |
| | Total | 3828 | 11.07 | 10.96 | 11.19 | 0 | 24 |
| Age | Not Enrolled | 1219 | 25.38 | 24.79 | 25.96 | 18 | 82 |
| | Never Attended | 74 | 23.28 | 21.52 | 25.05 | 18 | 60 |
| | Failed | 574 | 20.72 | 20.22 | 21.22 | 18 | 67 |
| | Passed | 1960 | 20.18 | 19.95 | 20.41 | 18 | 57 |
| | Total | 3827 | 21.98 | 21.73 | 22.22 | 18 | 82 |
| Gender Code | Not Enrolled | 1220 | 1.45 | 1.42 | 1.47 | 1 | 2 |
| | Never Attended | 74 | 1.46 | 1.34 | 1.58 | 1 | 2 |
| | Failed | 574 | 1.48 | 1.44 | 1.52 | 1 | 2 |
| | Passed | 1960 | 1.57 | 1.54 | 1.59 | 1 | 2 |
| | Total | 3828 | 1.51 | 1.50 | 1.53 | 1 | 2 |
| New or Delayed HS | Not Enrolled | 1220 | 1.34 | 1.31 | 1.37 | 1 | 2 |
| | Never Attended | 74 | 1.43 | 1.32 | 1.55 | 1 | 2 |
| | Failed | 574 | 1.61 | 1.57 | 1.65 | 1 | 2 |
| | Passed | 1960 | 1.72 | 1.70 | 1.74 | 1 | 2 |
| | Total | 3828 | 1.58 | 1.56 | 1.59 | 1 | 2 |
| Online Exp | Not Enrolled | 1220 | .24 | .22 | .27 | 0 | 1 |
| | Never Attended | 74 | .15 | .07 | .23 | 0 | 1 |
| | Failed | 574 | .32 | .28 | .36 | 0 | 1 |
| | Passed | 1960 | .34 | .32 | .37 | 0 | 1 |
| | Total | 3828 | .30 | .29 | .32 | 0 | 1 |
| GPA | Not Enrolled | 1024 | 2.3072 | 2.2264 | 2.3880 | .00 | 4.00 |
| | Never Attended | 55 | 1.2360 | .8976 | 1.5744 | .00 | 4.00 |
| | Failed | 509 | 1.0266 | .9332 | 1.1200 | .00 | 4.00 |
| | Passed | 1946 | 2.4196 | 2.3734 | 2.4658 | .00 | 4.00 |
| | Total | 3534 | 2.1680 | 2.1272 | 2.2088 | .00 | 4.00 |

*Note.* ANOVA indicated that all factors are statistically significant between groups, $p < .001$.

Table 17
*ANOVA Analysis for FYSS Outcome Continued*

| | | | | 95% Confidence Interval for Mean | | | |
|---|---|---|---|---|---|---|---|
| | | N | Mean | Lower Bound | Upper Bound | Min | Max |
| Multi Mono Shift | Not Enrolled | 1212 | 1.29 | 1.27 | 1.32 | 1 | 2 |
| | Never Attended | 74 | 1.77 | 1.67 | 1.87 | 1 | 2 |
| | Failed | 574 | 1.75 | 1.71 | 1.78 | 1 | 2 |
| | Passed | 1959 | 1.77 | 1.75 | 1.78 | 1 | 2 |
| | Total | 3819 | 1.61 | 1.60 | 1.63 | 1 | 2 |
| Math Readiness | Not Enrolled | 701 | .12 | .10 | .15 | 0 | 1 |
| | Never Attended | 71 | .00 | .00 | .00 | 0 | 0 |
| | Failed | 538 | .06 | .04 | .08 | 0 | 1 |
| | Passed | 1751 | .14 | .13 | .16 | 0 | 1 |
| | Total | 3061 | .12 | .11 | .13 | 0 | 1 |
| English Readiness | Not Enrolled | 672 | .48 | .44 | .51 | 0 | 1 |
| | Never Attended | 70 | .23 | .13 | .33 | 0 | 1 |
| | Failed | 510 | .41 | .37 | .46 | 0 | 1 |
| | Passed | 1583 | .55 | .52 | .57 | 0 | 1 |
| | Total | 2835 | .50 | .48 | .52 | 0 | 1 |
| Financial Aid | Not Enrolled | 1220 | .53 | .50 | .56 | 0 | 1 |
| | Never Attended | 74 | .91 | .84 | .97 | 0 | 1 |
| | Failed | 574 | .75 | .72 | .79 | 0 | 1 |
| | Passed | 1960 | .66 | .64 | .68 | 0 | 1 |
| | Total | 3828 | .64 | .62 | .65 | 0 | 1 |
| Zip Median HH Income | Not Enrolled | 1200 | $47,583 | $46,533 | $48,634 | $12,457 | $112,794 |
| | Never Attended | 73 | $30,474 | $26,692 | $34,255 | $12,457 | $96,750 |
| | Failed | 570 | $45,483 | $43,931 | $47,034 | $12,457 | $112,794 |
| | Passed | 1957 | $50,478 | $49,654 | $51,303 | $12,457 | $112,794 |
| | Total | 3800 | $48,430 | $47,831 | $49,030 | $12,457 | $112,794 |
| Fall 2015 Reenroll | Not Enrolled | 1220 | .31 | .29 | .34 | 0 | 1 |
| | Never Attended | 74 | .23 | .13 | .33 | 0 | 1 |
| | Failed | 574 | .27 | .23 | .30 | 0 | 1 |
| | Passed | 1960 | .62 | .60 | .65 | 0 | 1 |
| | Total | 3828 | .46 | .45 | .48 | 0 | 1 |

*Note.* ANOVA indicated that all factors are statistically significant between groups, $p < .001$.

Table 18 shows the results of factors with respect to reenrollment. Students who reenrolled in the fall semester of 2015 tended to attempt more credit-hours during the previous fall term, to be younger, to have a larger female proportion, to be most recent (new) high school graduates, to have more online experience, to have higher GPA, to be more math and English ready, to have a lower proportion of financial aid recipients, and to come from a more affluent neighborhood. Except for the online experience factor, all factors were statistically significant between groups.

Chi-Square analysis was conducted to determine the factor effect size given in "Phi" for categorical factors. Means comparison analysis was conducted to determine the factor effect size given in "Eta" for numerical factors. Table 19 shows the summary results of effect size and level of statistical significance for all academic and non-academic (student intrinsic as opposed to faculty rated) factors.

Student GPA had the largest effect size among all factors. Its effect size with an Eta value of 0.563 is considered a moderate relationship, in a range of zero to one. Squaring Eta gives a value of 0.317; that means 31.7% of the variance in fall-to-fall retention can be explained by student GPA. The recoded GPA-Group factor had a slightly lower effect size with a Phi value of 0.399.

The next highest effect size belongs to the FYSS Outcome factor. However its Phi value of 0.331 is considered a weak relationship in statistical sense. The remaining factors in the table show some but weak relationships with fall-to-fall retention. Regardless of the effect size, all factors except the delivery modality of the FYSS and the online experience of students were statistically significant. While the binary financial aid factor was statistically significant, its actual financial aid amount version was not.

Table 18
*ANOVA for Fall 2015 Reenroll*

| | | N | Mean | Min | Max | Sig. Btwn. Groups |
|---|---|---|---|---|---|---|
| Hrs Attempted Fall 2014 | No | 2052 | 10.44 | 0 | 24 | |
| | Yes | 1776 | 11.80 | 1 | 24 | |
| | Total | 3828 | 11.07 | 0 | 24 | .000*** |
| Age | No | 2051 | 22.97 | 18 | 82 | |
| | Yes | 1776 | 20.93 | 18 | 67 | |
| | Total | 3827 | 21.98 | 18 | 82 | .000*** |
| Gender Code | No | 2052 | 1.47 | 1 | 2 | |
| | Yes | 1776 | 1.56 | 1 | 2 | |
| | Total | 3828 | 1.51 | 1 | 2 | .000*** |
| New or Delayed HS | No | 2052 | 1.50 | 1 | 2 | |
| | Yes | 1776 | 1.67 | 1 | 2 | |
| | Total | 3828 | 1.58 | 1 | 2 | .000*** |
| Online Exp | No | 2052 | .29 | 0 | 1 | |
| | Yes | 1776 | .32 | 0 | 1 | |
| | Total | 3828 | .30 | 0 | 1 | .057 |
| GPA | No | 1780 | 1.65 | .00 | 4.00 | |
| | Yes | 1754 | 2.69 | .00 | 4.00 | |
| | Total | 3534 | 2.17 | .00 | 4.00 | .000*** |
| Multi Mono Shift | No | 2044 | 1.57 | 1 | 2 | |
| | Yes | 1775 | 1.66 | 1 | 2 | |
| | Total | 3819 | 1.61 | 1 | 2 | .000*** |
| Math Readiness | No | 1628 | .08 | 0 | 1 | |
| | Yes | 1433 | .17 | 0 | 1 | |
| | Total | 3061 | .12 | 0 | 1 | .000*** |
| English Readiness | No | 1558 | .45 | 0 | 1 | |
| | Yes | 1277 | .56 | 0 | 1 | |
| | Total | 2835 | .50 | 0 | 1 | .000*** |
| Financial Aid | No | 2052 | .65 | 0 | 1 | |
| | Yes | 1776 | .62 | 0 | 1 | |
| | Total | 3828 | .64 | 0 | 1 | .034* |
| Zip Median HH Income | No | 2033 | $46,625 | $12,457 | $112,794 | |
| | Yes | 1767 | $50,507 | $12,457 | $112,794 | |
| | Total | 3800 | $48,430 | $12,457 | $112,794 | .000*** |

