The Oregon University System's Proficiency-Admission Standards System as a Predictor of College Student Persistence-Related Outcomes

Tanya Leigh Ostrogorsky

Portland State University

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THE OREGON UNIVERSITY SYSTEM'S PROFICIENCY-ADMISSION
STANDARDS SYSTEM AS A PREDICTOR OF COLLEGE STUDENT
PERSISTENCE-RELATED OUTCOMES

by

TANYA LEIGH OSTROGORSKY

A dissertation submitted in partial fulfillment of the
requirements for the degree of

DOCTOR OF EDUCATION
in
EDUCATIONAL LEADERSHIP: POSTSECONDARY EDUCATION

Portland State University
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DISSERTATION APPROVAL

The abstract and dissertation of Tanya Leigh Ostrogorsky for the Doctor of Education in Educational Leadership: Postsecondary Education were presented June 4, 2008, and accepted by the dissertation committee and the doctoral program.

COMMITTEE APPROVALS:

Robert Everhart, Chair
Christine Cress
Dae Kim
Dalton Miller-Jones
Nancy Koroloff
Representative of the Office of Graduate Studies

DOCTORAL PROGRAM APPROVAL:

Randy Hitz, Dean
Graduate School of Education
ABSTRACT


Title: The Oregon University System’s Proficiency-Admission Standards System as a Predictor of College Student Persistence-Related Outcomes

We live in a society driven by a knowledge-based economy where the need for a college degree is at its highest historical level. To meet these needs, it is critical that educational systems increase students’ preparation for higher education, universities receive appropriate and adequate indicators of student preparedness, and students select the college that fits their needs and ambitions and support them in their persistence towards a college degree.

The admission standards of an institution guide this process but are only one part of what is required for a student to successfully transition from high school to college to the workforce. An aspiration to attend college must be followed by years of persistence working towards the goal of a college degree. Researchers have traditionally examined the process using two theoretical models: college choice and student persistence. However, Oregon University System’s (OUS) Proficiency-Admission Standards System (PASS) can be conceptualized within the integrated theoretical framework of Stage and Hossler’s (2000) Student-
centered Theory of Persistence (SCTP), which includes components from both these fields.

This study compared the persistence-related outcomes for 166 first-time freshman who had PASS data in spring 2001 to a matched-pair sample of 166 first-time freshman who did not have PASS data. The study used secondary data sources and an ex-post facto experimental design to determine the value-added of PASS in relation to postsecondary education outcomes (e.g., freshman grade point average, enrollment persistence) within OUS.

Data analysis related to the a priori questions did not identify statistically significant differences on the persistence-related outcomes between the two groups. However, post hoc exploratory analysis found that students with PASS proficiency data were three times more likely to be enrolled each term of their freshman year than students in the comparison group. Additionally, students with PASS proficiency data showed a stronger relationship between their high school grade point average and likelihood to graduate from OUS in four years.
Dedication

To my daughter, Ava Marie Young

During a particularly challenging point in this dissertation study process I was given a quote by Billie Jean King—*pressure is a privilege*. To me, this quote speaks to the fact that while things in life may be difficult and there may be seemingly insurmountable odds, if there is no pressure, then there is no growth, and growth is a privilege. As you grow up, when people pressure you to achieve, as they have pressured me, consider that a privilege, and know that in the end you will be a better person for it. I love you.
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Chapter 1: Introduction

Advances in technology, expansion of the global economy, and the shift from a manufacturing-based economy to a knowledge-based economy have contributed to the demand for workers who can adapt to new workforce requirements (Bloland, 1995; Pascarella & Terenzini, 1991; Steinmueller, 2002). Within a knowledge-based economy, “factual knowledge is becoming obsolete at an accelerated rate” (Pascarella & Terenzini, 2005, p. 155), and individuals must possess the knowledge and skills needed to keep pace in this dynamic and ever-changing global environment. Currently, one-third of the American workforce are considered knowledge-workers, and they are focused on “the accumulation and transmission of knowledge, much of which is new or deployed in contexts distant from its creation” (Steinmueller, 2002, p. 141), and that knowledge is being created in “unsupervised, self-managed teams in nontraditional settings” (Kuh, 2001, p. 288).

Many of the new skills required of knowledge-workers are learned through the process of completing the baccalaureate degree. Given the individual and societal costs associated with the absence of a college degree and the tremendous advantages to obtaining a degree, it is critical that the educational system increases the likelihood that students prepare for college, colleges and universities receive appropriate and adequate indicators of student preparedness, and students select the college that fits their specific needs and ambitions. The
primary indicators of these elements are embedded within college admission standards.

Admission standards are the primary criteria used by students and higher education institutions to gauge student preparedness and likely success in college. These standards act as benchmarks that assist students in identifying colleges that fit their academic preparation, needs, and ambitions. Similarly, colleges and universities rely on admission standards to guide them in determining whether a student is prepared for the academic demands of the institution and whether there appears to be an overall student-institutional fit. Therefore, it is imperative that admission standards accurately reflect the academic expectations of the college of university and are used by K-12 educational systems as building blocks throughout students' K-12 educational experiences so that students not only are prepared to meet collegiate academic expectations and become successful in a knowledge-based economy.

Meeting the admission standards of an institution is but one critical part of what is required for a student to transition from high school to college and to ultimately enter the workforce as a college graduate. Students must first develop an aspiration, or desire, to attend college. Once developed, such an aspiration is followed by years of meeting the many social and academic requirements of high school, searching for colleges or universities that are in alignment with the needs and desires of the student, applying to colleges, being admitted, choosing which
college to attend, and, after several more years of meeting social and academic requirements of the institution, being awarded a college degree (St. John, Paulsen, & Starkey, 1996). Historically, educational researchers have examined the process of moving from an aspiration to attend college to the conferral of a college degree using two theoretical models: college choice and student persistence.

**College Choice and Student Persistence**

College choice research has focused on the factors that affect student aspirations to attend higher education, how students search out college and non-college choices, and understanding the factors that influence a final choice for matriculation at a college or university (Bishop, 1977; Chapman, 1981; Flint, 1992; Hossler, Braxton, & Coopersmith, 2003; Hossler & Gallagher, 1987; Litten, 1982; Radner & Miller, 1970; St. John, Paulsen, & Starkey, 1996; Stage & Rushin, 1993; Villella & Hu, 1990). Although college choice models vary, they share three primary components: aspiration, search, and choice (Chapman, 1981; Flint, 1992; Fuller, Manski, & Wise, 1982; Hossler, Braxton, & Coopersmith, 2003; Hossler & Gallagher, 1987; Litten, 1982). However, most research is focused on the aspiration and choice components, with limited attention to and understanding of how students learn about colleges and universities. Within higher education, research related to college choice is primarily used to develop recruitment strategies and direct the marketing of the college (Flint, 1992; St. John, Paulsen, & Starkey, 1996; Villella & Hu, 1990).
Research on student persistence, or students' decision to continue within or exit from higher education once they have matriculated, has been primarily used by the academy to inform retention practices used to support students once they are on campus (St. John, Paulsen, & Starkey, 1996). Many of the student persistence theories focus on understanding the factors that influence student-institution fit (Berger & Milem, 1999; Milem & Berger, 1997; Pascarella & Terenzini, 1979; Stage & Hossler, 2000; Tinto, 1993b; Williams, 1984), which is the degree to which “student needs, abilities, interests, and goals and the ability of the institution to adequately respond to those needs, abilities, interests, and goals could lead to increased student satisfaction, academic achievement, and personal growth” (Williams, 1984, p. 69).

Most student persistence models reflect a combination of student pre-entry demographic and familial characteristics, commitment to the goal of receiving a college degree by the student, commitment to the institution in which the student is enrolled, and successful social and academic integration into the collegiate environment. In all student persistence models, these factors are affected by collegiate experiences, such as the amount of contact students have with faculty outside of class, student off-campus employment, whether students live on- or off-campus, and amount and quality of peer interaction (Astin, 1993; Milem & Berger, 1997; Tinto, 1993a).
Research on the process of moving from an aspiration to attend college to the conferral of a degree has historically been conducted with an eye towards either the college choice process or the student persistence process. Although some researchers (Stage & Rushin, 1993; Villella & Hu, 1990) have used national data sets to examine the relationship between select pre-matriculation and post-matriculation variables, few have moved toward the development of a unified theoretical model that bridges college choice and student persistence components. To date, the only unified theoretical model that has been empirically examined is the Nexus Model; however, the Nexus Model limits its focus to understanding how students' knowledge of financial aid options affects their college choice and student persistence processes (Paulsen & St. John, 1997, , 2002; St. John, Paulsen, & Carter, 2005; St. John, Paulsen, & Starkey, 1996).

Although there is limited research using unified college choice and student persistence models, scholars are beginning to propose that as pre-collegiate and collegiate educational systems are becoming increasingly aligned, so should the theoretical frameworks that scholars use to study them.

**Integrated Education and Theoretical Models**

There has been a movement to integrate the K-12 and postsecondary educational systems into conceptually unified educational systems. These integrated systems, referred to as K-16, are designed to work together to ensure students are graduating from the K-12 system ready to enter college as well as to

From a K-16 system’s perspective, the process for a student to become a college graduate begins with an aspiration to attend college. The student needs positive K-12 academic preparation and experiences, searches for and identifies colleges in which there is a likely student-institutional fit, applies for admission, and accepts one school’s offer to matriculate. After a student matriculates to an institution, s/he maintains the commitment to obtaining a college degree, has satisfactory institutional support and experiences to maintain enrollment, and meets the university’s social conduct and academic standards. When these requirements are considered together, it suggests a singular longitudinal process that carries a student from an early-age aspiration for a college degree through the act of being awarded that college degree.

The cornerstone of Oregon’s attempt to support a unified K-16 educational system is Oregon University System’s (OUS) Proficiency Admission Standards System (PASS). PASS is a system in which K-12 content area proficiencies are linked to college admission at all seven of its public four-year universities. PASS is a proficiency-based admission system with an underlying assumption that applied demonstration of applied knowledge is a more accurate predictor of future
college success than the reliance on traditional admission tools, such as standardized test scores or high school grade point average (HSGPA). According to OUS, a proficiency content area is:

A body of knowledge with an information base, rules, or principles, that constitutes a generally-recognized discipline or subject. It is assessed through demonstrated mastery of the structure and content of the desired knowledge and skills, and by the application of knowledge to real-world problems (Conley, Brownbridge, Dungan, & Hildrom, 1994, p. 78).

PASS has been developed to assess student performance in six broad content areas: English, mathematics, science, second languages, social science, and visual/performing arts. Performance in these areas is scored on a rating scale ranging from Not Meeting the Standard to Exemplary (refer to Appendix A PASS transcript and standards).

Just as PASS was designed to provide structural support to the K-16 movement in Oregon, researchers are beginning to develop theoretical student persistence models that bridge students experience in the K-12 and higher educational systems (St. John, Paulsen, & Starkey, 1996; Stage & Hossler, 2000; Stage & Rushin, 1993; Villella & Hu, 1990). One such theoretical model is Stage and Hossler’s (2000) Student-Centered Theory of Persistence (Figure 1). Although the student-centered theory of
persistence (SCTP) has yet to be empirically examined, it incorporates both college choice and student persistence components.

Figure 1. Stage and Hossler’s Student-Centered Theory of Persistence
The SCTP begins with student *Background* characteristics, such as parental education, family socioeconomic status, and encouragement to pursue a college degree. This *Background* influences the next phase of the model, *Middle and High School Behaviors and Educational Experiences*, which include the academic experiences and activity involvement that set the foundation for *Intentions and Engagement*. The *Intentions and Engagement* phase of the model includes the types of activities typically seen in college-bound students, such as enrollment in college preparatory classes, solicitation of college admission materials, preparation for standardized college entrance examinations, attending college fairs, and visiting college campuses (Attinasi, 1989; Stage & Hossler, 2000). These first three components are normally found in the college-choice theoretical models.

The latter part of the SCTP model reflects what is traditionally found in student persistence models. *College Entry* begins with students setting goals for their collegiate experiences, social and academic involvement on campus, and motivation to succeed. The ultimate outcome is *Persistence*, which is the process by which a student is consistently successful in college, continues to enroll, and completes the requirements for the degree (Stage & Hossler, 2000). By integrating the core concepts within the fields of college choice and student persistence, State and Hossler's SCTP is a theoretical model that can be used in
efforts to understand the complex longitudinal nature of educating students from early in the educational experience through completion of the four-year degree.

The SCTP model shares a philosophical perspective with PASS which conceptualizes academic preparation and the meeting of admission standards as a process that begins several years before a student actually attends college. By design, PASS builds upon the K-12 assessments conducted by the state, and when students meet the state 10th grade benchmark, they also meet 4 of the PASS proficiency standards for admission. This unique feature of PASS provides feedback for students about their academic preparedness in the timeframe during which they are solidifying their aspirations to attend college as well as beginning to search for colleges or universities of interest. Additionally, when students participate in PASS and work towards demonstrating proficiency in the different domain areas, that process can be conceptualized as a getting ready behavior, which is reflected in the SCTP model and a core concept linked to college success (Attinasi, 1989; Stage & Hossler, 2000)

Research Question & Significance of the Study

From a theoretical perspective, this study is framed around the assumption that the more specific information students have about their academic proficiencies, the more successful their future performance on tasks related to those proficiencies will be. The assumption of PASS is that students who participated in the PASS process have a greater self-
knowledge of their academic abilities in relation to college expectations, which enables them to be successful and persist at higher rates than students without this information. Therefore, the primary research question is focused on determining whether students with PASS proficiency data had evidence of more successful student persistence-related outcomes than did students without PASS-related data.

Although there are many definitions of student success, this study will measure that success in terms of college grade point average at the end of the freshman (FGPA) and 4th year in college (SGPA); first-year student retention within the OUS; persistence towards the four-year degree within OUS; and whether a bachelor’s degree was awarded from OUS within a traditional 4-year baccalaureate timeframe. For the purposes of this study, these student success variables will be referred to as *persistence-related outcomes*. This definition of student success was adopted because PASS is an academically focused admission system with the explicit goal of affecting those four student success outcomes (Tell, n.d., p. 3). This study will compare the persistence-related outcomes between two groups of students: PASS and Comparison Groups. The PASS Group students provided PASS proficiency data from their high school experience to the OUS Chancellor’s Office as part of a scholarship application process. The matched-pair Comparison Group consists of
students whose PASS proficiency data was either not submitted or did not exist. The persistence-related outcomes for both groups were collected four academic years after entry into the OUS system in fall 2001.

During the pilot testing of Oregon’s PASS proficiency standards, Conley (2000) examined the relationship between PASS proficiency levels and high school grade point average (HSGPA) to determine whether proficiency was different from the traditional indicator of HSGPA. Analysis based on 2,200 students’ work sample portfolios found that although there was a significant correlation of .45 between HSGPA and proficiency scores, students who were “judged as proficient are not necessarily the same students with high grades” (Conley, 2000, p. 16). This suggests that HSGPA and PASS proficiencies are measuring different academic preparedness factors. Furthermore, Conley (2000) found that students receiving B grades in high school subject areas “are performing below the level deemed appropriate for success in entry-level university classes” (Conley, 2000, p. 19). Therefore, it is important to understand what role proficiency plays in college outcomes, given that it is likely measuring a different preparedness factor than HSGPA and that students with above average HSGPA would not meet entry-level academic preparedness indicators based on the PASS proficiencies.