*Note*. Significance of correlation * p < .05, *** p < .001

Table 19
*Fall to Fall Semester Retention: Factor Effect Size and Significance*

| Factor | Academic | Eta | Phi | p |
|---|---|---|---|---|
| GPA | Yes | 0.563 | | .000*** |
| GPA_Group | Yes | | 0.399 | .000*** |
| FYSS Outcome | Yes | | 0.331 | .000*** |
| Math P Test | Yes | | 0.212 | .000*** |
| Math Readiness | Yes | | 0.138 | .000*** |
| English P Test | Yes | | 0.160 | .000*** |
| English Readiness | Yes | | 0.111 | .000*** |
| FYSS_Attended | Non | | 0.222 | .000*** |
| Zip Median HH Income | Non | 0.27 | | .000*** |
| Age | Non | 0.226 | | .000*** |
| Age Group | Non | | 0.187 | .000*** |
| Hrs Attempted Fall 2014 | Non | 0.241 | | .000*** |
| FT or PT | Non | | 0.155 | .000*** |
| Race Recode | Non | | 0.175 | .000*** |
| New or Delayed HS | Non | | 0.171 | .000*** |
| HS_Type | Non | | 0.141 | .000*** |
| Ed Goal | Non | | 0.139 | .000*** |
| Multi Mono Shift | Non | | 0.087 | .000*** |
| Gender Code | Non | | 0.087 | .000*** |
| Financial Aid | Non | | -0.034 | .034* |
| Fin Aid Amount | Non | 0.329 | | .075 |
| FYSS Modality | Non | | 0.044 | .076 |
| Online Exp | Non | | 0.031 | .057 |

*Note*. Eta is the measure of effect size for numerical factors and Phi is the measure of effect size for categorical factors.
Significance of correlation * $p < .05$, *** $p < .001$

The next analysis involved the logistic regression. Many SPSS built-in methods were tried and many models were constructed. The model selected and shown had the largest number of statistically significant factors as shown in Table 20. The dependent variable was Fall 2015 Reenrollment. The independent variables, all categorical, included educational goal, Fall 2014 enrollment intensity (full-time or part-time), gender, new or delayed high school, FYSS outcome, race, and GPA. The last two columns showing "Sig." and "EXP(B)" provide the most important results. All factors are statistically

significant though not necessarily in every item of their subcategories. EXP(B), known as the exponentiation of the unstandardized beta weight, gives the expected probability with respect to the first item (reference group) in the category.

Table 20
*Logistic Regression: Retention as a Function of Academic and Non-academic Factors*

| | Variable Coding | Freq | B | S.E. | Sig. | Exp(B) |
|---|---|---|---|---|---|---|
| EdGoal | None | 251 | | | .000*** | |
| EdGoal(1) | Obtain GED | 120 | 0.071 | 0.25 | .776 | 1.07 |
| EdGoal(2) | Complete Single Course | 109 | -0.16 | 0.25 | .52 | 0.84 |
| EdGoal(3) | Job Skill Courses | 122 | -0.28 | 0.25 | .267 | 0.75 |
| EdGoal(4) | Transfer Courses | 545 | 0.185 | 0.17 | .297 | 1.20 |
| EdGoal(5) | Certificate | 151 | -0.73 | 0.24 | .003** | 0.48 |
| EdGoal(6) | Associate Degree | 839 | -0.02 | 0.16 | .893 | 0.97 |
| EdGoal(7) | Associate and Transfer | 1193 | 0.346 | 0.16 | .032* | 1.41 |
| FT_PT | (1 = PT, 2 = FT) | 3828 | 0.291 | 0.08 | .001** | 1.33 |
| GenderCode | (1 =Male, 2 =Female) | 3828 | 0.163 | 0.08 | .044* | 1.17 |
| New_DelayedHS | (1 =Delayed, 2 =New) | 3828 | 0.272 | 0.09 | .002** | 1.31 |
| FYSS_Outcome | Not Enrolled | 927 | | | .000*** | |
| FYSS_Outcome(1) | Never Attended | 54 | 0.185 | 0.34 | .591 | 1.20 |
| FYSS_Outcome(2) | Failed | 478 | 0.265 | 0.14 | .066 | 1.30 |
| FYSS_Outcome(3) | Passed | 1871 | 0.912 | 0.09 | .000*** | 2.49 |
| RaceRecode | Black | 1090 | | | .017* | |
| RaceRecode(1) | More Than One Race | 158 | -0.05 | 0.19 | .787 | 0.94 |
| RaceRecode(2) | Hispanic | 260 | 0.145 | 0.16 | .365 | 1.15 |
| RaceRecode(3) | Asian & Pacific Islander | 119 | 0.153 | 0.21 | .479 | 1.16 |
| RaceRecode(4) | White | 1703 | 0.3 | 0.09 | .001** | 1.35 |
| GPA_Group | 0 - 1.99 | 1271 | | | .000*** | |
| GPA_Group(1) | 2.00 - 2.99 | 969 | 1.703 | 0.10 | .000*** | 5.49 |
| GPA_Group(2) | 3.00 - 4.00 | 1090 | 1.863 | 0.10 | .000*** | 6.44 |
| Constant | | | -3.12 | 0.27 | .000*** | 0.04 |

Students in the 3.00-4.00 GPA group were 6.44 times more likely to reenroll in the 2015 fall term than students in the 0-1.99 GPA group, students in the 2.00-2.99 GPA group were 5.49 times more likely to reenroll than the 0-1.99 GPA group. White students were 1.35 times more likely to reenroll than Black students. The probabilities of other ethnic groups were not statistically significant. Students who passed the FYSS were 2.49

times more likely to return than those who did not enroll in the FYSS. New students were 1.31 times more likely to return than delayed high school students. Female students were 1.17 times more likely to return than male students. Students who enrolled full-time during the 2014 fall term were 1.33 times more likely to return than part-time students.

Students who had an educational goal of attaining an associate degree and transfer were 1.41 times more like to return than those who had no educational goal. Students whose educational goal was certificate were 0.48 times the likelihood to return compared to students with no goal.

Table 21 provides the model goodness of fit summary. Based on the values of Nagelkerke R and R Square, the relationship fit between retention and key student factors was moderate. Thirty point seven percent of the variance in retention can be explained by the included student factors.

Table 21

*Logistic Regression Student Model Summary*

| -2 Log likelihood | Cox & Snell R Square | Nagelkerke R Square | Nagelkerke R |
|---|---|---|---|
| 3744.003 | .230 | .307 | .554 |

Confirming that GPA was such a dominant factor for student retention, a linear regression model for GPA was subsequently created to identify GPA shaping factors. Table 22 shows the GPA model of the student population who enrolled in the FYSS with an outcome of either "4" coded for passed or "3" coded for failed. A quick examination of the unstandardized coefficients "B" shows that only the financial aid amount coefficient was negative other than the constant coefficient; all other coefficients were positive. The model predicted that every $1,000 financial aid amount a student received would lower the student's GPA by 0.03433 points.

Table 22
*Linear Regression Model of GPA as a Function of the Most Significant Factors*

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | | |
| (Constant) | -3.433 | .252 | | -13.621 | .000*** |
| FYSS_Outcome | 1.194 | .056 | .417 | 21.511 | .000*** |
| Math Readiness | .429 | .075 | .116 | 5.721 | .000*** |
| English Readiness | .186 | .049 | .078 | 3.792 | .000*** |
| Fin Aid Amount | -3.433E-5 | .000 | -.087 | -4.012 | .000*** |
| Gender Code | .139 | .046 | .058 | 3.009 | .003** |
| Age | .018 | .004 | .087 | 4.383 | .000*** |
| Hrs Attempted Fall 2014 | .019 | .008 | .046 | 2.346 | .019** |
| RaceRecode(1) | -.016 | .105 | -.003 | -.152 | .879 |
| RaceRecode(2) | .047 | .091 | .010 | .522 | .601 |
| RaceRecode(3) | .339 | .174 | .038 | 1.950 | .051 |
| RaceRecode(4) | .273 | .056 | .113 | 4.869 | .000*** |

*Note*. Selecting only cases for which FYSS_Attended = Yes
Significance of correlation ** p < .01, *** p < .001

Passing as opposed to failing the FYSS would improve the student's GPA by 1.194 points. Students who were college math and English ready would have respectively a 0.429 and a 0.186 GPA advantages over those who were not ready. Female students had a 0.139 higher GPA than male students. Previously shown in Table 9, the student Age Group had a negative trending slope for retention, but here the Age slope was positive for GPA. Every year of age increase of students would result in a 0.018 GPA increase. Similarly with enrollment intensity, every credit-hour increase would result in a 0.019 GPA increase.

Since race is a non-dichotomous categorical variable, it was dummy coded. Black students were the reference group. The results of the More Than One Race, Hispanic, and Asian & Pacific Islander race groups were not statistically significant. However, the

result of the White students was statistically significant and showed a 0.273 GPA advantage over the Black students. Table 23 gives the GPA model summary. Using the Adjusted R Square, the model fit was moderate; 28.6% of the variance in GPA can be explained by the included factors.

Table 23
*GPA Model Summary*

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| | FYSS_Attended = Yes (Selected) | | | |
| 1 | .538 | .290 | .286 | 1.01242 |

## CLASSICAL CONTENT ANALYSIS

The first-year experience program was implemented to improve student retention. Being an inaugural program in 2014, areas of concern needed to be captured to make continuous improvement in operations and effectiveness. Open-ended questions in the survey of faculty who taught the FYSS in the fall of 2014 were developed for this purpose. The six questions were:

1. What areas went well for the inaugural GEN-1803 First-Year Success Seminar (FYSS)?
2. What areas would you suggest for continuous improvement in the FYSS?
3. What are the top two or three reasons students failed the FYSS?
4. What classroom best practices do you know or have tried, can help make a difference in better student retention?
5. What two or three things can the college do to inspire students to return in subsequent semesters?