Although studies of PASS have shown that PASS proficiency measures a preparedness factor different than HSGPA (Conley, 2000) and that PASS
proficiencies are in line with the content areas of the common admission examinations (ACT Inc., 2002; Education Testing Service and The College Board, 2002), it is unclear how the concept of proficiency relates to college outcomes. The purpose of this study is to examine the assumption that student participation in PASS and proficiency-based assessment positively impacts college success outcomes for a subset of the first cohort of students who submitted PASS data to OUS prior to matriculation to one of the seven OUS campuses.

The remainder of this dissertation is organized as follows. Chapter 2 examines the four common traditional admission indicators used by higher education to determine admission, present the concept of proficiency and PASS in more detail, and expand the SCTP and related components. Chapter 3 provides an overview of the research questions, explains the research design, summarizes the characteristics of the sample, explains what data sources were used, explains the selection processes for the PASS and Comparison group students, and summarize the data analysis methods. Chapter 4 reports the results of the planned and exploratory analyses, and Chapter 5 provides a summary of the study, discusses the importance of the study and the implications of the findings, presents a
critique of the study and suggestions for future research and policy implementation.¹

¹ Although demonstrated proficiency has been maintained as a requirement for OUS college admission and remains an Oregon statute, PASS itself is not currently widely used as an admission tool. Implementation challenges, such as how to transfer proficiency data across K-12 to post-secondary educational institutional systems, remain a barrier to implementation. Furthermore, with the September 2007 changes to the K-12 assessments (Certificate of Initial Mastery (CIM) and the Certificate of Advanced Mastery (CAM), the focus on the Oregon New Diploma, and the lack of infrastructure to support the implementation of a proficiency-based admission system, the future of PASS in its current state is unclear. Even so, this study will refer to PASS in the present tense as some level of proficiency-based assessment will be required with the Oregon New Diploma.
Chapter 2: Review of the Literature and Theoretical Perspective

This chapter is divided into four major sections. The first section presents and summarizes the role of a college education in today’s knowledge-based economy. The second section presents and summarizes the changes in college student demographics and student motivation for attending college. These two concepts form the foundation of why higher educational system leaders must consider new methods for determining academic readiness for college. The third section of Chapter 2 is an examination of the four common traditional admission indicators used by higher education to determine admission. This review is the foundation for understanding the issues that have driven educational system leaders, particularly the Oregon University System (OUS) to develop proficiency-based admission indicators. Within this summary, the OUS Proficiency-Admission Standards System (PASS) is presented within the context of the Oregon school reform movement. The last section of Chapter 2 is a review of the literature on college choice and student persistence. Linked to this literature review will be a description of the Student-Centered Theory of Persistence (SCTP), which is the theoretical model that guided this study.

*The Role of College Education in American Society*

There are individual and societal benefits when a student persists through the educational system and achieves a college degree. For the individual student, benefits include moral, cognitive, and affective development; enjoyment of the learning experience; participation in social and cultural events; increased social
status; better physical health; longer life; increased ability to critically participate in a
democratic society; lower probability of unemployment; and access to the increasing
number of careers that require a college degree (Hossler, 1984; Perna, 2005). The
societal benefits of educated citizens include greater productivity in a global
marketplace, increased scientific and technological developments, lower social
welfare enrollments, lower crime rates, better health of its citizens, increased
community engagement, and the ability to attract business and industry into a
community (Hossler, Braxton, & Coopersmith, 2003; Pascarella & Terenzini, 2005;
Perna, 2005). Additionally, college educated citizens tend to participate in
intellectually enriching activities throughout their lives as they have developed “a
personal disposition for lifelong learning and intellectual development” (Pascarella
& Terenzini, 2005, p. 585). Additionally, people with higher levels of education tend
to instill a greater value for education in their children, which in turn, positively
influences their children’s aspirations to attend college (Pascarella & Terenzini,
2005).

As would be expected, there are detrimental consequences for individuals,
higher educational institutions, and society when students do not persist towards a
post-secondary degree. One consequence for students is the loss of entrance to and
the earning power associated with careers that require a college degree for entry-
level positions. Additionally, students who receive educational loans without gaining
the credentials carry that debt without the benefit of the earning power associated with the college degree.

For higher education institutions, students who do not persist through graduation create enrollment and curriculum management challenges, such as changes in class composition, unused residence hall space, loss of income from tuition and fees, increased recruiting costs to replace students lost to attrition, and difficulty in managing course offerings effectively and efficiently to meet student needs (Chapman, 1981; Hossler, 1984; Kotler & Fox, 1995). If students required academic remediation and ultimately did not graduate, the institution will have used valuable marketing and recruiting resources in addition to sustaining the indirect cost of being unable to serve another student who may have been successful. Higher education institutions also suffer because graduation rates are often part of the formula for media based rankings (e.g., *US News and World Report* or *Money Magazine*) on which potential student, parents, and institutions, themselves, rely to gauge the quality of the school (Bollinger, 2005; Kotler & Fox, 1995).

As there are negative consequences for individuals and higher education institutions, there are significant societal consequences when there is a shortage of individuals who can sustain the country’s knowledge-worker needs. Prior to the 1970s, a high school diploma and hard work might propel a person into the middle-class; with the development of a global economy, technological advances, and the
relative decrease of blue-collar wages, a high school education is no longer adequate (Pascarella & Terenzini, 1991).

During and after the 1970s, there was a shift from a modern production-based economy to a post-modern knowledge-based one. The post-modern economy focuses on efficiency and effectiveness, emphasizing information production rather than the manufacturing of goods (Bloland, 1995). Within a knowledge-based economy, workers are focused on “the accumulation and transmission of knowledge, much of which is new or deployed in contexts distant from its creation” (Steinmueller, 2002, p. 141). American society is now both post-modern and knowledge-based where one-third of the workforce consists of knowledge-workers, and 60% of all workers in the United States are functioning in “unsupervised, self-managed teams in nontraditional settings or telecommuting” (Kuh, 2001, p. 288). Without sufficient numbers of educated workers, companies must either work with fewer knowledgeable workers or rely on out-of-country workers to fill the demands of a higher set of skills. In either case, business organizations run the risk of being less competitive in the world economy.

Given the individual, institutional, and societal costs associated with students not persisting through college graduation and the advantages to having a college degree, it is critical that educational systems increase the likelihood that students are prepared for college, that colleges and universities have appropriate and adequate
indicators of those students’ preparedness, and that students select the college that fits their needs and ambitions.

*Changing College Student Demographics and Motivations*

When the United States was a young republic (1783-1830), college admission was largely based on socioeconomic status and family connections. College was for the elite and, therefore, relatively few people were afforded the opportunity of higher education—or schooling at all. Although Harvard was established in 1620, it was not until Thomas Jefferson called upon cities and towns to set aside land for colleges during the 18th century that the foundations for the modern higher educational system emerged. Over the past 200 years, there has been exponential growth in the number of educational institutions. Today there are over 3,500 colleges and universities in the United States (Trow, 2001).

Massive increases in the number of higher education institutions have been paralleled by an equally significant rise in students’ aspirations and attendance at higher education institutions. Between 1900 and 1950, the general population doubled, but during this same period, college enrollments grew by 1000% (Kuh, 2001). During this same era, the first federal financial aid program, the *Federal Emergency Relief Administration*, began in 1934 to provide support to “financially needy students with character and ability” (Parker, 1971, p. 31) to attend college. Other federal programs that influenced access (primarily for men) to higher education during this era included *The Serviceman’s Readjustment Act of 1944*,...
commonly known as the GI Bill of Rights, which during its initial 50 years, assisted at least 10 million veterans with postsecondary education. Access to college for non-veterans was significantly affected by President Eisenhower's *National Defense Education Act of 1958* and President Johnson's *Higher Education Act of 1965* which provided large scale federal financial aid through grants and loans to low income higher education students (Parker, 1971).

Between 1970 and 2005, male enrollments increased by over 1.5 million students, and it is projected that an additional 600,000 male students will be enrolled by 2016 (U. S. Department of Education, 2007). The women's rights movement of the 1970s influenced the enrollment patterns of female students. Ever since the 1970s, the majority of students taking college entrance examinations have been women (Carnahan & Coletti, 2003), and women now make up over half of all college student enrollments (Terenzini, Cabrera, & Bernal, 2001). Women are expected to be 60% of the undergraduate enrollment by 2016, as there is a projected 1.6 million female student enrollment increase expected between 2005 and 2016 (U. S. Department of Education, 2007). This amounts to an additional 2.2 million students between 2000 and 2016 (Hussar & Gerald, 2002; Kuh, 2001; Trow, 2001), and current projections indicate that by 2016, there will be over 10 million women enrolled in higher education compared to seven million men (U. S. Department of Education, 2007).
Currently, women receive the majority of associate-, bachelor-, and master-level degrees in the United States (Perna, 2005; Peter & Horn, 2005). Men are leading in being awarded professional and doctoral degrees, but women are pursuing advanced degrees at higher rates than before. Beginning in the late 1960s, women’s enrollment in doctoral programs has doubled and has quadrupled in advanced medical and dental programs. This aspiration for advanced degrees by women has been maintained over the last several decades; in 2001, 70% of freshmen women aspired to pursue an advanced degree (Astin, Oseguera, Sax, & Korn, 2002; Kuh, 2001).

Minority student enrollment patterns have also increased significantly over the past decades. In 1983, only 38% of African-Americans enrolled in higher education immediately after high school graduation. Fifteen years later, 61% enrolled in college directly after high school, nearly matching the Caucasian enrollment rate of 67% (Kuh, 2001). When considering minority enrollment patterns in general, Pascarella and Terrenzini (1998) indicated that between 1984 and 1994, Asian, Hispanic, African-American, and Native American student enrollments grew by 61%. Although some of these increases in minority enrollments are tied to the changing national demographics, they are also related to the increased requirement of a higher education to enter career tracks that previously did not require a college degree. For example, many administrative and clerical jobs now require a bachelor degree. In addition to higher education being increasingly populated by minorities...
and women, students 25 years and older now make up 45% of the student population (Kuh, 2001).

Clearly, major changes in student demographics have taken place in higher education. The opportunity to attend college has shifted from one that was reserved mostly for young, wealthy, white men to colleges being increasingly populated by females, minorities, and students of all ages. These demographic forces will continue to affect higher education as national enrollment is projected to increase by 15% in the coming decade.

As student demographics have changed, so have student motivations to complete college. Astin, Oseguera, Sax, and Korn (2002) found that the monetary benefits of college completion have become increasingly important to students, with financial gains being a very important or essential goal in life; thus, more than 70% of freshman believing that college is the means to “be able to make more money” (p. 17). Additionally, the National Center for Education Statistics (2004) found two-thirds of all students in higher education are pursuing career majors, such as business, health care, and education, as opposed to academic majors, such as mathematics, science, and English literature. The data supports the findings of Astin et al. (2002), indicating students pursue college degrees as a means to employment, and presumably financial security, rather than pursuing degrees that focus on more intrinsic values, such as the development of philosophies of life or focus on personal,
moral, and attitudinal growth, which are generally associated with liberal arts education.

As students’ motivations for attending college have shifted, so have their apparent levels of engagement in the academic endeavor. Astin et al.’s (2002), *The American Freshman*, has reported data annually from college students across the country beginning in the mid-1960s. These authors found that current cohorts of college freshman may not have developed the academic discipline that will prepare them to be successful in college. Although freshman report studying less, being bored in class, oversleeping, and missing classes at the highest rates of any cohort studied beginning in the mid-1960s, 50% of them are earning an *A* average in high school. This is of concern to higher education as “hours studying is positively related to nearly all academic outcomes…” (Astin, Oseguera, Sax, & Korn, 2002, p. 375), and, if students have not developed the academic habits that will prepare them for college, their likelihood of success decreases.

Given these shifting student demographics and characteristics, coupled with the needs of post-modern society, it is imperative that higher education leaders examine the indicators used in making higher education admissions decisions and engage students early in their academic preparation process. These indicators must reflect the demands of college-level coursework and must be understood by students, parents, teachers, and administrators to prepare students effectively to enter higher education. Additionally, given an increasingly diverse student population, higher
education administrators need to consider whether admission indicators have different outcomes based on racial, gender, and economic lines.

*Traditional Admission Indicators*

In order to place the development of Oregon Proficiency-admission Standards System (PASS) into context, it is important to understand the types of admission indicators that have been used historically. These indicators include the high school diploma, high school grade point average, Carnegie units for a prescribed curriculum, and standardized test scores. Each of these indicators have problems in predicting success in college, especially given that the demographics of students in the academy have and will continue to change to reflect a broader spectrum of society. After presenting the four traditional indicators, the concept of proficiency and PASS will be presented as an alternative admission system that was developed within Oregon’s most recent school reform initiatives.

For many years, colleges and universities have based admission decisions on different sources of data that have been broadly accepted as indicators of student success in college and likely persistence to degree. Some of these indicators are subjective, such as letters of recommendation, participation in extra-curricular activities, narratives of personal qualities, or essays focused on student goals. However, there are four indicators used during the admissions process that attempt to provide shared objective measures that are commonly interpreted across K-12 and higher educational systems: (a) possession of a high school diploma, (b) high school
grade point average (HSGPA), (c) the number of Carnegie units of instruction in key subject areas, and (d) standardized entrance examination scores, such as the SAT (formerly known as the Scholastic Aptitude Test, but now officially renamed SAT), or ACT (formerly known as American College Testing, but now officially renamed ACT).

The subsequent discussion of each of these objective admission criteria indicates that higher education has been searching for decades for a valid method to better ensure that students are prepared for academic expectations in college and are likely to succeed at the college or university. Each of these indicators has a complex relationship with the others, and they are typically considered in combination when making admission decisions.

Indicator 1: High School Diploma.

Fowler (2000) defined the period between 1783-1830 as the time when the United States was a Young Republic. During this time, wealthy families sent their children to private or boarding schools and poor children attended charity schools, if at all. This meant that schools were generally populated with wealthy White male students; thus, selection to college was determined largely by gender, race, and social class (Fowler, 2000).

Over time, the American educational system evolved to serve the uneducated masses. During the Rise of the Common School (1831-1900), urban political leaders "conceived of the Common School as a way to unify the heterogeneous population"
(Fowler, 2000, p. 333). The Common School "would provide an elementary education for all White children of both sexes and of every ethnic, religious, and socioeconomic group" (Fowler, p. 333). Schools operated as factory models, focusing on the development of workers for citizenship and the economic good of the nation. Although more children attended elementary schools during the era, the social and economic realities of the time meant that students who attended high school were the children of the wealthy. It was believed that an elementary education was sufficient for the masses, and advanced education was reserved for those who would be the doctors, lawyers, businessmen, and clergy.

The turn of the 20th century marked the beginning of the era when public schools served as *Scientific Sorting Machines*, 1901-1982 (Fowler, 2000). During this time, schools "offered an intellectually challenging curriculum to the top 20% of youngsters while providing the rest with a basic education that emphasized rote memory, 'adjusting' to society, and practical skills" (Fowler, p. 341). However, as society became more knowledge-based, the need for verbal and mathematical skills increased substantially.

Prior to the 1970s, a high school diploma and hard work could propel a person into the middle-class (Pascarella & Terenzini, 1991). However, with the development of a global economy, technological advances, and the decline of blue-collar wages, a high school education was no longer adequate. As early as the 1970s, educational leaders began to express concerns over the validity of the high school
Student Persistence

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diploma as well as the adequacy of a schooling system based on seat-time. Spady (1978) posited that a high school diploma was "merely a certificate of attendance and an indicator of the students' willingness to 'satisfy' the particular minimal expectations and standards of a series of teachers. It is not an accurate indicator of performance." (p. 38). Additionally, Spady argued that time-based systems "emphasize roles rather than goals and maintenance rather than productivity" [emphasis in original] (p. 39). In contemporary society, students needed to be focused on goals and productivity so they would be able to function effectively in a rapidly changing society.

One indication that high school matriculation is not sufficient to prepare students for college is evident in remediation rates. Remediation is the process of correcting academic deficiencies and is typically addressed in college through non-credit coursework that students are required to pass as prerequisite to enrollment in specific courses (U. S. Department of Education, 2003). Recent research indicates that 30-50% of four-year college students require some sort of remediation although those students were admitted (National Center for Education Statistics, 2001; The American Diploma Project, 2003). Providing this remediation is expensive, and American institutions spend an estimated 16.6 billion dollars to provide an average of one-year of remediation per student (U. S. Department of Education, 2004b). Furthermore, students who need remediation are significantly less likely to graduate from college. Burton and Ramist (2001) found only 21% of entering students who
required remediation completed college in nine years or less. Although the American high school diploma is a powerful symbol of life transition, it is not necessarily a certificate of preparation for higher education.

When examining the cost of remediation for Oregon University System students, Conley (1997) reported that OUS students spend over $300,000 per year on mathematics remediation alone. Not only is this a financial burden on students who must pay for non-credit bearing courses, those taking remedial classes instead of the entry-level courses required for their major may have to wait as long as one and two years for the intermediate and advanced courses in their major to be offered again. Because many majors have prescribed curriculum offered in cyclical patterns, students unable to take courses with the majority of their entering cohort are slowed in their progression towards graduation.

In sum, colleges and universities rely on the high school diploma and class rank for admission, there is evidence that the high school diploma is, at best, a weak indicator of students past academic background and not particularly useful as a predictor of success in college. Furthermore, many students are being granted high school diplomas yet are not ready to enter a college or university.

Indicator 2: High School Grade Point Average.

High school grade point average (HSGPA) has been found to be the best single predictor of a student’s college grade point average (Noble & Sawyer, 2002). However, the HSGPA, usually computed relative to other students in the same
school, is not a definitive indicator of learning because the high school grading system typically incorporates non-academic factors such as attendance, behavior, and classroom participation. Also, college-bound students are often wise enough to balance the high school graduation subject requirements (Carnegie units) with what they perceive to be rewarded by post-secondary education—high grade point averages. With such a strong emphasis on grade point averages, grade inflation has become a critical issue affecting the predictive validity and reliability of the HSGPA.

Astin et al. (2002) examined the issue of grade inflation from a historical perspective. They reported that in the late 1960s, high school grades of a C+ or below outnumbered A grades by two-to-one; however, in 2002, there were seven times as many A grades as C grades in high school. Based on this trend, Astin (2002) and Conley (1997) suggest that the C grade will actually disappear from college bound students’ transcripts if high school grade inflation continues at its current rate.

Astin et al. (2002) identified two time periods, 1970-1978 and 1986-current, that contributed the most to this shift in the quantity of A grades assigned. This ever-growing trend towards more and more A grades leaves little room in a traditional four-point grading system for sustained grade inflation. Therefore, high school grade point average may no longer be an appropriate measure.

One outcome of systemic grade inflation is that the meaning of an A has been challenged, and it has lost much of its value as an admission indicator. Not only does grade inflation weaken the predictive validity of this measure, it also causes students
to be overconfident about their abilities to do college-level academic work. Astin et al. (2002) found that 58% of freshmen expect to get a B average in college, and 17% expect to graduate with honors. However, during pilot testing of PASS, Conley (2000) found that students making B grades in high school would not be considered prepared for entry-level college course work according to the PASS standards.

High schools are not the only educational institutions engaged in grade inflation; colleges and universities are just as culpable. Conley’s (1997) examination of first-term OUS freshman grades showed nearly 55% of all student grades were an A or B. Conley suggested that Oregon needed to be concerned about this trend given that “students whose SAT scores were slightly lower than their peers 25 years earlier at the University of Oregon were receiving As and Bs at almost a 30% greater rate” (p. 10).

Although there is a positive relationship between HSGPA and freshman GPA (FGPA) from a national perspective, Conley’s (1997) evaluation of Oregon data identified that the predictive validity of HSGPA on FGPA appears to be dependent on the student position on the HSGPA continuum. Conley’s (1997) evaluation of OUS 1994 incoming freshmen suggested that HSGPA is only predictive of college grades for students with very high or very low HSGPA. Conley found that for the 60% of OUS freshmen with a HSGPA between 2.75 and 3.74, there was little predictive validity from HSGPA to FGPA. These findings should challenge Oregon’s confidence in the HSGPA as a sufficient predictor as it did not accurately
predict the FGPA for over half of the OUS incoming students. Given these issues, the educational community is faced with the need to develop more accurate indicators to use in their admission decisions. Colleges and universities should consider Conley’s (2000) findings that students with high HSGPA are not necessarily the students that OUS would consider proficient, suggesting that HSGPA no longer adequately reflects student preparedness for college-level coursework.

Indicator 3: Carnegie Units and a Prescribed Curriculum.

In the early 20th century, national organizations, such as the Carnegie Foundation and the College Entrance Examination Board (also known as The College Board), were formed in order to standardize college and university requirements so that all students entering college were exposed to a similar high school experience. In 1906, the Carnegie unit was created to define those curriculum standards. A Carnegie unit, defined as a standard amount of time a student is presented with material in a traditional classroom setting by a qualified teacher, allowed these national organizations to articulate the amount of content to be presented to students in order for them to be admitted to a college or university (Carnegie Foundation, n.d., p. paragraph 5).

The creation of the Carnegie unit is the first instance in which higher education institutions created admission requirements based on standardized units of high school curriculum (Carnegie Foundation, n.d., p. paragraph 5). The creation of Carnegie units of instruction for different subject areas is also an example of higher
educational institutions' ability to shape high school curriculum requirements. It was also a foreshadowing of a tighter relationship between higher education and K-12 schools that would develop over the next century.

*Table 1.* Comparison of 2003-2004 Carnegie Unit Subject Requirements and 1983 *A Nation at Risk* Recommendations

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<td>Social Studies</td>
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<td>Mathematics</td>
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<td>Science</td>
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<td>PE/Health</td>
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<td>Arts/Vocation</td>
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<td>Technology</td>
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<td>Foreign Language</td>
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<td>Electives</td>
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<td><strong>Total</strong></td>
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One can begin to see the difficulty of aligning high school and postsecondary educational systems expectations by comparing Oregon high schools' graduation requirements with Oregon University System (OUS) entering student requirements. In Oregon, the Department of Education requires 22 Carnegie units in different subjects for high school graduation; nine of these units (41%) may be electives (Refer to Table 1). However, OUS requires more English, Mathematics, and Foreign Language for entry into the state higher educational system. Therefore, students must be aware of these differences early in their high school experiences to ensure that
they earn this higher number of Carnegie units in those subjects. Merely meeting the Oregon high school graduation requirements will be insufficient to meet the OUS entry requirements.

This issue is further complicated when trying to understand state-to-state graduation requirements. Like Oregon, New York also requires 22 Carnegie units for high school graduation, but New York students have only 3.5 Carnegie units (16%) available for electives versus 9 (41%) in Oregon (National Center for Education Statistics, 2001). Thus, students from New York take more mathematics, science, social studies, English, and physical education even though they have the same seat time requirements as do Oregon students.

The reliance on Carnegie units is further complicated because it is based on an assumed standardization of course content and teaching efficacy. Therefore, it is nearly impossible to equate what School A in State X presents in Algebra II with what School B in State Y teaches as Algebra II. The effect of this misalignment is that college-bound students from different states arrive at the same college with different levels of preparation.

Recognizing there are issues with the use of Carnegie units for college admission, this standardized measure is valuable when examining national course-taking trends. For example, the National Center for Education Statistics (2001) examined broad course-taking patterns and concluded that the average number of mathematics courses completed in high school rose from 2.6 in 1982 to 3.4 in 1998,
and the number of science courses increased from 2.2 to 3.1. Additionally, by utilizing the Carnegie unit as a broad assessment tool, only 29% of the states had graduation requirements aligned with the *A Nation at Risk* recommendations. Although one may be critical of the fact that less than one-third of the high schools in the country are meeting the *A Nation at Risk* recommendations, this 29% represents a significant increase from 1983 when only 2% of states had requirements at this level (National Center for Education Statistics, 2001).

**Indicator 4: Standardized Test Scores.**

According to Fowler (2000), higher education developed from the era of The Young Republic (1783-1830) to an era called the Scientific Sorting Machine (1901-1982), a period when educational leaders developed standardized instruments designed to measure both aptitude and achievement. One such measure was the Scholastic Aptitude Test (SAT), which was first administered in 1906 to 8,000 high school students in the hopes of democratizing admission to elite colleges. James Conant, President of Harvard during the 1930s and 1940s, believed the SAT, “with its multiple choice questions and systematic scoring, would be seen as the great equalizer, a test that would allow the country’s future leaders to be tapped based on intelligence rather than family connections” (Gose, Selingo, & Brownstein, 2001, p. 3). Such a belief became the foundation of what was believed to be meritocratic admission systems which most colleges and universities still rely on to help make complicated admission decisions.
Although the format and formal name of the SAT has evolved over time, its current format includes a 3-hour general examination (SAT I), which focuses on verbal and mathematic reasoning. Sections of the SAT I include critical reading, sentence completion, arithmetic, algebra, geometry, probability, and statistics. In addition to the SAT I, there are over 20 possible subject-specific examinations, called SAT II. SAT IIs are designed to measure subject knowledge and the ability to apply that knowledge. These one-hour subject-specific exams include writing, literature, U.S. history, world history, mathematics, biology, chemistry, physics, and many foreign language reading or listening examinations (The College Board, 2004).

Controversy about the SAT arose in the 1960s and continued in the 1970s and 1980s. This controversy revolved around studies that suggested that SAT scores were positively correlated with family income (Gose, Selingo, & Brownstein, 2001; Phillips, Brooks-Gunn, Duncan, Klebanov, & Crane, 1998) and that there was a systematic difference in scores between men and women as well as systemic differences in scores based on race/ethnicity (Rooney & Schaeffer, 1998; Stricker, Rock, Pollack, & Wenglinsky, 2002; Zwick, 1999). Related to these differences, some critics questioned whether the focus of the SAT was on aptitude or intelligence (ACT Inc., 2003; Crouse & Trusheim, 1988; Gose, Selingo, & Brownstein, 2001). The core of that concern was whether the SAT was a test for an assumed innate ability or whether it was a test for knowledge gained in high school. With regard to the latter, in 1994, after years of defending the exam against challenges, the
Scholastic Aptitude Test was re-named the Scholastic Assessment Test. More recently, it has dropped any affiliation with aptitude or assessment in its title and is now only referred to as the SAT (Bollinger, 2002; Gose, Selingo, & Brownstein, 2001).

Although format and name changes were attempts to deal with controversy and concerns over what the SAT truly measures, the SAT still retains its role in college admission decisions. The most recent and possibly greatest challenge to the SAT came in February 2001 when Dr. Atkinson, president of the University of California (UC) system, called on his 170,000-student, nine campus system to, “become the first public university with competitive admission to drop the requirement that applicants take the SAT” (Gose, Selingo, & Brownstein, 2001, p. 2). Even though the UC system still requires the SAT, Atkinson’s statement sparked the movement in which hundreds of college and universities dropped or minimized the SAT requirement. The 2004 decision by Sarah Lawrence College to drop the SAT requirement was widely reported in the media. Ultimately, this decision had negative implications for Sarah Lawrence in that it, along with 17 other postsecondary institutions, was listed as unranked in the 2008 U.S. News and World Report college ranking issue. Within OUS’ seven campus system, only Eastern Oregon University still requires the SAT. All other campuses either do not require it or require it only if the minimum HSGPA is not met.
Considering gender bias in the SAT, researchers have shown that the SAT systematically underpredicts first-year college success for females and overpredicts for males by about .06 FGPA (Burton & Ramist, 2001). This means that the predicted FGPA for women was lower than the actual grades received. Although not all institutions rely on formulaic admission decisions, even slight systematic underpredictions of FGPA mean that women are screened out of the institutions that use these methods. In examining the first-year college mathematics grades and SAT scores of 47,000 college students, researchers found that women who earned the same grades in the same courses as men scored an average of 33 points lower on the math section of the SAT (Burton & Ramist, 2001; Rooney & Schaeffer, 1998). Also, ever since the 1970s, men’s scores on the overall SAT have exceeded females’ scores by at least 39 points, with the gap remaining across all other student characteristics (i.e., race, socioeconomic status, HSGPA, course selection, and parental education levels). This is a critical issue for women because every year an estimated 12,000 women are denied admission to large competitive flagship schools based on their SAT scores (Rooney & Schaeffer, 1998).

There is considerable literature that addresses the issue of race and the SAT. The test results indicate that test scores on the SAT are approximately 200 points higher for Whites than Blacks. With the recent revisions to the SAT II, the average test score gap between Whites and Blacks has decreased to 81 points, and the test score gap between Whites and Hispanics is 70 points (Thomas, 2004). The literature
further shows that SAT underpredicts FGPA for Asians and Whites and overpredicts FGPA for American Indian, Blacks, and Hispanics (Burton & Ramist, 2001; Carnahan & Coletti, 2003).

The challenge of understanding the predictive validity of the SAT can be seen when one considers Thomas’ (2004) research on Texas students that accounts for school-level characteristics (e.g., public or private high school and percentage of student taking the SAT), HSGPA, and parental income and education. Thomas’ research found that when accounting for school-level characteristics, Asian and Black students actually score better than White students on the most common SAT II subject test, writing. Similarly, Everson & Millsap’s (2004) structural equation modeling of 484,000 SAT records from 1995 found, “school size, the proportion of children in poverty, and the ethnic and racial composition of the high schools were all important and meaningful predictors of student achievement, beyond the individual differences that children bring with them to the schools” (p. 171). Everson & Millsap report that between-group SAT score differences are essentially eliminated once the school-level and parental socioeconomic status indicators are included in the model.