6. Other Comments:

Classical content analysis was used to consolidate the qualitative responses to the first five questions. Meaningful responses to Question 6 were reproduced to preserve the original contents. The application of classical content analysis involved the chunking of the written responses into singular themes. These themes were then combined into common emergent codes. The number of times each code mentioned was accounted. Tables 24 to 28 give the qualitative analysis findings to the first five questions respectively. The tables were organized with the highest frequency code on top and the lowest frequency code on bottom.

The following additional comments were provided by the instructors:

1. The school system, student, and parental attitude towards self and school has to be changed where there is respect and value for self, education, and society.
2. FYSS should not be a burden to students - no big assignments. Set them up for success.
3. Provide laptops for online courses to students to promote greater opportunity and accessibility.
4. FYE is critical but it will continue to miss the mark if the College fails to collect, review, and possibly act on student opinions of our non-academic services. The biggest and most fixable is that of technology... my tri-c, email, and blackboard is bewildering enough to many that they'll quit. Insisting on Wi-Fi logins...
5. I enjoy teaching FYE class especially seeing how well they are doing online.
6. I will never teach another FYSS class again. I teach math. End of story.

7. FYE proved to be a valuable experience for the instructor and the students… some may not know that yet.

Comment 1 stated a systems problem in a global sense. Comment 2 reflected a philosophy. Comments 3 and 4 identified a technology barrier and potential remedy. Comments 5, 6, and 7 provided personal views, two favorable and one negative, concerning their teaching experiences of the FYSS.

Table 24

*Areas Went Well for the Inaugural First Year Success Seminar*

| Emergent Code | Number of Times Mentioned |
|---|---|
| Allowed students to learn about resources available in college | 9 |
| Allowed students to learn about materials in the FYSS course outline | 8 |
| Provided opportunities for faculty engagement | 6 |
| Facilitated communication, and teaching collaboration among instructors | 5 |
| Enabled students to develop educational goals and plan | 3 |
| Facilitated peer engagement for students | 3 |
| Provided meaningful assignments to students | 3 |
| Made FYSS mandatory (intention of college) | 2 |
| Realized student participation and success rate (online included) | 2 |
| Confirmed students' perception of purpose | 1 |
| Facilitated college engagement by students | 1 |
| Had guest speakers | 1 |
| Included interactive modules | 1 |
| Provided training for FYSS instructors | 1 |

Table 25

*Areas for Continuous Improvement in the First Year Success Seminar*

| Emergent Code | Number of Times Mentioned |
|---|---|
| Create standard, using simple, and engaging curriculum & textbook | 11 |
| Two to 16 week class duration format experimentation and evaluation | 4 |
| Assign grades instead of pass or fail to improve seriousness perception | 3 |
| Learn from other instructors | 3 |
| Develop academic pathways for students | 2 |
| Develop second semester follow-up course | 2 |
| More emphasis on financial wellness | 2 |
| Promote course value of FYSS | 2 |
| Attendance requirement | 1 |
| Bb (Blackboard) & more training for instructors | 1 |
| Ensure consistent student experience | 1 |
| FYE instructors get to case manage their students through 2nd semester | 1 |
| In class exercises to maximize soft-skill improvements. | 1 |
| Instructors need counseling experience to teach | 1 |
| Involve the entire college community | 1 |
| More online FYE classes | 1 |
| More resources for non-traditional students (such as evening office hours) | 1 |
| Need to address technology/support barriers | 1 |
| Sharing of resources among instructors | 1 |
| Student interactions | 1 |
| Student survival guide | 1 |
| Take home assignments | 1 |
| Teach online and library literacies | 1 |
| Teach what it means to be a student | 1 |

Table 26

*Top Two or Three Reasons Students Failed the First Year Success Seminar*

| Emergent Code | Number of Times Mentioned |
|---|---|
| Lacked attendance | 25 |
| Missed assignments | 18 |
| Course perceived to have no value | 10 |
| Some students were not motivated or committed | 9 |
| Some students were not college ready | 2 |
| Taught by unqualified instructors | 2 |
| Assignments not clear and students didn't seek clarifications | 1 |
| Course inconsistency (misled by students in other sessions) | 1 |
| Full term was too long for students to focus | 1 |
| Had no technology and access at home | 1 |
| Instructor did not design FYSS to be fail-proof | 1 |
| Not follow direction | 1 |
| Poor skills in reading and technology | 1 |
| Students had transient housing | 1 |
| Students not asking questions to make improvements | 1 |
| Students not engaged in group assignments | 1 |
| Students not respond to contact | 1 |

Table 27

*Classroom Best Practices Help Make a Difference in Better Student Retention*

| Emergent Code | Number of Times Mentioned |
|---|---|
| Student participation in activities (including treasure hunts) | 6 |
| Group work | 5 |
| Active and applied learning (inc. creative thinking & reflective writing) | 4 |
| Contact and connect with students | 4 |
| Guest speakers | 4 |
| Interactive exercises (including hands-on) | 4 |
| Know your students (by name and treat each student as a VIP) | 4 |
| Use of humor | 4 |
| Feedback on assignments, frequent and positive | 3 |
| Flipped classroom design or OnCourse materials | 3 |
| Ice breakers with peers (and build connections) | 3 |
| Attendance taking and/or 70% of total grade on attendance | 2 |
| Career research activities and discussions | 2 |
| Individual conference with instructor | 2 |
| Meaningful homework | 2 |
| Student presentations | 2 |
| Use video clips | 2 |
| Accept late assignments | 1 |
| Ask students for feedback at end of class | 1 |
| Competitions | 1 |
| Discuss diversity topics | 1 |
| First to find assignments incentivized by $10 gift card | 1 |
| Group therapy | 1 |
| Interesting student informative assessments | 1 |
| Make course challenging but with safety net | 1 |
| Promote course value | 1 |
| Provide clear expectation | 1 |
| Provide food and snacks | 1 |
| Reiterate their points (value their input) | 1 |
| Tell your (instructor) stories | 1 |
| Welcome and relaxed atmosphere | 1 |

Table 28

*Two or Three Things the College Can Do to Inspire Students to Return*

| Emergent Code | Number of Times Mentioned |
|---|---|
| Mandatory & meaningful advising (including academic pathway & plan) | 6 |
| Connect with and care about students (personal calls, not robo calls) | 5 |
| Inform students their progress toward a degree | 4 |
| Improve customer service skills (be decent to students) | 3 |
| Get students involved in making improvements (including focus group) | 2 |
| More full time faculty to maintain low student to faculty ratio | 2 |
| Outreach on case management basis by counselors | 2 |
| Provide a mentor so that students have a personal connection to a person | 2 |
| Schedule classes at time of need | 2 |
| Achieve a hospitable environment | 1 |
| Acknowledge students' efforts | 1 |
| An Ombudsman that would help advocate and resolve individual issues | 1 |
| Communicate with students via their means | 1 |
| Create more engaging and stimulating classroom environments | 1 |
| Expand tutoring topics | 1 |
| Faculty build relationships with students & connect them to 4-yr schools. | 1 |
| Financial incentive for class completion | 1 |
| Have high standards and expectations. | 1 |
| Help students build self-confidence and problem solving skills | 1 |
| Identify early and help those who are anxious | 1 |
| More extra-curriculum activities | 1 |
| Positive image marketing of FYE classes | 1 |
| Require faculty to serve as academic advisors. | 1 |
| Scholarship drawings | 1 |
| Show success of other students like them | 1 |
| Streamline developmental education | 1 |
| Summer academy to prepare students with rudimentary transition skills | 1 |
| Tighten up on support services | 1 |
| Transparent and flexible | 1 |
| Withdrawal form with stated reasons | 1 |

**RESEARCH QUESTION 1**

How well does an inaugural first-year experience program work to retain new students in a large mid-western community college? Retention is determined by tracking the fall re-enrollment of each student who enrolled initially in the previous fall semester as a first-time college student.

a. What is the impact of the overall program?
b. What is the impact, if any, of delivery modality of the first-year success seminar? Aggregate student retention data is compared among those who took the seminar in the classroom, online, or blended (hybrid) format.
c. What is the difference in retention rates between students who passed the first-year success seminar and those who failed the first-year success seminar?

Regarding (a), the inaugural first-year experience program had almost no effect on the fall-to-fall retention rate of the first-time college students. The result was not statistically significant. Regarding (b), the delivery modality of the FYSS had minimal effect on retention and the result was not statistically significant. Regarding (c), the retention rate of students who passed the FYSS was 62.4% and the retention rate for those who failed the FYSS was 26.7%. The difference was more than two times and statistically significant.

**RESEARCH QUESTION 2**

Which student characteristics, including academic and non-academic factors, influence student retention in this community college?

a. What is the impact, if any, of enrollment intensity? Enrollment intensity is measured by the number of credit-hours enrolled in the initial fall semester.

An enrollment intensity with 12 or more credit-hours is considered full-time, whereas less than 12 is considered part-time for financial aid purposes.

b. What is the impact, if any, of delayed college enrollment? Most traditional students start college during the fall term following high school graduation; delayed college enrollment signifies those who take a break between high school and college regardless of the duration.

Findings illustrated in Table 19 indicated that most student academic and student intrinsic non-academic factors (except financial aid amount, FYSS modality, and online experience) influenced student retention in a statistically significant fashion. Student GPA and FYSS outcome ranked the two highest effect sizes for academic factors. Zip-code implied median household income and credit-hours attempted in Fall 2014 (enrollment intensity) ranked the two highest effect sizes for non-academic factors.

Specifically to (a), the impact of enrollment intensity was statistically significant. Full-time students had a higher retention rate at 52.5% as compared to part-time students at 36.6%. Specifically to (b), the impact of delayed enrollment was statistically significant. Newly enrolled high school graduates had a higher retention rate at 53.7% as compared to delayed enrolled students at 36.4%. Both (a) and (b) parts of the findings are shown in Table 10.

## SUMMARY

The systematic way of data organization and coding is highlighted in the data screening section. The descriptive analysis section offers summaries of the three data sets: multi-year retention data, student academic and non-academic data, and instructor survey response of faculty rated student non-academic factors. Although extensive

exploratory analyses were conducted to study correlations and statistical significance of factors, only the final versions of the various analyses are presented in the factor analysis section.

Table 18 provides student reenrollment summary among all numerical and ordinal categorical factors. Table 19 gives the effect size and significance level of all student factors. Table 20 shows the most statistically significant factors included in the logistic regression of the student retention model. Table 22 shows the most statistically significant factors included in the linear regression of the student GPA model.

The classical content analysis section shows the qualitative analysis results of the reflection data collected from the instructor survey response. The chapter is concluded by addressing the two research questions that guided this study. Concerning Research Question 1, the inaugural FYE program impact on retention and the FYSS mode of delivery were not statistically significant. Passing versus failing the FYSS had a greater than two times impact on retention rate and the result was statistically significant. Concerning Research Question 2, full-time students had a higher retention rate than part-time students, and new high school students had a higher retention rate than delayed high school students. Both findings were statistically significant.

# CHAPTER 5: DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

## INTRODUCTION

The purpose of this research was to examine the impact of an inaugural first-year experience program on first-time college student retention in a community college. The phenomena of retention had been studied in both a macro (college) scale and a micro (student) scale. The macro scale involved a multi-year examination concerning the influence of college policies and college programs. The micro scale focused on the attributes of students, faculty, and the college environment that had an impact on student retention.

As illustrated in the last chapter, the student GPA was probably the most important factor that influenced his or her decision to return to college. Factors that impacted GPA were also investigated. The theoretical framework of Astin's I-E-O model was utilized in the discussion of findings in this chapter. Implications, recommendations for future study, and conclusion are also presented in this final chapter.

## DISCUSSION OF FINDINGS

Many factors were examined to understand how they correlated to student retention. While most factors seemed to correlate with student retention, some correlations were not statistically significant and these factors included FYSS modality and online experience. The relatively low numbers of students in the hybrid and online

delivery modes could be the reason for FYSS modality not being statistically significant. Although online experience was not statistically significant, it made a 3.3% positive difference in student retention (Table 10). Fike and Fike (2008) found statistically significant, positive correlation between retention and students taking an internet course.

The financial aid amount was not statistically significant but the receipt of financial aid was statistically significant, impacting student retention. All 12 faculty rated non-academic factors were statistically significant individually correlating to student retention. In the following presentation, all statistically significant factors were mapped back to the I-E-O model shown in Figure 1.

Input factors included two top level factors known as student characteristics and placement tests, and in turn they were subdivided into their next levels of factors as follows:

- Student characteristics
  - Demographic
    - Age and age group
    - Gender
    - Race (recode)
  - Socioeconomic
    - Median household income (zip-code implied)
    - High school type
    - Financial aid award eligibility
- Placement tests
  - Math placement test and college math readiness (recode)

    - English placement test and college English readiness (recode)

The environment was made up of the community college environment and the first year experience program environment, and their next level of factors included the following factors:

- Community college environment
    - New tuition payment schedule (policy)
    - Multi-mono-shift of class schedule
    - Credit-hours attempted in Fall 2014 (and full-time versus part-time)
- First-Year Experience (program)
    - First-Year Success Seminar attendance
    - First-Year Success Seminar outcome

Outcome factors were made up of academic factors, non-academic factors, and student retention; and their next levels of factors included the following subdivisions:

- Academic factors
    - GPA and GPA group (recode)
- Non-academic factors
    - Student intrinsic
        - Educational goals
        - New or delayed enrollment
- Student retention

Student Characteristics

Age, gender, and race of students were included in the student demographic study. The College also tracked the age of students in age groups. Student age was an

interesting factor. While age correlated positively with GPA, age also impacted negatively on student retention. Older students are more mature, which helps in their higher GPA attainment. However, older students carry more responsibilities, which hurt their persistence.

On the other hand, this age phenomenon may be an artifact of using linear analysis. The retention rate with respect to age group data shown in Table 8 did indicate a nonlinear pattern. Other than the retention dip in the 25-29 age group, this finding is in agreement with Feldman's (1993) observation, in which higher retention risk for students in the 20-24 and higher than 40 age groups was reported. There is also agreement with the majority of literature in the high retention rate at 53.4% of the 18-19 age group, known as traditional age. Due to its nonlinear nature, age was not critical and not used in the logistic regression for retention. However, age was statistically significant and an independent factor used in the GPA linear regression model shown in Table 22. Students' GPA improved by 0.018 points with each incremental up in the age of students.

The female retention rate at 50.6% was higher than the male retention rate at 41.9% (Table 9). Logistic regression (Table 20) indicated that the probability of female students returning to college the next fall was 1.17 times higher than male students. This female retention advantage was well documented in the literature (Bremer et al., 2013; Jepson et al., 2010; Mertes and Hoover, 2014; Porter & Swing, 2006; Seppanen, 1995; Smith, 2010; Stratton et al., 2007; Windham et al., 2014). Female also had a 0.139 GPA higher than male in the linear regression model (Table 22).

Race effect on retention was well known also (Bremer et al., 2013; D'Amico et al., 2013; Feldman, 1993; Grosset, 1989; Hoyt, 1999; Mertes & Hoover, 2014; Porter &

Swing, 2006; Seppanen, 1995). Race was recoded according to a sequence that increased with retention rate as shown in Table 9. White students had the highest retention rate at 54.4% and Black students had the lowest retention rate at 35.2%. This trend agrees with the findings by Porter and Swing (2006). In the retention logistic regression model (Table 20), the effect of the multi-race, Hispanic, and Asian and Pacific Islander groups was not statistically significant, due likely to small sample sizes. However, the effect of the remaining White and Black groups was statistically significant. The probability of White students returning was 1.35 times higher than that of Black students. Similarly, in the GPA regression model (Table 22), only the effect of the White and Black race groups on GPA was statistically significant. White students had a 0.273 GPA higher than Black students.

The three socioeconomic factors—implied median household income, high school type, and receipt of financial aid—were correlated statistically amongst each other (analysis not shown). Students who lived in a higher income address had a higher propensity to attend private schools, while not receiving financial aid. The implied median household income and the percentage of students from "out of county" receiving financial aid were $57,262 and 51%; those of students from the inner city school district were $30,297 and 89%. These two example points show the internal consistency of the financial aid process. The percentage of less affluent students receiving financial aid was higher than more affluent students.

Fall-to-fall retention rates of students who received financial aid and those who did not were 45.1% and 48.7%, respectively. In other words, the retention rate of financial aid recipients is actually lower than the retention rate of non-aid students. This

finding contradicted with Nakajima et al. (2012) and many others. Nakajima et al. reported the contradicting percentages for fall to spring persistence rate at 85% for aid recipients and 73% for non-aid students.

The contradictory finding in this study is likely caused by the "never attended" skewing phenomenon. Some of these students enrolling in classes have no intention to attend but are motivated by the financial aid subsidies. Faculty usually under-report the number of never-attended students because many, especially part-time, faculty members do not take attendance or are not familiar with the policy. Using just the sample of students in FYSS classes, never-attended students scored the lowest in English and math placement tests, lived in the poorest neighborhood, had the highest percentage of receipt of financial aid at 91%, and had the lowest retention rate at 23%.

The effect size and level of statistical significance of the three socioeconomic factors, namely: median household income, high school type, and financial aid eligibility are shown individually in Table 19. However, collectively with other factors, they were not statistically significant. Their effects on retention are likely represented by GPA (and other factors) as suggested by Nakajima et al. (2012). The GPA regression model included the effect of financial aid. Each $1,000 of financial aid amount reduced the GPA by 0.034 points.

### Placement Tests

Placement test results can also be considered pre-college academic factors. Students are required to take placement tests before registering for classes. Depending on the test scores, students are placed in various remedial and college levels of courses. A

course number of 1000 or higher is considered college level and recoded as English ready or math ready.

All students who placed below math 980 levels had below average retention rates (the average retention rate was 46.4%); those who placed at math 980 or higher levels, except level 1060, had above average retention rates. Only students who placed at the two highest English levels 1010 and 1015 had above average retention rates (Table 7). Retention-wise, both Math and English were statistically significant individually, with the former having larger effect sizes (Table 19). However, collectively with other factors, the effect of the placement tests was not significant in the logistic retention model and probably was embedded in the effects of other factors like GPA.

In the GPA regression model, college math readiness improved GPA by 0.429 points and college English readiness improved GPA by 0.186 points. They were both statistically significant (Table 22). Remedial coursework in both math and English would put a student 0.615 GPA points behind a college ready student, and GPA was the strongest retention factor. Review of prior research (ACT, 2010; Bremer et al., 2013; Fike & Fike, 2008; Hoyt, 1999) confirms the significant detrimental effect of remedial education on student retention. The only exception found is Grosset's (1989) study, in which students who participated in remedial programs persisted the same as college-ready students.

## Community College Environment

It is not uncommon for community college students to put work ahead of education. According to American Association of Community Colleges (2015), 73% of part-time students and 62% of full-time students hold either a full-time or a part-time job.

When the job market is good, community college students tend to stop out of or delay attending college. When their jobs are eliminated or their work hours are reduced, they take advantage of their freed-up time to return to college to improve their job skills or to earn a college credential.

The new tuition payment schedule (Drop No Pay) is a policy that became effective during the Fall 2014 semester. It has a surprising effect on retention rate. The new policy improved retention rate by 5.2% and was statistically significant (Table 12). The old policy allowed students to remain registered for classes without paying for tuition until two weeks before classes started. Once they dropped from their classes, many students were caught finding insufficient time to arrange for payments. In some cases, even if the student managed to arrange for payments, his or her class slot may have been taken up by a wait-listed student. The new policy only gives students a week to pay for classes regardless of the date of registration. Most returning students sign up for classes early. If they can not arrange for payments immediately, they have more time to react and to arrange for payments.