Phillips, Brooks-Gunn, Duncan, Klebanov, & Crane (1998) noted that there are three major issues regarding the essence of the testing process itself: labeling bias, content bias, and methodological bias. They refer to the labeling bias as a threat to validity in that the SAT is not sufficiently sensitive to environmental
influences and general exposure. This is a problem because most psychologists agree that knowledge is not innate but rather is influenced by environment and life experiences. Thus, the fact that minority students may be affected by a different environment than majority students can produce labeling bias because the test is supposedly testing achievement or aptitude but may actually be testing whether a student has been exposed to terminology or ideas.

*Content bias* is closely related to *labeling bias* in that there is a reliance on White experience and vocabulary to measure the attribute sought on the test. For example, if the test makes a reference to content that is found mainly in White culture (e.g., a certain food, music, etc), minority students may be at a disadvantage due to their lack of exposure to that content.

*Methodological bias* can occur in the SAT due to an inability of the test to measure minority and marginalized students' knowledge because of the format of the exam itself. Not all individuals are able to express their knowledge in sit-down paper-and-pencil examinations; however, this methodological bias likely affects students across racial and ethnic lines.

In spite of all these issues, the SAT continues to be used as a major indicator for college admissions and a primary predictor of subsequent college success. Although HSGPA is still the best *single* indicator of FGPA, colleges and universities normally consider HSGPA in combination with SAT (Burton & Ramist, 2001; Kobrin & Milewski, 2002). However, this combination only explains 25-50% of the
variance in college grades (Astin, 1993; Kobrin & Milewski, 2002). Thus, even
though standardized examination and the HSGPA are ingrained in American
educational systems, they fail to account for a large percentage of the variance in
college grades. Given these problems with SAT scores, one must raise the critical
question as to the value of such a standardized test in a society where income, race,
and gender seem to be key factors in SAT scores themselves. Hence, the question
must be raised: are there other indicators that could minimize testing bias and be
better predictors of student college success?

School Reform, Oregon, and the Development of PASS

Although school reform has been a constant in education, this study’s focus is
limited to the more recent movements that directly led to the development of the
Proficiency Admission Standards System (PASS). In that framework, the Oregon
school reform movement was influenced by the 1983 release of the report A Nation
at Risk (National Commission on Excellence in Education), which sounded the alarm
related to the United States’ educational standing in relation to other developed
countries, particularly in literacy, mathematics, and science. The tone of the National
Commission on Excellence in Education (2001) report can be seen in statements
such as,

We have squandered the gains in student achievement made in the
wake of the Sputnik challenge. Moreover, we have dismantled
essential support systems which helped make those gains possible.
We have, in effect, been committing an act of unthinking, unilateral, educational disarmament. (p. 136)

Following the release of this controversial report, a tidal wave of school reform was directed to addressing the recommendations of the Commission.

Although *A Nation at Risk* outlined recommendations, ranging from high school curriculum content, students' time in school, and teacher preparation, the recommendations regarding *Standards and Expectations* set the framework for the development of PASS. The general recommendation from the National Commission on Excellence in Education was,

We recommend that schools, colleges, and universities adopt more rigorous and measurable standards and higher expectations for academic performance and student conduct, and that four-year colleges and universities raise their requirements for admission. This will help students do their best educationally with challenging material in an environment that supports learning and authentic accomplishment. (p. 153).

Within this broader recommendation were several specific recommendations, one of which elaborated on the call for four-year colleges and universities to raise admission standards and ensure that potential applicants were aware of the new admission standards, including specific course work requirements and achievement in "each of the five Basics"
(National Commission on Excellence in Education, 2001, p. 153). Although some aspects of *A Nation at Risk* have fallen by the wayside, one legacy of the report has been the development and continued focus on educational standards.

After the release of *A Nation at Risk*, educational leaders began to examine high school curriculum and graduation requirements closely. Within Oregon, House Bill 3565 ("Oregon Educational Act for the 21st Century", 1991) was developed to satisfy three different communities concerned with school reform and was ultimately the impetus for the development of PASS. The standards community advocated for increased school accountability through more demanding academic standards to increase United States' workers' productivity in comparison to other countries. The equity community wanted to improve teaching and curriculum with the idea of improving education for all students, including those who historically experienced low educational expectations. The vocational community was concerned about providing support for the approximately 50% of students who were not college bound. Therefore, HB 3565 attempted to significantly change the educational system in Oregon and address all of these concerns by “mandating a comprehensive system of standards with assessments for grades 3, 5, 8, and 10” (Oregon University System, n.d., p. paragraph 1).
As a result of these demands, Oregon House Bill 3565 included components to address the political agenda's of the three communities. To satisfy these groups, traditional diplomas were to be eliminated and graduation would be granted on the basis of demonstrated proficiency, rather than course completions, credits, and seat time. Two levels of certificates, based on proficiency, would be granted: the Certificate of Initial Mastery (CIM) and the Certificate of Advanced Mastery (CAM) (Miller-Jones, 1997). The CIM requires a student to pass standardized content tests in reading/literature, mathematics, social studies, and science. Students must also meet the minimum scores on statewide writing assessments and meet performance standards on classroom work samples in writing, mathematics, problem-solving, and speaking (Oregon Department of Education, 2008b).

The CAM is focused on transitioning out of high school and requires students to develop an educational plan or build an educational profile, meet the performance standard for extended application through a collection of evidence, demonstrate career-knowledge and skills, participate in career-related learning experiences, and meet the CIM performance standards (Oregon Department of Education, 2008a).

Another feature of Oregon House Bill 3565 was that schools would work with social service agencies to assure support for low-income families, and extensive assistance would be available for students not making satisfactory progress.

Shortly after House Bill 3565 legislation was approved, the Oregon State Board of Higher Education (OSBHE) identified a need for the Oregon University
System to respond to House Bill 3565. In February 1993, OSBHE approved the creation of a proficiency-based admission system that was to be connected to the state K-12 school reform movement (Miller-Jones, 1997). In many ways, the intent of the OSBHE reaction to the House Bill 3565 was to ensure that K-12 school reform did not become overly focused on vocational training.

Originally, demonstrated proficiency through PASS was to be the recommended pathway for entry into OUS beginning fall 2001. Furthermore, there was an expectation that all Oregon students would participate in PASS and all OUS campuses would use PASS transcript information to make admission and placement decisions by fall 2005. The general goal of PASS was to directly affect access to postsecondary education and provide a framework within which students would be better prepared for college. Former PASS Director, Dr. Christine Tell, articulated the hope that was being placed on PASS when she wrote, "When fully implemented in 2005, PASS will ensure academic success, reduce remediation rates, increase retention rates for all students, and shorten the time to degree to four years" (Tell, n.d., p. 3).

In summary, Oregon's response to the national school reform agenda was addressed through a comprehensive school reform package that ultimately influenced the need for the Oregon University System (OUS) to develop a system of proficiency standards that were linked to college admission. OUS's Proficiency-Admission Standards System (PASS) was one designed to work in partnership with K-12
assessments to ensure that teachers and counselors were fully aware of the knowledge, skills, and abilities that a student would need in order to be successful at one of the seven OUS campuses (see Appendix B for policy a summary of the PASS policy implementation 1993-2002).

Proficiency-Based Education: What is It?

It is important to understand the terminology that surrounds proficiency-based education. First, standards are the articulated levels of achievement that are desired at different grade levels. For example, a standard may be the ability to solve mathematical problems or read from a variety of genres. Therefore, standards-based education refers to teaching students to articulated standards that usually have several different indicators for each standard. An indicator is defined as a concrete sign or symptom of a criterion or standard being met (Wiggins, 1998). These indicators are typically combined and referred to as a rubric for evaluating a standard.

The term proficiency- or competency-based builds on the concept of standards-based and refers to a system in which students need to be able to demonstrate their understanding and abilities in the articulated areas. Proficiency-based evaluation systems have been around for thousands of years. For example, the Sung Dynasty (c. 960-1279) practiced a civil service ranking system where candidates needed to demonstrate their higher order thinking skills through communication. These skills included competencies, such as originality and
composition, ability to summarize understanding and meaning, demonstrated reasoning ability, and recitation of passages.

In the modern era, the Test of English as a Foreign Language (TOEFL) is one of the more common proficiency-based examinations used by colleges and universities to assess English language proficiency of foreign students. In most cases, schools set a minimum TOEFL score as a condition of admission. Other common proficiency-based evaluations include the testing process to earn a driver's license and proficiency examinations in the trades (e.g., plumbers and electricians) and the professions (e.g., pilots and nurses).

Colleges and universities are gradually requiring demonstration of proficiency across a variety of domains. For example, increasingly entering freshmen must demonstrate their computer proficiency to show they are prepared to use technology at the university (Butler University, 2006; California State University-Long Beach, 2006; Thomas University, 2006). The City University of New York (2003) requires students to demonstrate their proficiency in two examinations, Analytic Reading and Writing and Analyzing and Integrating Material from Graphs and Text, prior to earning their 60th academic credit. CUNY students who do not pass these examinations are required to attend remediation sessions and may take the exams up to three times. Colleges and universities increasingly require an exit experience in the senior year to assess students' ability to apply skills and knowledge to address community issues (Portland State University, 2008) or have senior thesis
projects that are focused on knowledge development in the students’ area of expertise (Reed College, 2008).

Structure & Scoring of Oregon’s Proficiency-Admission Standards System

This section will briefly present the general structure of PASS, the standards and the scoring methods. PASS has standards for seven content domains: Reading, Writing, Mathematics, Science, Social Science, Second Languages, and Visual & Performing Arts. Within each domain there are specific standards and criteria for demonstrating the standard. For example, within English, there are six standards (e.g., Write for a Varied Purpose, Interpret Literary Works, and Analyze Relationships of the Humanities and Human/Social Experience) (Oregon University System, 2007). Students can receive one of five possible scores for each standard: Exemplary, Highly Proficient, Meets the Standard, Working towards the Standard, or Not Meeting the Standard.

PASS proficiency standards can be demonstrated through three evaluation mechanisms: PASS Teacher Verification (PTV), scores on national standardized tests, or scores on the Oregon statewide assessments. For example, within the English standard Write for Varied Purpose, a student could either receive at least a 700 on the SAT II-Writing examination, a 5 on the International Baccalaureate English A1 examination, or earn a Highly Proficient rating through PTV. In some cases, PTV is the only method available to assess the standard. For example, the standard Analyze Relationships of the Humanities within the English domain can
only be assessed by a PASS Trained Teacher, as there are no standardized
examinations that allow a student to demonstrate their proficiency on this particular
standard (Oregon University System, 2007).

Theoretical Perspective

Up to this point, this study has presented the changing landscape of higher
education and discussed the changing nature of admission indicators and the
evolution of higher educational systems in their application of these indicators. However, these programs and policy issues are more fully understood by examining the relevant academic literature. As noted in Chapter 1, the literature can be generally classified into the college choice and student persistence models. This section reviews and summarizes highlights of the college choice literature, then reviews and summarizes the major dimensions of the most frequently cited student persistence models. This section concludes with an overview of a theoretical model that integrates the college choice and student persistence literature, the student-centered theory of persistence.

College Choice

Although there is a common theoretical process that underlies all college choice literature, researchers approach the problem from many different angles. For example, some researchers focus on the role of economics in the college choice process as students are thought to maximize the economic utility of their decisions to attend a particular college or to attend college at all (Fuller, Manski, & Wise, 1982;
Hossler, Braxton, & Coopersmith, 2003; Jackson, 1982; St. John, Paulsen, & Starkey, 1996; Young & Reyes, 1987). Sociologically oriented college choice theories are focused on understanding relationships and factors, such as social and cultural capital and their influence on status attainment (Berger, 2004; Hossler, Braxton, & Coopersmith, 2003), or how social structures are replicated through the college experience (Berger, 2004). Although theorists approach the process from different perspectives, the process itself can be distilled into a common three-phase process: aspiration, search, and choice (Hossler, Braxton, & Coopersmith, 2003). To better understand the unique aspects of each of these three phases, they will be discussed separately.

Aspiration. Aspiration, the development of desire to continue formal education past high school, normally begins at an early age and is initially seeded by family and community members. Factors, such as student career plans, parental education levels, parental encouragement, and student academic ability and achievement, are strongly positively correlated with the development of an aspiration to attend college (Hossler, Braxton, & Coopersmith, 2003). As an example, students whose parents have a college degree, who do well in school, and who have plans to pursue a career that they know requires post-secondary education have a stronger aspiration to attend college.

Another factor that is moderately associated with an aspiration to attend college is peer encouragement (Hossler, Braxton, & Coopersmith, 2003; Stage &
Hossler, 2000). Factors that have a positive, yet weak, association with the development of an aspiration to attend college include counselor or teacher encouragement, family socioeconomic status, labor markets, and quality of high school (Hossler, Braxton, & Coopersmith, 2003).

Theorists vary in terminology about the aspiration phase of college choice. Hossler and Gallagher (1987) use the term predisposition, Hanson and Litten (1982) use college aspiration, Jackson (1982) uses preference, and Chapman (1981) uses general expectation. Although the exact terminology of this phase may vary, the core concept remains the same—the development of an ambition to continue education past high school. This phase of the college choice process is in alignment with Attinasi’s (1989) initial expectation engendering and fraternal modeling dimensions of anticipatory socialization in which parents, friends, classmates, teachers, mentors and others communicate the expectations of college attendance and college experiences. Also, the concept of aspiration is in alignment with the Background and Middle and High School Behaviors and Educational Experience components of Stage and Hossler’s (2000) student-centered theory of persistence (SCTP).

Search. In general, the aspiration phase of the college choice process is solidified by the 11th grade (Hossler, Braxton, & Coopersmith, 2003; Kotler & Fox, 1995; U. S. Department of Education, 2004a), and the search phase begins. The search phase is fundamentally different from the aspiration phase because the student takes a more proactive approach. The process involves contacting and visiting
schools, participating in college preparation workshops, talking to counselors, friends, and teachers—all of which are active behaviors that indicate an interest in, and the presence of, a search process (Chapman, 1981; Flint, 1992; Hossler, Braxton, & Coopersmith, 2003). This phase parallels the direct simulation dimension of anticipatory socialization (Attinasi, 1989) in which students begin direct experience with the concept of attending college.

Research on this phase finds that students have only “casual awareness” (Hossler, Braxton, & Coopersmith, 2003, p. 26) of their choices and rely primarily on college guidebooks, friends, counselors, campus visits, or publications. The research suggests that students rely on campus marketing and outreach products to support their decisions, not act as guides in their decision making process (Hossler, Braxton, & Coopersmith, 2003).

The search phase of the college choice process has received limited attention by researchers; therefore, it is unclear exactly how students establish limits to their college search process. Factors that are known to be limiters include location of the institution, the real cost of college attendance (Bishop, 1977; Fuller, Manski, & Wise, 1982), as well as the perceived cost of attendance (Flint, 1992). Flint (1992) found that in many cases parents and students limited the selection pool of colleges due to lack of information about financial aid. At this phase of the college choice process, academic ability and parental encouragement remain strong influences
Student Persistence


Choice. The final phase of the college choice process, often entitled choice, is one where parental education levels, parental encouragement, and student academic achievement/ability remain strong influences (Hossler, Braxton, & Coopersmith, 2003). In the choice phase of the process, family socioeconomic status also has a strong positive correlation with college choice, as families with higher socioeconomic status are possibly able to consider private or more expensive state colleges and universities. Other influences present during this phase are college characteristics, such as location of the institution, net cost of attendance, availability of other local options in the region, and academic quality of the institution (Hossler, Braxton, & Coopersmith, 2003).