The College keeps track of students who enroll for classes during the day time, evening time, and weekend. Some students only take classes during one of these three shifts. Some take classes whenever available in multiple shifts. There seems to be a pattern between students who enroll multi-shift and those enroll mono-shift. The effect size of the "Multi Mono Shift" factor was small but the factor was statistically significant (Table 19). Students who enrolled in the FYSS tended toward multi-shift and those who did not enroll in the FYSS mono-shift (Table 17). Retention rate of multi-shift students was 49.9% versus 41.0% for mono-shift students. Multi-shift students appear to be more

eager and flexible. Their eagerness and flexibility help to bring more of them back to college the following fall.

Enrollment intensity is a complicated decision for community college students. Study time, course schedule, financial aid, out of pocket costs, and other responsibilities are some of the most common items students considered when they register for classes. In this study, the basic measure of enrollment intensity was the numerical (credit-) hours attempted during the very first term (Fall 2014). A recoded categorical measure of enrollment intensity was full-time at 12 or more credit-hours, or part-time at less than 12 credit-hours. The two different measures helped to enrich the application of the analysis options and understanding of the enrollment intensity factor.

The overall first-time college students in the Fall 2014 cohort attempted, on average, 11.07 credit-hours but those who did not enroll in the FYSS attempted only 9.58 credit-hours (Table 16). Concerning retention, persisters attempted 11.80 credit-hours and leavers attempted 10.44 credit-hours (Table 18). The retention rates of full-time and part-time students are 52.5% and 36.7% respectively (Table 10). Though at slightly lower values, this relative trend reflects that of the national average at 58% for full-time and 39% for part-time two-year public college students (National Student Clearinghouse Research Center, 2014). However, Wells (2008) found full-time versus part-time enrollment insignificant in terms of student persistence.

The effect of enrollment intensity on student retention was statistically significant. Its effect size was in the middle range among all factors (Table 19). Logistic regression indicated that full-time students were 1.33 times more likely to return than part-time students (Table 20). Linear regression predicted that every credit-hour a student

attempted increased his or her GPA by 0.019 points (Table 22). Casady (2005) found similar GPA to enrollment intensity relationship for full-time as well as part-time students. Among all the non-academic factors, Price (2004) and Seppanen (1995) reported that part-time attendance at public two-year institutions had the greatest risk of attrition. A high percentage of part-time students hold a full-time job, which competes for the student's time to carry out school work.

## First-Year Experience

The FYSS represents the central theme of the first-year experience program. In this study, two FYSS factors were examined for their impact on student retention. The first factor was "FYSS attended" and the second factor was "FYSS outcome." The FYSS is supposed to be compulsory during the first semester for first-time college students. Yet, 33.8% of students chose not to enroll in the FYSS during the fall of 2014. The FYSS outcome included four possibilities: not enrolled, never attended, failed, or passed. The FYSS was graded primarily as a pass/fail course. FYSS attended was essentially a recoded factor of FYSS outcome where the passed or failed outcome represented attended, and not enrolled or never attended represented no attendance.

The FYSS was a significant factor on retention. The effect size of FYSS outcome was second only to GPA (Table 19). The retention rates based on FYSS outcome from high to low were 62.4% for those who passed, 31.4% not enrolled, 26.7% failed, and 23.0% never attended (Table 8). The retention logistic regression model predicted that students who passed the FYSS were 2.49 times more likely to return than those who did not enroll in the FYSS. The results for those who failed and never attended the FYSS were not statistically significant (Table 20).

The GPA regression model showed a coefficient of 1.194 for FYSS outcome using just the population of students who attended the FYSS. Students who passed the FYSS had a 1.194 GPA higher than those who failed the FYSS (Table 22). The mean values for GPA based on FYSS outcome from high to low were 2.42 for those who passed, 2.31 not enrolled, 1.24 never attended, and 1.03 failed (Table 16). The FYSS was not a difficult course and was graded on a binary pass/fail scale. Most students would pass the FYSS by attending class and doing assignments. The outcome can serve as a canary in a coal mine to indicate the motivation and effort of a student toward his or her education.

Although the FYSS pass/fail grade does not factor in the GPA calculation, the outcome of FYSS does in fact correlate to the GPA. One may speculate that students who failed the FYSS also failed many of the other courses to earn a low 1.03 GPA. Students who attended the FYSS had a retention rate at 54.3% compared to 30.9% for those who did not attend. Conceivably, a simple way to improve retention rate is to entice the entire first-time college student cohort to attend the FYSS. According to Goodman and Pascarella (2006), participants of first-year seminars reenrolled for the second year of college at higher rates than nonparticipants by seven percentage points in one study and by as much as 13 percentage points in another study. The findings in this study are in-line with those reported in the literature.

The qualitative part of the FYSS instructor survey response was very insightful. The areas that went well for the inaugural FYSS course include the validation of the content of the course material and faculty engagement and collaboration (Table 24). Faculty efforts are critical to student persistence and success (Mansfield et al., 2011). The

campus serves as the physical environment for students while the faculty serves as the mental and emotional world for students in their pursuit of higher education. When faculty members engage, students will likely respond (Nitecki, 2011).

For continuous improvement, a large number of instructors want to see more uniformity and standardization of the FYSS curriculum. They also recommend a change of the pass/fail format to the standard grading format. Additionally, the College needs to do a better job of promoting the FYSS. The FYSS's image needs to be improved so that students may find it more appealing. Additionally, there are many good suggestions by the faculty for the faculty (Table 25).

Concerning reasons why students failed the FYSS, the responses are grouped overwhelmingly into four problematic areas: student attendance, completion of assignments, perceived value of the FYSS, and student commitment. All four problems seem to hinge upon the perceived value of the FYSS. Fixing this problem by promoting the value of the FYSS properly may help to alleviate the other three problems, which however, are not unique to the FYSS. It is no secret that first-year success seminars have been shown to be effective with student retention (Goodman & Pascarella, 2006). The study confirms the value of first-year success seminars, but also indicates further room for improvement. Once the instructors internalize the benefits of the first-year success seminar and it is properly promoted by the College, the instructors should be able to articulate these benefits to the students (Table 26).

There are many good suggestions for best practices in the classroom of the FYSS based on faculty's first-hand experience. Group work and applied learning are some of the top choices. Knowing and respecting their students and using humor are obviously

good ideas. Frequent and positive feedback on assignments should help students to subconsciously embrace more meaningful assignments as a way to garner greater positive feedback. Ice breakers and storytelling are also other proven ideas (Table 27).

FYSS instructors were also asked for retention ideas that the College should implement. Advising, connecting with, and caring about students were the top ideas. Informing students of their progress toward a degree and improving customer (student) services could definitely help in student retention. Many of the suggestions, such as acknowledging students' efforts, could be carried out by faculty as well as staff (Table 28). Out of all the open-ended comments, one instructor had a positive personal experience and one had a negative experience teaching the FYSS. One instructor, in particular, summed it up with the following statement: "FYE proved to be a valuable experience for the instructor and the students… some may not know that yet."

## Academic Factors

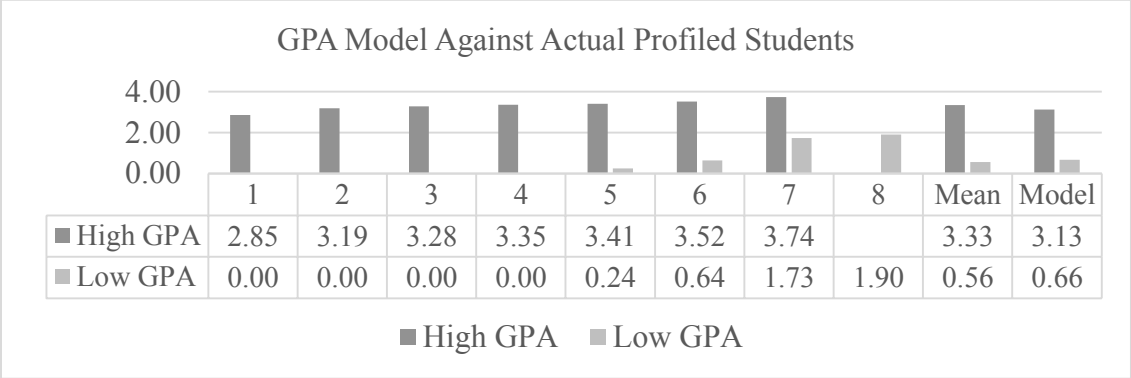
Although there were other academically related factors, such as the outcome of the FYSS, only the student GPA was partitioned in this section to be consistent with the I-E-O framework. The student GPA was based on the academic record of the student for the 2014-2015 academic year. All students attended the Fall 2014 semester; some attended, additionally, the Spring 2015 semester and/or Summer 2015 term. Only 92% or 3,534 out of 3,828 students had a GPA record ranging from 0.00 to 4.00. The other 8% had taken pass/fail courses such as the FYSS and/or withdrew from all standard graded courses, which do not factor in the GPA calculation and hence have no (cumulative) GPA recorded (Table 6).

Another categorical variable called GPA group was recoded from the numerical variable GPA. GPA Groups 1, 2, and 3 were designated by the three ranges 0-1.99, 2-2.99, and 3-4 respectively. The retention rate for Group 1 was 24.1%. The rates for Groups 2 and 3 were basically the same at 65.2% (Table 8). A different view of the same trend, retained students had a mean GPA of 2.69 and non-retained students had a mean GPA of 1.65 (Table 18). Table 18 shows that GPA or GPA group had the largest effect size. Retention probability based on GPA group towers above all other statistically significant factors in the logistic regression. The probability of GPA Group 2 students returning was 5.49 times higher than Group 1 students, and that for Group 3 students was 6.44 times higher than Group 1 students (Table 20). Prior literature has been unanimous concerning the same impact of GPA on student retention as in this study (Cofer & Somers, 2001; Coladarci et al., 2013; Heiman, 2010; Hoyt, 1999; Jamelske, 2009; Klein, 2013; McKinney, 2013; Miller, 2015; Molnar, 1993; Nakajima et al., 2012; Popiolek et al., 2013; Stratton et al., 2007)

The linear regression model of GPA shown in Table 22 identified the most statistically significant shaping factors. The top three most influential factors based on the magnitude of the standardized coefficients are the outcome of the FYSS, math readiness, and the White race. The model was used to test against two, high and low, GPA profiles of the students. The high GPA profile students are 18-19 year-old White females, math and English ready, who received no financial aid, attempted 15 credit-hours, and passed the FYSS in the fall of 2014. The low GPA profile students are 18-19 year-old Black males, neither math nor English ready, who received $5,730 for financial aid, attempted on average 12.25 (range 11 to 13) credit-hours, and failed the FYSS in the fall of 2014.

These case profiles were selected to contrast the GPA extremes, and at the same time, using the same age group to ensure sufficient samples of actual students to give a reasonable, statistical mean.

There were seven samples of students in the high GPA profile and eight samples of students in the low GPA profile. The results are charted as shown in Figure 3. By comparing the model predicted GPA and the mean GPA of the samples, the model under-predicts the high GPA profile by 0.20 points or 6% and over-predicts the low GPA profile by 0.10 points or 18%.




| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Mean | Model |
|---|---|---|---|---|---|---|---|---|---|---|
| High GPA | 2.85 | 3.19 | 3.28 | 3.35 | 3.41 | 3.52 | 3.74 | | 3.33 | 3.13 |
| Low GPA | 0.00 | 0.00 | 0.00 | 0.00 | 0.24 | 0.64 | 1.73 | 1.90 | 0.56 | 0.66 |

*Figure 3*. Linear regression model predicted GPA versus actual students' GPA.

The fall-to-fall reenrollment record is a part of the student data set. This record is linked to student GPA. The retention rate of the high GPA group is 71.4% or five out seven students. The retention rate of the low GPA group is 12.5% or one out of eight students. This correlation serves as another validation point to the significance of GPA on retention.

## Non-Academic Factors

The two sets of non-academic factors came from student records and faculty survey. Factors in the student records examined were students' educational goals, and

new versus delayed high school graduate enrollment. The four educational goals that had the highest numbers of enrollment were: “associate degree and transfer”, “associate degree”, “transfer courses”, and “no goals” (none). Students with goals of “transfer courses” and “associate degree and transfer” had above average retention rates of 52.3% and 52.0% respectively. Students with goals of “no goals” and “associate degree” had below average retention rates of 43.8% and 42.3% respectively.

The type of educational goal seemed to make a difference in retention. Students with transfer in mind, for a higher education beyond associate, persisted the best among all educational goals (Table 10). This finding is consistent with Cofer and Somers (2001) who found students aspiring to pursue an advanced or bachelor’s degree were seven to ten percentage points more likely to persist than students with lesser educational aspirations. One might casually expect that students who wanted to pursue an associate degree would be more persistent than those who wanted to take courses for the purpose of transferring. However, the logic follows that the higher the goal, the higher the persistence. The goal of transferring is a higher educational goal than the attainment of an associate degree.

Collectively, educational goal was found to be one of the factors statistically significant in the retention logistic regression; though, some of the individual goals were not. The probability of students with the goal of certificate returning was 0.48 times as compared to that of students with no goals. The probability of students desiring an associate degree or desiring to transfer was 1.41 times greater than students without goals. These two probability predictions were statistically significant (Table 20).

Delayed enrollment after high school graduation had a statistically significant effect on student retention (Table 19). The retention rate of delayed college enrollment students was 36.4% while the retention rate of new students who graduated freshly from high school was 53.7%. The retention logistic regression predicted that the probability of retention for new students was 1.31 times higher than that of delayed students (Table 20). Ishitani (2006) reported a similar trend that delayed matriculation after high school graduation had a detrimental effect on second-year retention.

## Student Retention

All factors, except FYSS delivery modality and student online experience, impact student retention individually. In terms of magnitude, the top three factors and their associated retention rates are:

- College math readiness retention rate: 65.4% (Table 7)
- GPA ranges 2.00 – 2.99 & 3.00 – 4.00 retention rate: 65.2% (Table 8)
- FYSS completion (passed) retention rate: 62.4% (Table 8)

The percentages of first-time college student population in the Fall 2014 cohort in these three categories are:

- College math readiness population: 12.1% (Table 7)
- GPA ranges 2.00 – 2.99 & 3.00 – 4.00 population: 62.1% (Table 8)
- FYSS completion (passed) population: 51.2% (Table 8)

Based on this student population of the College, college math readiness is a significant challenge. To be precise, this math readiness is a community problem because the placement test is taken before college class enrollment. The student GPA is the cumulative average after a full year of enrollment and only 62.1% of students are on track

to meet the GPA requirement of 2.00 or higher for an associate degree. Completing the FYSS during the first semester should be the easiest of the three categories. The skills required to pass the FYSS seem to be more non-academic than academic. Based on the faculty survey, the number one and overwhelming reason that students failed the FYSS is absenteeism.

## IMPLICATIONS FOR POLICY AND PRACTICE

Being the inaugural year, the way the FYE program was carried out was probably less than ideal. The intention was to mandate four components in the first-year experience of students, which includes the new student convocation, FYSS, new student orientation, and peer mentoring. The FYSS is the central theme of the FYE program. New student convocation is also an important component as documented by Mansfield et al. (2011). The effect of the new student convocation was not included in this FYE study because the attendance record was not officially reported to the centralized student database. New student orientation and peer mentoring have a long history in the College and are not unique to FYE programs. Their contributions to retention cannot be differentiated between pre- and post-FYE programming. So for the purpose of this study, the FYSS is synonymous with the FYE program.

The inaugural FYSS has been shown to be not statistically significant in improving fall-to-fall student retention as evident by the very slight retention rate increase. The faculty survey concerning the FYSS provided many lessons to be learned and opportunities for continuous improvement. It would be a good idea for the College to implement the following policies and practices:

- Standardize the curriculum of FYSS

- Use the normal grading format instead of pass-fail for the FYSS class
- Show evidence of the benefits of FYSS to faculty and students
- Promote the value of FYSS widely around the college community
- Train faculty how to capture the interest and imagination of students during the first class before losing them to absenteeism

Enrollment in the FYSS was supposedly to be compulsory but only 68% of first-time students enrolled and 66% attended. Realizing the positive FYSS impact on student retention, the enrollment policy needs to be more seriously enforced.

The logistic regression model for retention identifies many opportunities. The goal of pursuing a baccalaureate level of education tops all other educational goals. The College can help to delineate and make visible to students the highest possible educational pathways in various majors of study. Delayed college enrollment hurts student retention. An early and active presence in local high schools by college personnel to promote the value of higher education should help to minimize the wandering of new high school graduates.

The low hanging fruits for student retention have been identified in the order as follows:

1. Passing the FYSS
2. Maintaining a 2.00 or higher GPA
3. Becoming college math ready

The whole college can collaborate together and do whatever it takes to facilitate FYSS success by students. Absenteeism must not be a concern solely for the student alone. Administrators, faculty, and staff should work together to come up with solutions.

Passing the FYSS should give students the first taste of success and help to build their confidence.

The linear regression model for GPA can be a useful tool for the College to implement early warning or at-risk student intervention practices. Interviewing or surveying leavers are after-the-fact, reactive, and less helpful. The GPA model should help to identify the escalation of risks over time. The at-risk factors included in the GPA model in chronological order are:

1. Student demographic (the moment a college application is filled)
    a. Race
    b. Age
    c. Gender
2. Placement test (the moment placement tests are graded)
    a. College math readiness
    b. College English readiness
3. Financial aid application (the moment the amount of aid is awarded)
4. Enrollment intensity (the moment the student has registered for classes)
5. FYSS outcome (the moment the class grade becomes available)

Depending on the availability of resources, colleges can reach out to the students at-risk for attrition at different check points throughout the first semester to support students academically as well as non-academically.

Student GPA is the ultimate barometer for retention, and retention is a barometer for completion. Student support services may actively engage students effecting GPA improvement term after term. Most students become college English ready before college

math ready. Students should be advised not to postpone the inevitable need of tackling math. They should engage and not skip even one term of taking math until the math requirement of the program is fulfilled; since, for many students, the math requirement is the critical path toward a credential.

College English readiness (50%) was a lesser challenge than math readiness (12%) for this cohort of students. Those who return faithfully term after term and are able to complete remedial English and math education, eventually face the need to take the gateway English and math courses. Prior research indicated that developmental students, especially those who started at lower levels, tended to shy away from taking gateway courses. However, those developmental students, regardless of their initial developmental level, who mustered up the courage to enroll in gateway courses enjoyed high passing rates almost the same as those who took no remedial courses (Jenkins, Jaggars, & Roksa, 2009). Encouragement and mentoring of developmental students should alleviate the gateway course concern.

## RECOMMENDATIONS FOR FUTURE RESEARCH

This study was limited to the very first year of a FYE program in this Midwestern community college. Thought not year-over-year, the positive within-year outcome of its impact on student retention is very encouraging. Two particular findings point to the need for future research. The first finding was that students who enrolled in the FYSS had a higher retention rate than those who did not. It seems logical that the College should enforce the policy of compulsory enrollment in the FYSS for all first-time college students. So, one of the future studies is to examine the main effects as well as the side effects of a truly compulsory FYSS. Some students may not want to give up their

freedom of choice. Speculatively, a side effect may be the loss of initial enrollment. Main effects may include student commitment to college, in addition to student retention.

The second finding was that the retention rate of students who passed the FYSS was more than twice the retention rate of students who failed. According to FYSS instructors, the reasons for student failing the FYSS could be summed up as lacking commitment to the FYSS. So, another future study may involve the modifications in the content and outline of the FYSS, especially during the early part of the class. The first two weeks are usually the period where the student decides whether or not to commit to the class.