Once a student has progressed through the college choice process and matriculated at a college or university, the focus shifts to maintaining students' enrollment through graduation. This phase is commonly referred to as student persistence. The next section will examine the literature related to student persistence, and it will be followed by the presentation of a model that integrates college choice and student persistence components into a model called the student-centered theory of persistence.
Student Persistence

Student persistence can be thought of as the process by which students continue to make satisfactory progress towards the academic degree and sustain enrollment until graduation. It is important to understand the general landscape of higher education research in this area. Pascarella and Terenzini (2005) indicate that there are two main types of student persistence theories, student development and college impact. "The primary difference between the two families of theories lies in the relative degree of attention they give to what changes in college students versus how these changes come about" (p. 19).

Student development theories are rooted in psychological stage theories where students progress through a series of stages until the termination of the process. Major theorists in this area focus on identity development, intellectual and ethical development, reflective judgment, and moral development (Baxter Magolda, 1992; Chickering & Reisser, 1993; Cross Jr., 1985; Jones & McEwen, 2000; Perry, 1981; Tatum, 1992). Although these developmental theorists have different foci, they share the perspective that college is a time of "self-understanding and awareness of self as a participant in learning" (Pascarella & Terenzini, 2005, p. 48).

The second main family of theories, referred to as college impact theories, is focused on understanding how student change occurs considering the type of institution students attend or how the experiences within the institution shaped those outcomes. In these models, the environment not only supports, but can "induce
particular kinds of responses” from students (Pascarella & Terenzini, 2005, p. 60). Within this family of theories, contextual factors include “institutional structures, policies, programs, and services, as well as the attitudes, values, and behaviors of others” (Pascarella & Terenzini, 2005, pp. 59-60).

College impact models focus on the source of change, with attention paid to the context in which the student exists. Pascarella and Terenzini (2005) indicated that college impact models tend to be “less specific than theories of individual development in their explication of the particular changes students undergo, less detailed in their overall exposition, and less explicit about their grounding in the work of other theorists” (pp. 52-53).

Many of the most widely cited student persistence theories originate from this perspective. Two are Astin’s (1970) Theory of Involvement and Tinto’s (1975) Theory of Student Departure, both of which dominate the student persistence literature. Given the perspective of this study, the remaining literature review related to student persistence will be limited to the predominant college impact models, recognizing that the student developmental theories are out of the scope of this study.

Astin’s Theory of Student Involvement. The expenditure of physical and psychological energy by students is related to nearly all student outcomes. This statement is at the heart of Astin’s Theory of Student Involvement, which assumes that if students do not devote energy towards the educational experience, their
learning, development, and ultimate success in college will be significantly hindered (Astin, 1993).

Astin’s (1984; 1993) Theory of Student Involvement is one of the most widely recognized and used models in higher education and is supported by the results of *The American Freshman*, the longest continuous study of the values, experiences, and demographics of freshmen students in United States history. Astin (1996) indicated that there are 3 types of student involvements that “enhance almost all aspects of the undergraduate student’s cognitive and affective development” (p. 126): a) general academic involvement, which includes hours studying and good study habits; b) involvement with faculty, particularly experience working on undergraduate research projects; and c) involvement with peers, which is the single most influential factor in student outcomes. Peer involvement can be characterized by participation in intercollegiate sports, extracurricular group activities, or honors programs. Experiences that challenge students’ ability to engage in these types of involvement activities, such as living off campus and working full time, take away from the cognitive and affective outcomes of college. In Astin’s (1993) paperback version of *What Matters in College: Four Critical Years Revisited*, he specifically identified Portland State University’s Senior Capstone program as one of two noteworthy examples of how traditional commuter universities have embraced the concepts of student involvement, to achieve positive student outcomes.
Within the Theory of Involvement, there are basic tenets that are behaviorally oriented, in that they are focused on what the student does versus what a student thinks or feels (Astin, 1984). Those tenets indicate:

- Students must expend physical and psychological energy into the academic experience. This energy is evidenced by the amount and quality of time and energy devoted to the educational experience. Behavioral indicators of this include hours preparing and studying for courses, working with faculty on projects, and effectively working with peers.

- Student involvement is a continuum where individual student involvement varies over time (within-student), and there is a difference between students' involvement. This student involvement continuum recognizes variation in individual student involvement over time and in differences amongst peers.

- The amount of student learning and personal development achieved in an academic program is directly related to the amount of student involvement with the program. Students must become actively involved in the program in order for student learning and personal growth to occur.

In order to apply the Theory of Student Involvement to educational research, Astin (1993) created the input-environment-outcome (I-E-O) framework. In the I-E-
O framework, the \( I \) refers to **inputs** and includes all the student’s pre-enrollment characteristics brought to college, such as gender, ethnicity, high school experience, and academic preparation. The \( E \) of the model refers to the **environment** and includes all the experiences (or lack of experiences) that occurred when a student was on the college campus. These environmental influences include institutional policies that affected the student, interactions with faculty and peers, course work expectations, peer groups, place of residence (on or off campus), and amount of time working.

The \( O \) refers to **outcomes** as influenced by the interaction of the student characteristics (\( I \)) with the college environment (\( E \)). There are two types of outcomes in the I-E-O Model, **affective** and **cognitive**. Affective outcomes are related to values, attitudes, and aspirations, and are easier to measure through surveys and other social science methods. Cognitive outcomes are related to “the use of higher-order mental processes such as reasoning and logic” (Astin, 1993, p. 9), require a larger percent of a student’s time on campus, and are also more difficult to measure. Astin uses college grade point average and retention as outcome measures of academic involvement.

**Tinto’s Theory of Student Departure.** Although not without criticism, Tinto’s Theory of Student Departure has developed into near paradigmatic status (Braxton, 2004a) as it attempted to capture the difference between **sources** of student change and **factors** that affect student persistence through an interactionalist perspective. Tinto’s Theory of Student Departure has been relied upon to explore student
persistence in nearly every conceivable way including single and multi-institutions studies, comparison of persistence rates between genders, minority/majority students, and two-year and four-year colleges (Tinto, 1993a).

Before delving into the details of Tinto's model, it is important to understand the theoretical foundation from which it was developed and the intent of the model. Additionally, it is important to realize that although Tinto's model dominates the student persistence literature, it has received significant criticism, and researchers have challenged the validity of several of the core concepts that are the backbone of Tinto's theory (Braxton, 2004a; Braxton, Sullivan, & Johnson, 1997).

Braxton, Sullivan, and Johnson's (1997) examination of decades of work related to Tinto's model brought researchers together to re-examine the concept of student persistence and the underlying components of this model. This re-examination has resulted in a book, *Reworking the Student Departure Puzzle* (Braxton, 2004b), in which researchers from multiple disciplines and perspectives put forth new theoretical models in which to examine student persistence. The theory upon which the PASS study relies, Stage and Hossler's student-centered theory of persistence, was presented in this book.

The core concepts that frame Tinto's Theory of Student Departure are pre-entry attributes, such as family background and academic achievement, and commitments to the goal of a college degree, coupled with a commitment to the institution in which enrolled. These pre-entry attributes and commitments/goals
interact within the social and academic environment of the college as the student continuously modifies the commitment to the goal and the institution. Positive academic and social experiences increase goal and institutional commitment; negative experiences decrease it. These experiences directly lead into how academically and socially integrated the student becomes. This academic and social integration fuels the re-examination or affirmation of the commitment to the goal and the institution and ultimately affects the decision to persist or depart the institution.

Figure 2. Tinto's Theory of College Student Departure

Dark solid lines represent fundamental pathways
Light solid lines represent strongly supported pathways
Dotted lines represent weak or moderate pathways
Within the Theory of Student Departure, academic performance is an indicator of academic integration (Anthony F Cabrera, Nora, & Casteneda, 1993). Although the reliance on college GPA as the indicator of academic integration has received criticism for showing differential impact depending on whether the study is multi- or single-institution focused (Braxton & Lein, 2004; Anthony F Cabrera, Nora, & Casteneda, 1993), "little consensus exits among scholars on the meaning of academic integration" (Braxton & Lein, 2004, p. 13). Coupled with the fact that most institutions do not have other indicators of academic integration, college GPA continues to be relied on as the indicator of this concept.

In Braxton, Sullivan, and Johnson’s (1997) empirical review of the literature related to Tinto’s theory, they found support for only 9 of the 13 pathways in the model (see Figure 2) and indicated that pathways in Tinto’s model are not consistently supported in the literature. In Figure 2, the dark solid lines represent the fundamental theoretical pathways between the underlying factors of Tinto’s model that are supported by empirical evidence. The solid lines in the model are strongly supported by the research base. The dotted lines show weak to moderate evidence within the literature (Braxton, Sullivan, & Johnson, 1997).

The fundamental components of Tinto’s model are the direct relationships between pre-entry characteristics and departure decisions, academic integration and goal commitment, social integration and institutional commitment, institutional commitment to departure decisions, and goal commitment to departure decisions. In
other words, prepared students who have positive academic and social experiences reinforce their commitment to the institutions in which they are enrolled and to their goal of a college degree.

Tinto specified that the Theory of Student Departure, "is intended to speak to the longitudinal process of departure as it occurs within an institution [italics in original] of higher education.... it is not a systems model of departure" (Tinto, 1993a, p. 113). The primary focus of the model is on those students who voluntarily withdraw from an institution rather than those who are academically dismissed, and the model is meant to be explanatory rather than descriptive.

Tinto’s model is a developmental one rooted in the anthropologist Van Gennep’s concepts of rite of passage paired with sociologist Durkheim’s theory of suicide (Tinto, 1993a). Van Gennep’s rite of passage concepts include separation, transition, and incorporation. The concepts of separation, transition, and incorporation can be seen when one thinks of a student’s shift from high school to college as a process of learning how to leave one community behind and successfully transition to integrate into a new community, the collegiate community. The separation phase of this process is the time in which students, in varying degrees, “disassociate themselves from membership in the communities of the past, most typically those associated with the family, the local high school, and local areas of residence” (Tinto, 1993a, p. 95). In some cases, this separation process involves the rejection of past values, norms, and behavioral and intellectual styles of the
community in which the student come from (Tinto, 1993a, p. 95). As indicated by Tinto, the success of this phase of the process can be dependent on the attitudes towards college attendance in the student’s past community. If a community believes that college education and the related processes are part of normal adult life, the process is eased. The transition phase of Van Gennep’s rite of passage model is directly related to Attinasi’s (1989) concept of getting ready, in which individuals have begun the process of transition prior to the actual transition event (Tinto, 1993a). These getting ready behaviors are directly represented in Stage and Hossler’s (2000) Student-Centered Theory of Persistence. The transition phase of Van Gennep’s rite of passage model is analogous to what PASS is designed to do from an academic perspective; PASS students begin the transition process to college as early as 10th grade. Finally, Van Gennep’s concept of incorporation is parallel to Astin’s (1984) concept of involvement and Stage and Hossler’s (2000) concept of persistence in their student-centered theory of persistence.

Tinto’s core concepts of academic and social integration are directly linked to one of Emile Durkheim’s (1858-1917) proposed four types for suicide: altruistic, anomic, fatalistic, and egotistical. Within egotistical suicide, individuals who are unable to integrate intellectually or socially into the community make a conscious decision to leave the community through suicide; or as applied to higher education, they decide to discontinue their higher education studies (Tinto, 1993a). Tinto stated that egotistical suicide was an analogous concept because it “highlights the ways in
which the social and intellectual communities that make up a college come to
influence the willingness of students to stay at that college” [italics in original]
(Tinto, 1993a, p. 104).

The main purpose of the Theory of Student Departure (Tinto, 1975) is to explain the factors that influence students’ decisions to leave college prior to graduation. The core concepts in Tinto’s theory are pre-college entry attributes, such as family background, commitment to the goal of a college degree and commitment to the institution in which the student enrolled. The theory purports that students continuously modify commitment to the goal and to the institution based on their academic and social integration. Positive academic and social integration increases goal and institutional commitment; negative experiences decrease this same commitment. This academic and social integration then fuels the re-examination or affirmation of the commitment to the goal and to the institution, which ultimately affects the decision to persist or depart the institution.

Within Tinto’s model, as in most persistence models (Berger & Milem, 1999; Milem & Berger, 1997; Pascarella & Terenzini, 1979; Stage & Hossler, 2000; Tinto, 1993b; Williams, 1984), a good match between the individual and the institution result in academic and social integration, or student-institutional fit. Furthermore, when there is good academic and social integration, students continue to be committed towards the goal of a college degree and to the institution in which they are enrolled.
Tinto’s model nearly developed into the singular paradigm related to student persistence, and by the mid-1990s “research on the departure puzzle stalled” (Braxton, 2004a, p. 7). However, in Braxton’s edited book, designed to reinvigorate research in the field of student persistence, he brings together scholarly work to support the reconsideration of core concepts within Tinto’s model, specifically the concept of academic integration. Additionally, Braxton includes several new theoretical directions to be considered by student persistence researchers. Within that framework, Stage and Hossler’s student-centered theory of persistence (SCTP) was presented as a theoretical alternative to Tinto’s theory.

Thus far, the focus has been on college choice and student persistence literature. However, as stated in the discussed literature, the achievement of a college degree starts when a student is in high school (or earlier) and continues through the college course work and experiences. Researchers need theoretical models that bridge the K-12 and post-secondary educational systems. The next section will focus on a few examples of integrated theoretical models from two perspectives. The First example will focus on integrated theories from within the student persistence literature, and the second will focus on theories that propose a unification of college choice and student persistence literature.

**Integrated Theoretical Models**

There are two ways to conceptualize the integration of college choice and student persistence theoretical models. Some models remain either college choice or
student persistence perspectives. Other models move beyond their primary perspectives and attempt to utilize the appropriate concepts from both frameworks, thus creating a more integrative approach. We will discuss each type in order to provide a broader context for understanding unified college choice/student persistence models.

*Integrating components of student persistence models.* Soon after student persistence models appeared in the academic literature, researchers began to develop and test integrated student persistence models. One of the earlier attempts was Pascarella and Terenzini's (1979) interaction analysis, using a combination of concepts from Spady (1978) and Tinto (1975), who used the concept of *integration* as key to their models. Pascarella and Terrinzini's (1979) research focused on understanding the interaction between student entry characteristics, social and academic integration, and voluntary withdrawal from the institution. They found differential levels of social and academic integration based on student gender and reported that student-faculty relationships positively affected both social and academic integration, which, in turn, influenced freshman persistence. Their research also supported Tinto's (1975) ideas that there is *compensatory integration* where students who have lower levels of academic integration have higher levels of social integration, and vice versa.

Cabrera, Nora, and Castaneda (1993) represent another attempt to utilize two independent models of student persistence, Tinto's Theory of Student Departure and
Beans's Student Attrition Model, and merge them to "enhance our understanding of the process that affects students' decisions to remain in college" (pp. 123-124).

Cabrera, Nora, and Castaneda's study examined how Tinto's model, which focused on integration and commitment, could be meshed with Bean's (1980) model, which was grounded in organizational theory and attitude-behavior interactions, and include environmental factors such as parental approval of college choice, student perceptions about transfer options, and finance options.

Given that Tinto and Bean's models have significant overlap, Cabrera, Nora, and Castaneda (1993) were specifically interested in determining what unique factors and sources of impact each model brings to the understanding of student persistence. The model that blended Bean and Tinto's theories included the core components of academic and social integration, goal and institutional commitment, two of Bean's environmental variables (financial attitudes and encouragement) and college GPA. Although Bean and Tinto disagreed on whether college GPA represents academic integration or the intersection of academic experiences and social-psychological processes, college GPA had the second highest effect on persistence, next to intent to persist (Anthony F Cabrera, Nora, & Casteneda, 1993)

More recent attempts to blend concepts from common student persistence theories can be seen with Milem and Berger's research. Milem and Berger (1997) and Berger and Milem (1999) blended Bean's (1980) behavioral components, such as student contact with faculty and working off campus, with self-report perceptions
that are more commonly found in Tinto and Astin’s research. Milem and Berger’s research was designed to explore how student behaviors and perceptions are linked with academic and social integration. The novel aspect of Milem and Berger (1997) and Berger and Milem (1999) studies was that they incorporated behavioral measurements traditionally found in Astin’s work and linked that with Tinto’s perceptual concepts of social and academic integration.

In Tinto’s model, social and academic integration occur as students begin to alter their values, norms, and behavior patterns, and gradually adopt those of the institution (Berger & Milem, 1999; Tinto, 1993a). However, Milem and Berger’s studies found that students successfully integrate into academic and social systems “not at the expense of their home backgrounds, but because of them” (Berger & Milem, 1999, p. 661). Specifically, female students with strong HSGPA and students with higher family incomes had more developed levels of social integration with peers and ultimately increased levels of institutional commitment. Therefore, from a policy perspective, if colleges are serious about student persistence, educational leaders must either ensure that the institutional values, norms, and behavior patterns are learned in high school or the institution must create educationally supportive environments where students with differing values, norms, and behavior patterns can be successful (Berger & Milem, 1999).
The following section discusses how researchers have attempted to develop constructs that are conceptually related, resulting in more integrated college choice/student persistence models.

*Integrating college choice/student persistence models.* There are few integrated college choice-student persistence models that have empirical support. Villella and Hu (1990) studied the effect of the rank order of the institution attended by the student (i.e., 1st, 2nd, 3rd choice) on how much the university was meeting the student’s expectations and the student’s intent to return. Although simple in design, Villella and Hu’s study is an example of how researchers can use variables that are typically found in the college choice process, such as the college the student selected, turn it into a persistence variable, and incorporate those into an understanding of retention. Villella and Hu found that the higher the college on the student’s preference list, the more likely the university was viewed as meeting their expectations, and thus, the student planned to return; “indirectly, student’s expectations are affected by their college choice” (p. 87). As might be expected, the lower the school on the student’s preference list, the less likely the school meets the student’s expectations, and thus, student’s intent to return is lower.

Other integrated college choice-student persistence models that have empirical support are focused on how general financial aid knowledge and award amount bridge the college choice and student persistence processes. These models include the *Ability to Pay* (A F Cabrera, Stampen, & Hansen, 1990) and the *College
Choice-Persistence Nexus Model (St. John, Paulsen, & Starkey, 1996). These integrative econometric theories were developed as a result of dissatisfaction with persistence studies that either focused solely on the financial impacts of aid packages or totally ignored the influence finances had on student persistence (Tinto, 1993b).

Research focused on integrative econometric models of student persistence demonstrated that knowledge of financial aid and its related issues crosses the college choice and student persistence theoretical boundaries and has a direct and indirect relationship on which school a student chooses. Awareness of financial aid and financial issues also influence the social and academic integration of the students on campus. Paulson and St. John (1997) found that finances accounted for 50% of the variance in student persistence decisions. Not only did Paulson and St. John show that finances play a strong role in students’ persistence decisions, but also that those financial pressures are likely to affect the quality of the educational experience for students who have to work, especially off campus, in order to afford tuition, fees, room, and board. For example, students who have to work off campus are less likely to have the time to join extra- or co-curricular clubs, to take advantage of opportunities, such as discussion groups with faculty, and have less time to spend preparing for or attending class (Paulsen & St. John, 1997).

When financial aid is evaluated as an educational policy, one must consider Astin’s (1984) statement that the effectiveness of educational policy is directly linked to the ability of that policy to increase student involvement. The Ability-to-
Pay and Nexus Models, among others, have shown that elements of the college choice and student persistence processes are intertwined and led researchers to the development of unified college choice-student persistence models.

The theoretical framework that guides this study is the student-centered theory of persistence (SCTP). Stage and Hossler (2000) proposed this theory (see Figure 1 in Chapter 1) as an alternative to the college choice models or persistence models. Although the SCTP provides a sound conceptual framework, it is important to note that to date, there is no published empirical support.

The SCTP is grounded in the classic psychological theories related to self-efficacy (Bandura, 1978, 1989) and the interplay between attitudes, subjective norms, intentions, and behaviors found in the Theory of Planned Behavior (Ajzen & Madden, 1986; Fishbein & Ajzen, 1975). The foundation of both of these bodies of literature relate to a personal sense of ability and intention as a method to understand individual behaviors. This sense of personal agency is a key element in understanding the philosophical perspective of the SCTP.

In addition to the unification perspective and the focus on student-initiated activities, the inclusion of getting ready behaviors links to the concept of anticipatory socialization (Attinasi, 1989). Anticipatory socialization reflects the process by which students learn what will be socially and academically expected of them once they matriculate. This concept parallels the intent of PASS. Through early contact with students and clear articulation of expectations, PASS can be viewed as a
process in which students learn what will be expected and have the opportunity to demonstrate their ability to meet those standards.

The SCTP is an appropriate theoretical model given its shared perspective and implementation practices of PASS. Currently, PASS is a student-initiated activity in which students must be self-motivated to participate and submit their PASS transcripts to OUS. Although the SCPT is in its infancy, it is clearly a theoretical perspective focused upon a K-16 educational one. This perspective is in alignment with the fundamental goals of PASS and its alignment with Oregon’s 3rd, 5th, 8th, 10th, and 12th grade assessments.

Summary

This chapter has reviewed the literature regarding the role of a college education in today’s society; presented and described how the college student demographics have, and will continue to change the landscape of higher education; the traditional admission indicators used to determine admission to colleges and universities; and how recent Oregon school reform movements shaped the development of PASS. Additionally, details about the concept of proficiency-based education were presented. Subsequently, the theoretical literatures surrounding how students develop aspirations to attend and ultimately select a college or university, as well as the factors and experiences that support student persistence once on campus, were reviewed. This literature review finished with a focus on integrated models of
college choice and student persistence and the SCTP as an appropriate theory on which to base this study.

The next chapter, Chapter 3, will present the methodology behind the study, identify data sources relied upon, describe sample selection procedures, and present general data analysis procedures. Chapter 4 will present the results of the planned and exploratory analyses. Chapter 5 will review the purpose of the study, relevant literature, the design, methodology, and results. In addition, Chapter 5 will include a discussion of the findings, as well as critique the study and present ideas for further research.
Chapter 3: Methodology

Research Question Overview

The purpose of this study was to determine whether students who submitted PASS proficiency data showed evidence of more successful student persistence-related outcomes than did students without PASS related data. Although there are many definitions of student success, this study measures that success in terms of college grade point average at the end of the first-year (FGPA) and senior year (4th year) in college (DEGREEGPA); first-year student retention within the OUS; persistence towards the four-year degree within OUS, and whether a bachelor’s degree was awarded from OUS within a traditional four-year baccalaureate time frame. These variables will be referred to as persistence-related outcomes. In addition to the aggregate analysis of student persistence-related outcomes between students with PASS data and students without PASS data, analysis techniques were also used to determine whether there were interactions between these outcomes that could be attributed to other demographic or descriptive information about the students in each of the two groups (e.g., HSGPA, student gender).

The remainder of this chapter will briefly summarize the major conceptual framework of this study--Stage & Hossler’s (2000) student-centered theory of persistence (SCTP), outline the research design, identify data sources for the study, and describe sample selection procedures. Finally, general data analysis procedures will be presented.
Brief Review of the SCTP and This Study

Stage & Hossler's (2000) SCTP was the theoretical foundation for this research study because it was designed to bridge the pre-matriculation college choice and post-matriculation student persistence literature. Given PASS was designed to bridge the K-12 and the higher educational academic experiences, the reliance on the SCTP as a theoretical foundation is congruent with the goals of PASS.

The SCTP differs from most theories of student persistence in that the primary focus is the developmental process that affects college choice which, in turn, influences student persistence in college. Additionally, the SCTP is focused primarily on the students' role and responsibility to persist within the college environment. This is different from other student persistence theories that focus on the institution's role and responsibility to support that outcome. It is also important to note that the SCTP posits that student knowledge about their academic goals is an essential element in persistence.

As shown in Figure 1, the components of the SCTP include Background characteristics such as parental education, family socioeconomic status, and encouragement to pursue a college degree, which, in turn, influence Middle and High School Behaviors and Educational Experiences. These academic experiences and involvement set the foundation for Intentions and Engagement, which include activities typically seen in college-bound students, such as requesting college admission materials, attending college fairs, visiting colleges, and ultimately
Student Persistence

applying for admission (Attinasi, 1989; Stage & Hossler, 2000). The latter part of the SCTP model reflects what is traditionally found in student persistence models. College Entry begins with goal setting, social and academic involvement on campus, and motivations that drive Persistence. Persistence is the process by which a student succeeds in college, maintains enrollment, and completes the requirements for the degree (Stage & Hossler, 2000).

Although this study did not assess all aspects of the SCTP model, it utilized the SCTP as a theoretical foundation to examine PASS—linking college choice variables with collegiate persistence variables in order to understand and promote collegiate success.

Research Design

This study relied on an ex-post facto experimental design, which is a special case of the Campbell & Stanley (1963) Design 3: Static-group comparison. In this design, random assignment is not possible as the independent variable (IV) has already occurred, and, therefore, the researcher is “simulating experimentation” (p. 70) by creating groups matched on pre-intervention attributes. In this study, the intervention or IV is participation in PASS as evidenced by completion of a PASS Transcript. Campbell and Stanley (1963) indicated that this type of analysis is frequently used in education and “represents one of the most extended efforts towards quasi-experimental design” (p. 70). In this design, there are two groups: one group experienced the intervention (PASS as evidenced by the completion of a
PASS transcript), and one group did not (Comparison Group). The two groups are then compared to one another to establish the effects of the IV. In this type of design, data are collected at only one point in time.

As indicated in Campbell and Stanley (1963), because of this lack of formal control due to the research design, the primary threats to internal validity of the study are selection and mortality. Internal validity represents “the approximate truth about inferences regarding cause-effect or causal relationships” within one specific study and does not address the broader generalizability of the study (Trochim, 2006, p. paragraph 1). The first threat to internal validity in this type of design is selection. Selection refers to the representativeness and appropriateness of the participants who are included in the study; this is an issue in studies where random selection is not an option. Although selection was an issue in this study, significant efforts were made to equalize the two groups through a stringent two-stage matching criteria to allow the researcher to assess the value-added of PASS.

The second threat to internal validity in this type of design is experimental mortality. Experimental mortality is a term that refers to the negative impact of participant attrition in research studies. When using research designs looking at group differences, and the attrition rate for the two groups is different, the researcher cannot assume that differential outcomes are a result of the independent variable. The group differences may be related to underlying factor(s) that are not part of the research study, producing a false treatment effect.
The issue of experimental mortality was minimized in this study by basing the time point for the Comparison Group student identification process in fall 2001 when most of the PASS and Comparison Group students began their collegiate experience. If the researcher identified a different point in time on which to base the selection process, such as spring 2005, then only students that had persisted to that time point would have been eligible for the Comparison Group (providing they met the criteria discussed below). If that decision had been made, it would be impossible to attribute any group differences to PASS as there are many factors over four years that effect students' decisions to persist or depart from college campuses. The next section will outline the selection process for the PASS Group and the Comparison Group.

PASS Group Identification Process

Participation in PASS, high school student completion of a PASS Transcript, and campus use of PASS data for admission decisions were originally scheduled to go into effect in fall 2001. Therefore, in an attempt to increase the likelihood that high school teachers and students participate in this new process, the PASS Recognition Program scholarship was created. This one-time scholarship was managed by the OUS Chancellors' Office, and the scholarship was commonly referred to as the Chancellor's Scholarship. In order to be eligible for the Chancellor's Scholarship, students only needed to submit a PASS Transcript (see Appendix A). Scholarships of $500 or $1000 were awarded to students, based solely
on the Standards Proficiency Index (SPI), a numerical proficiency index score that was created by PASS to capture the depth and breadth of the proficiency scores across the content areas.

Two hundred seventy (270) Oregon high school students submitted a PASS Transcript for consideration in the Chancellors’ Scholarship award process. One hundred eighty two (182) of the 270 students matriculated to an OUS campus in fall 2001; those 182 students were designated the PASS Group. At the end of the student matching process for the Comparison Group, explained in the subsequent section, the sample size for each group was 166. This decrease of 16 PASS students was due to the pre-defined criteria for identifying Comparison Group student matches to PASS Group students; no matches could be identified for those 16 students.

During the time of the Chancellor’s Scholarship program, OUS campuses were still developing systems for determining how proficiency data would be integrated into the admission process. In most cases, the proficiency data was supplementary information that was transferred from the OUS Chancellor’s Office to the campus the student applied to and not part of the campus decision to admit or deny the student. This fact provided the situation in which both proficiency data and traditional admission indicators were available for students in the PASS Group.

Comparison Group Identification Process

Each student in the PASS Group was matched to a student in the Comparison Group. This matching process was a two-stage process that first identified the four
high schools from which the matched-pair could be drawn. The second stage of the comparison group selection process was to identify students from within one of the four identified high schools, based on the student-level matching criteria, discussed later in this section. The student-level matching criteria included gender, ethnicity, HSGPA within a +/- .20 range, and SAT scores within a +/- 30 point range. The details of each stage of the selection process are presented below.

_Identifying high schools for comparison group student selection_

Identifying high schools from which Comparison Group students could be drawn was a central feature of this study. Initially it was thought that the OUS designation of PASS Network High School would be a sufficient school-level attribute by which to identify schools from which to select Comparison Group students. However, it was discovered that the PASS Network High School identifier would not be sufficient for this process for two main reasons. First, some students who were not in PASS Network High Schools submitted PASS data. This meant that both PASS Network High Schools and non-PASS Network High Schools were preparing and supporting students in meeting the PASS proficiencies. Second, it was discovered that the criteria for being designated a PASS Network High School was quite broad. A PASS Network High School needed to have only two teachers who were PASS Teacher Verified (teachers were allowed to score projects after successful completion of an OUS training program). This weak definition of what constituted a PASS Network high school, coupled with the fact that non-PASS Network High
Schools could prepare students to meet PASS proficiencies, meant that a different method for selecting Comparison Group students needed to be developed.