Topics to be examined and infused into the FYSS may include social-psychologic mindset interventions (Yeager & Dweck, 2012; Yeager & Walton, 2011) and transformative teaching and learning (Kitchenham, 2008; Mezirow, Taylor, & Associates, 2009). Social-psychologic mindset interventions can be small hour-long exercises that alter students' beliefs in selves and about school, leading to large and lasting gains in student achievement. Yeager and Dweck (2012) wrote:

> … we review research demonstrating the impact of students' mindsets on their resilience in the face of academic and social challenges. We show that students who believe (or are taught) that intellectual abilities are qualities that can be developed (as opposed to qualities that are fixed) tend to show higher achievement across challenging school transitions and greater course completion rates in challenging math courses… (p. 302).

Mezirow introduced the transformative learning theory in 1978. The transformative learning process involves ten phases and has its origin in the study of

women returning to higher education. Critical reflection on assumptions and critical discourse on alternative solutions are two key elements of transformative learning. During the period of 1985 to 2000, Mezirow revised his theory of transformative learning to include four types of learning: elaborating existing frames of reference, learning new frames of reference, transforming habits of mind, and transforming points of view.

In order for transformative learning to take place, teachers need to practice transformative teaching, in which the classroom is democratic and students' input is welcome. Teachers serve the role of a facilitator as opposed to that of a lecturer. They should be able to demonstrate three types of reflection: content reflection, process reflection, and premise reflection (Kitchenham, 2008).

Most programs would take an incubation period of a few years for them to reach their potentials. The FYE program is no exception. New discoveries in structural as well as operational areas will be incorporated through the continuous improvement process. It is recommended that the College should replicate this study every three years, similar to the schedule established for other academic programs.

## CONCLUSION

Over the years, the mission of community colleges has evolved slowly from student access to student success. As far as the students are concerned, their success is determined by the attainment of their educational goals. There were eight such goals including the goal of no goals for students in the College of this study. However, for community colleges, student success is measured most commonly by the IPEDS 150% of normal time graduation rate.

Graduation and retention are statistically correlated (Blowers, 2005; Pascarella & Terenzini, 2005; Pattengale, 2005; Verduin, 2005; Wood, 2005). Analyzing the educational outcomes reported by the 56 largest community colleges in the nation for the 2011-2012 academic year, every one percent increase in full-time student retention rate effected a 0.565% increase in the IPEDs graduation rate. This correlation was statistically significant (analysis not shown). The correlation between graduation rate and part-time student retention rate was poor since most part-time students take much more than 150% of normal time to complete a credential. Perhaps for the same reason, the IPEDS graduation rate is applied specifically to first-time full-time students.

In this study, the impact of the inaugural year FYE program on student retention year-over-year has not been shown to be statistically significant. However, students who were successful in completing the FYSS had a much higher retention rate than those who were not successful, in terms of a failure to attempt or an attempted failure. According to the instructors of the FYSS, the overwhelming reason for student failure in the FYSS was the lack of class attendance. Using deductive reasoning, the lack of class attendance in the FYSS leads to low IPEDS graduation rate. Hopefully, the many good tried-and-true ideas captured in the qualitative analysis section will be adopted by instructors to remedy the student attendance problem. Other resources, such as best practices for teaching and learning based on the work of the Faculty Center for Teaching and Learning, may be consulted to address the attendance problem (Missouri State, n.d.).

The overall retention rate ratio of full-time students to part-time students was 1.49 for all community colleges in the nation (National Student Clearinghouse Research Center, 2014). That ratio was 1.44 for the 56 largest community colleges (analysis not

shown). Similarly, the ratio was 1.43 for the College in this study. This College is one of the 56 largest community colleges in the nation and its retention rate findings confirm the advantageous trend of full-time students.

The ultimate academic factor and also the most impactful for retention was GPA. Based on linear regression, it correlated to three other academic factors (FYSS outcome, math readiness, and English readiness), three demographic factors (race, age, and gender), one socioeconomic factor (financial aid amount), and one environmental factor (enrollment intensity). In this study, two student intrinsic non-academic factors (educational goal and delayed enrollment) were identified to impact student retention.

A surprising finding was the new tuition payment policy. It improved the retention rate by 5.2 percentage points and was statistically significant. The new tuition payment policy has been successful in addressing the student financial planning problem as well as the inconvenience factor. More students might have given up upon being dropped from enrollment for non-payment under the old tuition payment policy due to insufficient time to arrange for tuition payment.

Although the retention impact due to the inaugural FYE program was not statistically significant, the FYE program has the potential to make significant improvement based on the findings of the inaugural year and the collective wisdom captured in the faculty survey. New student convocation was a part of the FYE program but its effectiveness has not been examined by the College. First-year experience programs have a proven record in many institutions through the years since its inception. Additional retention benefits should be realized if a policy of mandatory participation in the FYE program is enforced vigorously throughout the College.

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# APPENDIX A

# FERRIS STATE UNIVERSITY INSTITUTIONAL REVIEW BOARD

# FERRIS STATE UNIVERSITY

Institutional Review Board for Human Subjects in Research
Office of Academic Research, 220 Ferris Drive, PHR 308 · Big Rapids, MI 49307

Date: June 3, 2015

To: Gary Wheeler, Sandra Balkema and Lam Wong
From: Dr. Joshua Lotoczky, Interim IRB Chair
Re: IRB Application #150511 (*The Impact of an Inaugural First Year Experience Program on the Retention of Full-Time and Part-Time Community College Students*)

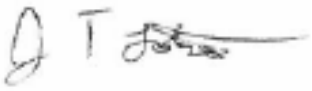
The Ferris State University Institutional Review Board (IRB) has reviewed your application for using human subjects in the study, "*The Impact of an Inaugural First Year Experience Program on the Retention of Full-Time and Part-Time Community College Students*)" (#150511) and determined that it meets Federal Regulations *Exempt-category 1C/1E*. This approval has an expiration date of three years from the date of this letter. **As such, you may collect data according to the procedures outlined in your application until June 3, 2018**. Should additional time be needed to conduct your approved study, a request for extension must be submitted to the IRB a month prior to its expiration.

Your protocol has been assigned project number (#150511), which you should refer to in future correspondence involving this same research procedure. Approval mandates that you follow all University policy and procedures, in addition to applicable governmental regulations. Approval applies only to the activities described in the protocol submission; should revisions need to be made, all materials must be approved by the IRB prior to initiation. In addition, the IRB must be made aware of any serious and unexpected and/or unanticipated adverse events as well as complaints and non-compliance issues.

Understand that informed consent is a process beginning with a description of the study and participant rights, with the assurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the study via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document and investigators maintain consent records for a minimum of three years.

As mandated by Title 45 Code of Federal Regulations, Part 46 (45 CFR 46) the IRB requires submission of annual reviews during the life of the research project and a Final Report Form upon study completion. Thank you for your compliance with these guidelines and best wishes for a successful research endeavor. Please let us know if the IRB can be of any future assistance.

Regards,



Ferris State University Institutional Review Board
Office of Academic Research, Academic Affairs

Version 1.2015

# APPENDIX B

# INSTRUCTOR RECRUITING EMAIL

**Instructor Recruiting Email**

Dear Colleague,

Thank you for teaching the inaugural GEN-1803 First Year Success Seminar during the fall of 2014. In his words the founder of the first year experience movement, John Gardner, said "The first-year seminar had been discovered as a panacea to the retention problem."

Over the years, extensive research has been carried out on student retention related to academic and socioeconomic status factors. I write to seek your participation to conduct further research on student retention, concerning its dependence on non-academic factors of students, which relate well to many topics covered in the first year success seminar. Specifically, I appreciate if you can help filling an online survey, which should take about 15 minutes to complete.

I am currently a doctorate of community college leadership student at Ferris State University. This research leading to my dissertation serves to satisfy partial fulfillment of the requirements for the Doctor of Education degree. You are not obligated to participate and may choose to stop anytime. Your withdrawal from the study will neither be tracked nor affect you negatively in any way. Here is the link to the online survey:

- _____

Please help to complete the survey by June 30, 2015 and send me a reply afterward so that I can put your name in a drawing for a $25 Gift Card. The chance of winning is approximately one in ten, as a card will be awarded for every 10 instructors that take part.

Sincerely,

Lam Wong

# APPENDIX C

# INSTRUCTOR SURVEY

**Instructor Survey**

Dear Colleague,

Student retention is a challenging issue not only for Tri-C but for most community colleges. Many students are first-generation attending college and come from an underprivileged environment. It is difficult for an individual to make a dent in this issue. However, we can pool our experience and knowledge collectively to make a difference and to inspire our students.