A cornerstone assumption of PASS is that high school teachers who were engaged in the PASS process would incorporate and teach to the PASS standards. With that assumption, teaching methods and assignments were assumed to be adjusted to meet the PASS Proficiency standards, thereby assisting students in creating the work samples needed for PASS scoring—particularly those standards that would be assessed through the PASS Teacher Verified scoring process.

Therefore, it was important to control for possible situations in which Student A and Student B were of the same gender, ethnicity, attended the same high school, had the same classes, had similar HSGPA and SAT scores, and attended an OUS campus in fall 2001, with the essential difference between Student A and Student B being that only Student A submitted PASS data to the OUS system. By selecting the matched pair student from a comparable but different high school, it was assumed that the study would assess the value-added of experiencing PASS—not just determining the value-added of completing the PASS Transcript.

The first step in the school identification process was to determine which high schools enrolled students that were part of the PASS Group (see Step 1 in Figure 3). For each high school from which a PASS student graduated, a list of four different but comparable high schools was created, using the Oregon Department of Education’s 2000-2001 Database Initiative Project: Similar Schools Comparison
website (Oregon Department of Education Database Initiative Project, n.d.). The purpose of this database is to help school administrators and researchers identify schools that are similar to one another based on a variety of variables. The four variables used in this study to identify comparable high schools were: a) percent of students eligible for free or reduced price lunch, b) percent of minority students, c) percent of students meeting or exceeding the 10th grade reading benchmark, and d) size of school enrollment. These criteria were selected to ascertain the school's general socioeconomic status, school demographics, overall school academic performance, and school size. Although teacher engagement is undoubtedly a major factor that influences student success, there was no method to control for this factor.

In order to begin the process of identifying Comparison Group students, a list of schools from which those students could be drawn was created by the researcher and was referred to as the Comparison High School Matrix (Step 2 in Figure 3). Due to the regulations of external access to identifiable student educational records per the US Department of Education Family Educational Rights and Privacy Act (FERPA) and OUS policy, the OUS Office of Institutional Research (OUS/OIR) was required to conduct the actual student matching process. However, the researcher worked closely with the OUS/OIR staff to ensure that the selection process followed the specified criteria.
In order to create the Comparison High School Matrix, the Oregon Department of Education’s 2000-2001 Database Initiative Project’s Website was accessed to identify two similar schools for each of the high schools attended by PASS students, based on the school-level criteria (e.g., percent minority students,
percent of students qualifying for free or reduced lunch, 10th grade reading benchmark, etc.) Subsequently, two such high schools were identified with school enrollment as a criterion.

Given that OUS/OIR was conducting the Comparison Group matching process, it was important that the Comparison High School Matrix indicating from which schools Comparison Group students could be drawn was of sufficient depth to allow the OUS OIR to identify a student match. Therefore, to create two additional high school options (to be considered only if matches could not be made in one of the first two high schools), school enrollment size was dropped as a criterion.

Upon completion of the Comparison High School Matrix creation process, each high school in which a PASS student had enrolled had four possible high schools in which OUS/OIR could search for a student match. For example, Ashland High School was matched with both Lake Oswego High School and Lakeridge High School when all four criteria (percent of students with eligible for free/reduced lunch, percent of minority students, percent of student meeting or exceeding 10th grade reading benchmark, and school enrollment) were included in the request (see example in Table 2). When school enrollment size was removed as a criterion, two different schools were identified, South Eugene High School and Henry Sheldon High School. This process created a sufficient list from which to begin the Comparison Group sampling procedures. In all cases, the priority for creating matches was to select the Comparison Group student from one of the schools.
identified with enrollment as criterion. For example, when locating Comparison Group students who would match the PASS Group students from Ashland High School, the OUS/OIR was instructed to first look for a student from Lake Oswego High School. If a match was not located from Lake Oswego, they were to search for a student from Lakeridge; if a match was not found from Lakeridge, they were to look for a student from South Eugene, and then, finally from Henry Sheldon. If a student match could not be identified from one of the four high schools as indicated in the Comparison High School Matrix, the PASS student was considered unmatched and not included in the study.

Table 2. Sample list of High Schools from which Comparison Group Student(s) could be selected *

<table>
<thead>
<tr>
<th>PASS Group Student's High School</th>
<th>High School Option 1</th>
<th>High School Option 2</th>
<th>High School Option 3</th>
<th>High School Option 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>including criteria</td>
<td>including criteria</td>
<td>without enrollment as criteria</td>
<td>without enrollment as criteria</td>
</tr>
<tr>
<td>Ashland</td>
<td>Lake Oswego</td>
<td>Lakeridge</td>
<td>South Eugene</td>
<td>Henry Sheldon</td>
</tr>
<tr>
<td>Beaverton</td>
<td>Grant</td>
<td>Sunset</td>
<td>Sprague</td>
<td>--</td>
</tr>
<tr>
<td>Bend</td>
<td>Thurston</td>
<td>McMinnville</td>
<td>Mohawk</td>
<td>McKenzie</td>
</tr>
<tr>
<td>Century</td>
<td>Sprague</td>
<td>Grant</td>
<td>Metro Learning</td>
<td>Monroe</td>
</tr>
<tr>
<td>Cottage Grove</td>
<td>Hidden Valley</td>
<td>Mazama</td>
<td>Clatskanie</td>
<td>Centennial Learning</td>
</tr>
<tr>
<td>Crescent Valley</td>
<td>High</td>
<td>Ashland</td>
<td>Westview</td>
<td>Banks</td>
</tr>
</tbody>
</table>

* A complete list of the PASS Group and Comparison Group high schools can be viewed in Appendix C

**Identifying students for comparison group**

Using the list of high schools from which Comparison Group students could be selected, the matched-pair sample was created using four student-level criteria: gender, ethnicity, HSGPA +/- .20 points, and SAT total score +/- .30 points.
Researchers have found that the standard error of SAT scores is 30 points; therefore, a range of +/- 30 points would ensure that a students' true scores would be captured during the matching process (Kahl, 2003). For students who submitted ACT test scores instead of SAT scores, OUS converts those scores to the SAT scale to allow for a common standardized entrance examination score value.

Although OUS/OIR conducted the matching, the researcher was in close communication with the individual assigned this task by the Director of the Office of Institutional Research, and the parameters of the selection process were clearly understood by all parties involved. The Comparison Group selection process was conducted on a case-by-case basis. For each PASS Group student, OUS/OIR first referred to the list of schools provided by the researcher to search for a match. If a Comparison Group student was identified per the student-level parameters (i.e., HSGPA, SAT score, gender, and ethnicity) in the first high school on the comparison high school list, that student was the identified as a match. If a match was not identified in the first high school listed, OUS/OIR moved to the second high school in the comparison high school list. This process was repeated until all PASS Group cases had been evaluated for a Comparison Group match. In instances where there were multiple possible matches to the PASS student from a single comparison high school, the student that was the closest match, given the HSGPA and SAT score ranges, was selected. In cases in which a match could not be identified based on the student-level criteria, there was no match for that student, which is why the sample
sizes in the two groups are not identical. There are 182 students in the PASS Group and 166 in the Comparison Group, a 92% match rate. All data were shared in accordance with Portland State University’s Human Subjects Research Review Committee and the OUS/OIR data sharing guidelines.

Data Sources

Two data sources were utilized. The first was from the PASS Recognition Program (PRP). The PRP data file was a Microsoft Excel file that included student demographic data, the method(s) the student used to demonstrate proficiency (i.e., test scores vs. PASS Teacher Verification), PASS proficiency levels for subject domains, and an overall proficiency indicator created by OUS called the Standards Proficiency Index.

The Standards Proficiency Index (SPI) was developed by OUS to provide a cumulative numeric score to reflect the achieved breadth and depth across the six broad proficiency domains of English, Mathematics, Science, Social Science, Arts, and Foreign Language (Endsley, n.d.). However, in fall 2001, only the English, Math, Science, and Foreign Language proficiency standards were sufficiently developed in the K-12 systems to allow students to submit proficiency data. Therefore, students in this sample had the opportunity to submit proficiency data for only those four proficiency domains.

Students received points for each standard within each domain depending upon the level of demonstrated proficiency (5 = Exemplary, 3 = Highly Proficient; 1
= *Meets the Standard*). These proficiency scores were then combined to produce the overall SPI. Table 3 details how three students’ SPI was calculated to reflect breadth and depth of proficiency.

**Table 3. Example of Standard Proficiency Index (SPI) Calculation**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A B C D E F</td>
<td>A B C D E F G</td>
<td>A B C D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Example Student A</td>
<td>1 1 1 1 1</td>
<td>1 1</td>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Example Student B</td>
<td>1 1 3 1 1</td>
<td>3 3 3</td>
<td>3 1</td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td>Example Student C</td>
<td>5 1 3 3 3 3</td>
<td>3 3 3 3 1 1</td>
<td>9</td>
<td>9</td>
<td>21</td>
</tr>
</tbody>
</table>

For Student A, proficiency data for five of the PASS standards was submitted. In all cases, Student A *met* the standard and received one point for each standard addressed. This made Student A’s SPI equal to five. More variation in proficiency depth and breadth can be seen with Student B. Student B *met* the criteria in six of the standards and was awarded one point for each. However, Student B was considered *highly proficient* in four additional standards which provided Student B with 12 points (3 points for each *Highly Proficient* standard). Therefore, Student B was awarded an SPI of 18 as s/he met more standards, including some at a higher proficiency level. Student C addressed fewer standards than Student B but had a final SPI that was higher because of the *Exemplary* rating for English standard A. Student C addressed nine standards and due to the combination of *Exemplary* and *Highly*
Proficient ratings, scored a SPI of 21. PASS Group students had an average SPI of 8 (sd = 4.5) with a range between 2 and 26.

The PASS Transcript, which is the document in which these data are reported to OUS, does not require students to address their proficiency in all of the domains. Students are allowed to self-select the proficiencies that they want to report. This means that if a student excelled at English and Math but was below standard in Science, the student had the option of only reporting proficiency data within those domains in which they were at least meeting the minimum standard.

The second data source for this research was the individual student collegiate educational records for students in the PASS and Comparison Groups who matriculated to an OUS campus in fall 2001. The data extracted from the OUS student information system included the student demographic and requested persistence-related outcome data, including credits enrolled for each term, term grade point average, campus code for each term enrolled, graduation term and degree grade point average (if applicable).

Characteristics of the Sample: PASS and Comparison Students

Of the 270 students who submitted PASS transcripts in spring 2001 through PASS Recognition Program/Chancellor scholarship (PRP) process, 182 (67%) attended an OUS campus in fall 2001. However, through the student-level matching process, students for the Comparison Group could be identified for only 166 of the
182 PASS Group students. It was decided that there might be unique characteristics for the 16 PASS students for which Comparison Group student matches could not be made (such as an uncommon combination of HSGPA and SAT), the PASS Group sample was restricted to 166 for the between-group analyses. The sample of 182 PASS Group students was used when conducting within-group analyses. This decision allowed the researcher to have equal sample sizes in the two groups and also removed the possibly unexplained variance that was unique to those 16 students.

These 182 PASS Group students represented 1.96% of all OUS freshman entering directly from high school \(n = 9,309\) in the fall of 2001 (Kieran, 2005). The Comparison Group \(n = 166\) was drawn from all other first-time freshman entering OUS directly from high school, based on the matching criteria discussed earlier, and also represented 1.78% of the all OUS freshman entering directly from high school.

Sixty-three percent \(n = 104\) of the PASS Group students were female and 37% \(n = 62\) were male. This exact proportion was also reflected in the Comparison Group with 63% \(n = 104\) being female and 37% \(n = 62\) being male. Females in this study (63%) were overrepresented compared to the general OUS student population (53%).

The students included in this study were predominantly White. Within the PASS Group, 86% \(n = 143\) were Caucasian with the next largest ethnic group being Asian. Asian students comprised 5% \(n = 9\) of the students in the PASS Group. There were 3% Hispanic, 2% Native American, and 1% African-American students.
in the PASS Group. A similar proportion was reflected in the Comparison Group with 82% \( (n = 136) \) of the sample being Caucasian, followed by 9% \( (n = 15) \) Asian. There were 3% Hispanic, 0.6% Native American, and 0.6% African-American students in the Comparison Group. Overall, the percentage of Caucasian students in the study was higher than the general OUS student population or 76% (Oregon University System, 2001a).

Students in this study attended all campuses within the OUS system: Eastern Oregon University, Oregon Institute of Technology, Oregon State University, Portland State University, Southern Oregon University, University of Oregon, and Western Oregon University. Table 4 summarizes the campuses which students attended in fall 2001 and spring 2005, which represents the final term of a four-year degree progression. Oregon State University and University of Oregon had the largest percentage of students in the sample for fall 2001 and spring 2005. The within-OUS persistence rate for both the PASS Group and the Comparison Group was 70%. Students in both groups remained enrolled at an OUS campus at identical rates. There are no data regarding the status of the 30% of students in the sample who did not remain enrolled at an OUS campus. Students may have transferred to a school outside of the OUS system or may not have continued at any college or university. It was not the purpose of this study to track the enrollment patterns of students in the sample that left OUS; therefore, attempt to locate the remaining 30% was not undertaken.
Table 4. Summary of PASS Group and Comparison Group Institutional Enrollment: Fall 2001 and Spring 2005

<table>
<thead>
<tr>
<th></th>
<th>Fall 2001 Number (%)</th>
<th>Spring 2005* Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PASS Group</td>
<td>Comparison Group</td>
</tr>
<tr>
<td>Oregon State University</td>
<td>80 (44%)</td>
<td>59 (36%)</td>
</tr>
<tr>
<td>University of Oregon</td>
<td>75 (41%)</td>
<td>66 (40%)</td>
</tr>
<tr>
<td>Western Oregon University</td>
<td>14 (8%)</td>
<td>16 (10%)</td>
</tr>
<tr>
<td>Southern Oregon University</td>
<td>5 (3%)</td>
<td>8 (5%)</td>
</tr>
<tr>
<td>Eastern Oregon University</td>
<td>4 (2%)</td>
<td>5 (3%)</td>
</tr>
<tr>
<td>Portland State University</td>
<td>2 (1%)</td>
<td>8 (5%)</td>
</tr>
<tr>
<td>Oregon Institute of Technology</td>
<td>2 (1%)</td>
<td>4 (2%)</td>
</tr>
<tr>
<td><strong>Total Enrollment</strong></td>
<td><strong>182</strong></td>
<td><strong>166</strong></td>
</tr>
</tbody>
</table>

*Percentages do not total 100 due to non-persistence within the OUS system

Members of the PASS Group and Comparison Group had an average HSGPA \( m = 3.74, sd = 0.28 \), which was .40 points higher than the average incoming OUS student \( m = 3.35 \), and .80 points higher than the national average of college freshman \( m = 2.94 \) (Oregon University System, 2002; U.S. Department of Education National Center for Education Statistics, 2004). The HSGPA range for PASS Group students was 2.83-4.04, and the range for Comparison Group students was 2.89-4.05.