Based on your interactions with students, and observations and in some cases perceptions of students in your first year success classes, on a scale of one to seven, please rate the competency on the non-academic factors of the group of students who will likely to persist in our college (Persisters) and the group of students who will likely to stop out of our college (Leavers):

1. Almost Never Competent
2. Usually Not Competent
3. Rarely Competent
4. Occasionally Competent
5. Often Competent
6. Usually Competent
7. Almost Always Competent

**Non-Academic Factors: Select one level for the Group of Persisters**

- **Goal Striving**
  (Reflects the strength of a student's effort to achieve objectives and end goals)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Persisters | | | | | | | |

- **General Determination**
  (Reflects the extent to which a student strives to follow through on commitments and obligations)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Persisters | | | | | | | |

- **Achievement motivation**
  (Reflects one's motivation to achieve success; enjoyment of surmounting obstacles and completing tasks undertaken; the drive to strive for success and excellence)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Persisters | | | | | | | |

- **Academic Discipline**

(Reflects the amount of effort a student puts into schoolwork and the degree to which he or she sees himself or herself as hardworking and conscientious)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Persisters | | | | | | | |

- **Study Skills**
(Reflects the extent to which a student believes he or she knows how to assess an academic problem, organize a solution, and successfully complete academic assignments)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Persisters | | | | | | | |

- **Communication Skills**
(Reflects how attentive a student is to others' feelings and how flexible he or she is in resolving conflicts with others)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Persisters | | | | | | | |

- **Emotional Control**
(Reflects how a student responds to strong feelings and how he or she manages those feelings)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Persisters | | | | | | | |

- **Academic Self-Confidence**
(Reflects the extent to which a student believes he or she can perform well in school)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Persisters | | | | | | | |

- **Social involvement**
(Reflects the extent that students feel connected to the college environment; the quality of students' relationships with peers, faculty, and others in college; the extent that students are involved in campus activities)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Persisters | | | | | | | |

- **Perceived social support**

(Reflects students' perception of the availability of the social networks that support them in college)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Persisters | | | | | | | |

- **Financial support**
(Reflects the extent to which students are supported financially by an institution)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Persisters | | | | | | | |

- **Commitment to College**
(Reflects a student's commitment to staying in college and getting a degree)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Persisters | | | | | | | |

**Non-Academic Factors: Select one level for the Group of Leavers**

- **Goal Striving**
(Reflects the strength of a student's effort to achieve objectives and end goals)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Leavers | | | | | | | |

- **General Determination**
(Reflects the extent to which a student strives to follow through on commitments and obligations)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Leavers | | | | | | | |

- **Achievement motivation**
(Reflects one's motivation to achieve success; enjoyment of surmounting obstacles and completing tasks undertaken; the drive to strive for success and excellence)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Leavers | | | | | | | |

- **Academic Discipline**

(Reflects the amount of effort a student puts into schoolwork and the degree to which he or she sees himself or herself as hardworking and conscientious)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Leavers | | | | | | | |

- **Study Skills**
  (Reflects the extent to which a student believes he or she knows how to assess an academic problem, organize a solution, and successfully complete academic assignments)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Leavers | | | | | | | |

- **Communication Skills**
  (Reflects how attentive a student is to others' feelings and how flexible he or she is in resolving conflicts with others)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Leavers | | | | | | | |

- **Emotional Control**
  (Reflects how a student responds to strong feelings and how he or she manages those feelings)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Leavers | | | | | | | |

- **Academic Self-Confidence**
  (Reflects the extent to which a student believes he or she can perform well in school)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Leavers | | | | | | | |

- **Social involvement**
  (Reflects the extent that students feel connected to the college environment; the quality of students' relationships with peers, faculty, and others in college; the extent that students are involved in campus activities)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Leavers | | | | | | | |

- **Perceived social support**

(Reflects students' perception of the availability of the social networks that support them in college)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Leavers | | | | | | | |

- **Financial support**
(Reflects the extent to which students are supported financially by an institution)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Leavers | | | | | | | |

- **Commitment to College**
(Reflects a student's commitment to staying in college and getting a degree)

| Competent Level | 1- Almost Never | 2- Usually Not | 3- Rarely | 4- Occasionally | 5- Often | 6- Usually | 7- Almost Always |
|---|---|---|---|---|---|---|---|
| Leavers | | | | | | | |

- Areas that went well for the inaugural GEN-1803 First Year Success Seminar: _____
- Areas suggested for continuous improvement in the GEN-1803 First Year Success Seminar: _____
- Top two or three reasons for students who failed the GEN-1803 First Year Success Seminar: _____
- What classroom best practices you know or try can help make a difference in better student retention: _____
- What two or three things the college can do to inspire students to return in subsequent semesters: _____
- Other Comments: _____

# APPENDIX D

# INFORMED CONSENT FORM

Informed Consent Form (Statements)

You are invited to participate in a research study about *student retention* being carried out by Lam Wong, a doctoral student at Ferris State University. You have been solicited because you have taught at least one First Year Success Seminar (FYSS) during the 2014 fall semester at your college.

- Purpose of the research

  The purpose of the research is to determine the impact of an inaugural First Year Experience program on the retention of full-time and part-time community college students. Specifically, this research seeks to identify student characteristics, including academic and non-academic factors, which may influence student retention at your community college. You participation in this research is voluntary. If you decide to participate, you may withdraw at any stage of your participation.

- Procedures involved in the research

  The procedure involves simply the completion of an online survey concerning student non-academic factors between persister group (those who return) and leaver group (those who stop out), based on your interactions with students, and observations and in some cases perceptions of the students in your seminar class. You time commitment should be in the order of 15 minutes to read the instructions and complete the survey.

- Risks and Benefits

  There are no foreseeable risks or discomforts associated with the research. While there may not be any direct benefits to you for your participation, it is the hope of the researcher that your participation may provide a chance for you to reflect on the non-academic factors that may impact student retention. Revelations and findings may help to improve the contents and delivery of the FYSS course in subsequent years. The survey also provides a vehicle for you to share lessons learned that capture the interest of new college students.

- Compensations

  All instructors who agree to complete the survey will be entered into a drawing for a $25 Gift Card. The chance of winning is approximately one in ten, as a card will be awarded for every 10 instructors that take part. The drawing result will be kept in a file separately from the study data.

- Confidentiality

The survey will be conducted anonymously online. There will be not names and other identifiable information collected on the survey. You have the right to confidentiality and right to withdraw from the research at any time without any consequences.

- Person to contact for answers to questions

  If you have questions or need additional information, please contact:

  - Researcher, Lam Wong, by phone at 518-514-8986 or by email at **lamwong26@yahoo.com**.
  - Committee Chair, Gary Wheeler, Ph.D., by email at **gary.wheeler@memoryhole.net**
  - Human Subjects Review Committee Chairperson, G. Robert Stuart, Ph.D., by phone at 216-987-4757 or by email at **g.rob.stuart@tri-c.edu**
  - Ferris State University Institutional Review Board
    220 Ferris Drive, PHR 308, Big Rapids, MI 49307
    by Phone: (231) 591-2553 or Fax: (231) 591-2226 or email at **IRB@ferris.edu**

Having read the information provided and by clicking the "NEXT" button on this page, you are indicating your understanding and acceptance of these conditions, and you will continue directly to the survey. Thank you for agreeing to participate in this important research!

# APPENDIX E

# COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE

# COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI)

## SOCIAL & BEHAVIORAL RESEARCH - BASIC/REFRESHER CURRICULUM COMPLETION REPORT

**Printed on 04/26/2014**

| | |
|---|---|
| **LEARNER** | Lam Wong (ID: 4087965) |
| **DEPARTMENT** | Engineering |
| **EMAIL** | wongl1@ferris.edu |
| **INSTITUTION** | Ferris State University |
| **EXPIRATION DATE** | 04/25/2019 |

**SOCIAL & BEHAVIORAL RESEARCH - BASIC/REFRESHER** : Choose this group to satisfy CITI training requirements for Investigators and staff involved primarily in Social/Behavioral Research with human subjects.

| | |
|---|---|
| **COURSE/STAGE**: | Basic Course/1 |
| **PASSED ON**: | 04/26/2014 |
| **REFERENCE ID**: | 12872490 |

| REQUIRED MODULES | DATE COMPLETED | SCORE |
|---|---|---|
| Conflicts of Interest in Research Involving Human Subjects | 04/26/14 | 5/5 (100%) |
| History and Ethical Principles - SBE | 04/26/14 | 5/5 (100%) |
| Defining Research with Human Subjects - SBE | 04/26/14 | 5/5 (100%) |
| The Regulations - SBE | 04/26/14 | 5/5 (100%) |
| Assessing Risk - SBE | 04/26/14 | 5/5 (100%) |
| Informed Consent - SBE | 04/26/14 | 5/5 (100%) |
| Privacy and Confidentiality - SBE | 04/26/14 | 5/5 (100%) |
| Research with Prisoners - SBE | 04/26/14 | 4/4 (100%) |
| Research with Children - SBE | 04/26/14 | 4/4 (100%) |
| Research in Public Elementary and Secondary Schools - SBE | 04/26/14 | 4/4 (100%) |
| International Research - SBE | 04/26/14 | 3/3 (100%) |
| Internet Research - SBE | 04/26/14 | 5/5 (100%) |
| Research and HIPAA Privacy Protections | 04/26/14 | 5/5 (100%) |
| Belmont Report and CITI Course Introduction | 03/24/14 | 3/3 (100%) |
| Unanticipated Problems and Reporting Requirements in Social and Behavioral Research | 04/26/14 | 3/3 (100%) |

**For this Completion Report to be valid, the learner listed above must be affiliated with a CITI Program participating institution or be a paid Independent Learner. Falsified information and unauthorized use of the CITI Progam course site is unethical, and may be considered research misconduct by your institution.**

Paul Braunschweiger Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Program Course Coordinator

# APPENDIX F

# NEW TUITION PAYMENT POLICY

**College sets new tuition payment deadlines**

February 26, 2014

Effective Fall 2014, the College will implement NEW payment deadlines. Listed below are the benefits of the new payment deadlines to students and the College.

*Benefits to students:*

• Eliminates the $25 set-up fee for the three-payment installment plan option

• Weekly drop provides students with more time to make payment arrangements

• Synchronized financial aid deadline and fee payment deadline provides consistency and simplifies dates for students to remember to pay and apply for financial aid

*Benefits to College:*

• More efficient, real-time management of course offerings and available seats in classes

• Students enrolled by the payment deadline are committed/paid students, which helps support operations, financial management, and course planning

• More students sign up for installment payment plan which helps to reduce the dollars/students sent to collections

• More effective use of Wait Listing and improved management of fill rates

By July 1, students must log into my Tri-C space or visit any campus Enrollment Center to:

• Make a payment in full OR

• Complete the financial aid application (FAFSA) and submit all requested documentation to the Office of Student Financial Aid and Scholarships OR

• Set up an appropriate payment plan (new for fall, there is no fee for the three-payment installment plan)

If students do not pay by the deadline, they will be withdrawn from all courses for non payment.

Students who register or re-register after July 1 are required to make payment at the time of registration.

This applies to credit classes only.