Average SAT scores for both the PASS and Comparison Group students were 1134 (\( sd = 144 \) and 145 respectively). The range of SAT scores for PASS Group students was 670-1470, and the range for Comparison Group was 730-1460. This indicates the average SAT scores for students in this study were higher than the mean OUS SAT score of 1061, the mean SAT scores within Oregon \( m = 1052 \), and the national mean SAT score of 1020.
Fifty-seven percent of PASS Group students \((n = 102)\) transferred an average of 19 \((sd = 15)\) college credits earned in high school; 36\% of the Comparison Group students \((n = 59)\) transferred an average of 18 \((sd = 13)\) credits. The high standard deviation indicated there was significant range in the number of college credits students transferred to OUS. For students in the PASS Group, the range of college credits transferred was between 3 and 97 credits; the number of college credits transferred by the students in the Comparison Group ranged between 3 and 52. These results indicate that the students in both groups of this study were academically motivated and earned college credits either through Advanced Placement test scores, International Baccalaureate test scores, or were co-enrolled in high school and college courses.

In sum, the students in this study (primarily female Caucasians) were academically motivated students with higher than average HSGPA and SAT scores. Over half of the PASS students and one-third of the Comparison Group earned significant numbers of college credits although in high school. Over three-quarters of the students in both groups attended either Oregon State University or University of Oregon, and had an overall within-OUS persistence rate of 70\%.

**Data Analysis Methods**

Microsoft Excel files for both data sources were electronically delivered to the researcher from OUS/OIR. These files were then imported into SPSS 15.0 for statistical analysis, using the import data features of SPSS. Prior to univariate and
multivariate analysis, initial data cleaning, such as conducting frequency and descriptive analyses to check for data within expected ranges, plotting variables to assess distribution, and searching for outliers, was conducted, based on the recommended screening processes for grouped data as outlined in Tabachnick & Fidell (2001).

*Figure 4.* Histogram of High School GPA for PASS and Comparison Groups

Results of the data cleaning process involving both the PASS and the Comparison Group related to HSGPA found a negatively skewed distribution (see Figure 4). The distribution of SAT-Combined scores showed a normal distribution (see Figure 5). When the distribution of the SPI and the number of standards attempted by students was examined, the histogram of the SPI scores showed a positively skewed distribution. This pattern was also reflected when examining the number of standards for which students submitted data (see Figure 6 and Figure 7).
Figure 5. Histogram of SAT-Combined scores for PASS and Comparison Groups

Figure 6. Histogram of Standards Proficiency Index Scores (PASS Group Only)
The variable, End of first-year GPA (FGPA), based on term GPA and college credits earned each term, was created by the researcher. In order to confirm the proper calculation of FGPA, a bivariate correlation was conducted to confirm that FGPA was highly correlated with each term GPA for the first-year in college. The correlation coefficients between FGPA and each academic term of the freshman year were between .85 and .92; all were significant at the .01 level. Therefore, the researcher was confident that the FGPA was correctly calculated, and it was merged into the larger data file.
Once the researcher was confident in the accuracy of the data file, descriptive analysis techniques were used to describe the sample. Subsequently, multivariate analysis techniques, specifically one-way analysis-of-variance (ANOVA), Chi-Square, multiple linear regression (MLR), and logistic regressions, were conducted, based on the type of independent variable (IV) and dependent variable (DV).

Each of the persistence-related outcomes were analyzed, using either ANOVA or Chi-Square and the appropriate regression analysis technique (e.g., MLR, or logistic) given the DV. Within each regression analysis, Group (PASS or Comparison) HSGPA, and SAT were included in the model to determine the relative predictive value of being a member of the PASS Group versus the Comparison Group on the DV that was the focus on the analysis. The reason that each persistence-related outcome was analyzed using two main techniques is because ANOVA or Chi-Square provides information about group differences whereas regression focuses on the predictive nature of the IVs on the DVs.

ANOVA is an appropriate technique when the independent variable (IV) is a discrete variable (e.g., PASS Group vs. Comparison Group) and the dependent variable (DV) is a continuous variable (e.g., FGPA) (Tabachnick & Fidell, 2001). When both the IV and DV are discrete variables, a Chi-Square is the appropriate analysis technique (Tabachnick & Fidell, 2001). Chi-Square analysis is a technique that does not rely on probability sampling and is referred to as a nonparametric test.
Chi-Square analysis results indicate whether the frequency distribution is different than one would expect by chance (Tabachnick & Fidell, 2001).

When examining student persistence based on their consistent enrollment within the OUS system, a survival analysis was conducted. Tabachnick & Fidell (2001) indicate that survival analysis is an appropriate technique when the researcher is interested in determining the time to an event. In this study, survival analysis was used to assess group differences in time to drop out from the OUS system in order to determine whether the students in the PASS Group drop out at a lower rate than the Comparison Group students. Table 5 summarizes the persistence-related outcomes that are the DVs and the related analysis techniques used in this study.

Table 5. Persistence-related Outcomes and Analysis Techniques

<table>
<thead>
<tr>
<th>Persistence-related Outcome (DV)</th>
<th>Analysis Techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>End of first-year College GPA (FGPA)</td>
<td>ANOVA &amp; Multiple Linear Regression</td>
</tr>
<tr>
<td>First-year Retention (RETENTION1)</td>
<td>Chi-Square &amp; Logistic Regression</td>
</tr>
<tr>
<td>Enrollment Persistence (DROPOUT)</td>
<td>Chi-Square &amp; Cox Proportional Regression</td>
</tr>
<tr>
<td>Degree from OUS within 4-years (DEGREE)</td>
<td>Chi-Square &amp; Logistic Regression</td>
</tr>
<tr>
<td>Degree GPA for students that graduated from OUS within 4 years (DEGREEGPA)</td>
<td>ANOVA &amp; Multiple Linear Regression</td>
</tr>
</tbody>
</table>

In addition to the planned analyses described above, the PASS Group was examined with an eye towards understanding how the level of proficiency, as evidenced by the Standards Proficiency Index (SPI), connected to the persistence-related outcomes. The techniques used to analyze each persistence-related outcome remained the same; however, the sample was restricted to the PASS Group only.

Chapter 3 has provided an overview of the research question, a brief review of the SCTP and how it applies to this model, presented the research design,
described the sample and data sources, detailed the comparison group selection process, and presented the data analysis techniques that were used in this study. The next chapter will present the results of these analyses. Chapter 4 is organized into two sections. The first section focuses on understanding group differences in relation to the persistence-related outcomes. The second section focuses on the PASS Group and how the level or proficiency, as indicated by the Standard Proficiency Index (SPI), effects persistence-related outcomes. All planned and post-hoc analyses related to the DV will be presented together.
Chapter 4: Results

Chapter 1 of this study summarized the role of a college education in today's knowledge-based economy, changes in college student demographics, and student motivation for attending college. In Chapter 2, the four common traditional admission indicators to determine admission to higher education were examined. When coupled with the sociological and demographic changes in higher education, the differences in these indicators provide the foundation for why higher education must consider new methods of determining academic readiness for college. Chapter 3 discussed how the Oregon University System (OUS) developed proficiency-based admission indicators as part of the larger Oregon school reform movement of the mid-1990s. Such indicators can be framed within the college choice and student persistence literature and ultimately linked to the Student-Centered Theory of Persistence (SCTP) -- the theoretical model that guided this study.

The primary purpose of this study was to determine whether students with PASS proficiency data had evidence of more successful persistence-related outcomes than did students without PASS proficiency-related data. Persistence-related outcomes included freshman grade point average (FGPA), first-year student retention within OUS, continued persistence within OUS, the award of a baccalaureate degree within four years, and overall GPA for those who graduated within four years. Additionally, the study explored how the level of proficiency,
measured by the Standard Proficiency Index (SPI), influenced persistence-related outcomes for students within the PASS Group.

This chapter will present the study results organized in two main sections: the between-group analyses (PASS Group vs. Comparison Group) and the within-group analyses (PASS Group only). In each section, the analyses are presented by the persistence-related dependent variable (DV) being examined (e.g., first-year retention, end of first year grade point average, etc.). The DVs are presented in the order in which they would occur when thinking about a four-year degree: end of freshman year GPA, first-year retention, persistence, degree from OUS in four years, and degree GPA. All planned and post-hoc exploratory analyses related to each persistence-related dependent variable are reported together before proceeding. For example, results of the planned analysis related to first-year retention are presented first, followed by the post-hoc exploratory analyses that were conducted on the planned analysis findings.

As indicated, each persistence-related outcome was first examined for differences on the DV by group (PASS vs. Comparison). Next, either multiple linear regression or logistic regression analysis techniques were used to determine the relative importance of HSGPA, SAT, and GROUP (PASS or Comparison) in explaining each persistence-related DV. Multiple linear regression (MLR) was used when the DV was a continuous variable and logistic regression was used when the
DV was a categorical variable. For all inferential analyses, the statistical significance level was set a priori at the .05 level.

Table 6. *Freshman (FGPA) & Cumulative Degree GPA (DEGREEGPA) by PASS and Comparison Group*

<table>
<thead>
<tr>
<th></th>
<th>PASS Group</th>
<th>Comparison Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sample Size</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td>Freshman GPA</td>
<td>182</td>
<td>3.25 (.59)</td>
</tr>
<tr>
<td>(FGPA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEGREEGPA</td>
<td>69</td>
<td>3.51 (.32)</td>
</tr>
</tbody>
</table>

*One campus within OUS system allows A+ grades to be submitted which is why FGPA is over 4.0

**The sample size drops by two students from the Comparison Group as these two students enrolled for courses, but did not earn credits. Likely the students dropped late in the term to avoid a 0.0 GPA; however, that is not confirmed. A FGPA could not be calculated. The range (0-4.08) does not reflect those two cases as an additional student earned a 0 FGPA.

Table 6 summarizes the end of first-year (FGPA) and cumulative grade point average for students who graduated within four years (DEGREEGPA) for both the PASS and the Comparison Groups. Results of the descriptive statistical analyses indicated that the range of and average FGPA for students in these two groups were very similar. PASS Group students (n = 182) had an average FGPA of 3.25 (sd = .59) with a range between 1.04-4.07. Comparison Group students (n = 164) had an average FGPA of 3.26 (sd = .64) with a range of 0-4.08. One campus within the OUS system includes an A+ grade option which is why the upper limit of the FGPA is over 4.0. For the students who were successful in being awarded a degree within four years from OUS, the average DEGREE GPA for the PASS Group (n = 69) was
3.51 (sd = .31) with a range of 2.64-4.05. For Comparison Group students (n = 66) the average DEGREEGPA was 3.53 (sd = .33) with a range of 2.60-4.10.

Table 7 presents the enrollment-related descriptive statistics for students from the PASS and Comparison Groups. Although the first-year enrollment pattern differed between the PASS and Comparison Group students (discussed later in this chapter), all students were considered retained as every student was registered in fall 2001 and fall 2002.

Table 7. First-year Retention, Enrollment Persistence, & Four-Year Degree by PASS and Comparison Group

<table>
<thead>
<tr>
<th></th>
<th>PASS Group (n = 182)</th>
<th>Comparison Group (n = 166)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>First-year Retention</td>
<td>182</td>
<td>0</td>
</tr>
<tr>
<td>Enrollment</td>
<td>140</td>
<td>36</td>
</tr>
<tr>
<td>Persisted/Persisting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree Granted within 4 years</td>
<td>69</td>
<td>113</td>
</tr>
</tbody>
</table>

Within the PASS Group, 76.92% (n = 140) of the students were considered persisting or persisted (see Table 7). Persisting meant that the student was actively enrolled in course work at OUS between fall 2001 and spring 2005, but had not been awarded a degree from OUS. Persisted students were those who had been granted a degree within the four-year time frame of the study. Within the Comparison Group, 74.70% (n = 124) of the students were persisting or persisted. When considering only those who received degrees from OUS, a subset of the sample just described, 37.91% (n = 69) of the PASS Group students, received a degree from OUS within four years.
Sixty-six (39.76%) students in the Comparison Group were awarded degrees from OUS within four years (see Table 7).

The next section of this chapter will explore the PASS versus Comparison Group differences on each of the persistence-related outcome variables. Subsequently, the analyses will focus on understanding how students' level of proficiency within the PASS Group interacts with each of the persistence-related outcomes.

*End of First-Year College Grade Point Average (FGPA)*

In order to determine whether students with PASS proficiencies had a higher first-year college grade point average (FGPA) than students without PASS proficiency data, a one-way analysis of variance (ANOVA) was conducted. ANOVA is an appropriate statistical analysis technique when one is looking for differences between two or more groups and is equivalent to a t-test when there are only two groups. The independent variable (IV) was GROUP (PASS or Comparison) and the DV was first-year college GPA. First-year college GPA was calculated using the number of credits a student carried each term and the term GPA. This calculation was completed for all PASS and Comparison Group students, even when a student was not enrolled each academic term of the 2001-2002 school year. For example, if a student did not enroll in winter term, an end of first year GPA could still be calculated using the fall and spring credits and GPA.
The average PASS Group FGPA was 3.25 \((sd = .59)\) and the average Comparison Group FGPA was 3.26 \((sd = .64)\). Given the nearly identical FGPA, it is not surprising that results of the ANOVA found no statistically significant difference between the FGPA of students with PASS proficiency data compared to students from the Comparison group who did not have proficiency data.

In order to explore the relative importance of HSGPA, SAT, and GROUP in predicting FGPA, a multiple linear regression (MLR) was conducted. MLR allow the researcher to determine the effect of multiple IVs on one DV (Green & Salkind, 2003; Tabachnick & Fidell, 2001). Within MLR, analysis results indicate two major pieces of information. The first represents how all the variables identified for inclusion work together to create an overall model that predicts the outcome of the DV. The second relates to how much each variable within the model contributes to that overall model significance.

It is possible that an overall model is statistically significant, but one or more of the variables included in that model are not statistically significant. This can happen for two reasons. First, it could be that each IV explains a very small amount of variance and when added together, they explain a significant amount of variance in the DV. Second, each or some of the IVs explain a significant amount of variance in the DV; however, they explain the common variance in the DV, not a unique or different variance. Therefore, both the results of the overall model and the individual variable indicators need to be examined and reported.
In this MLR analysis of FGPA, the overall model was significant, $F_{(3,329)} = 62.48$, $p < .001$, and the 3 variables in the model (HSGPA, SAT, and GROUP) explained 37% of the variance of FGPA, $R^2 = .365$, adjusted $R^2 = .359$. However, only the regression coefficients for HSGPA ($t = 9.14$, $p < .001$) and SAT ($t = 4.28$, $p < .001$) were statistically significant. Consistent with the findings from the ANOVA, the regression coefficient for GROUP was not statistically significant ($p = .667$), reinforcing the finding that there was no difference on the DV based on whether a student was in the PASS or Comparison Group.

Results of the MLR analysis indicated that HSGPA (Beta = .465) was the strongest predictors of FGPA (see standardized regression coefficient-beta column in Table 8) for all students in this study, with SAT (Beta = .218) being the second strongest predictor. GROUP was the weakest and not a significant variable in the model (Beta = -.019).

Table 8. End of First-Year College Grade Point Average (FGPA) Regression Coefficients

<table>
<thead>
<tr>
<th>Equation Variables</th>
<th>Unstandardized B</th>
<th>Standardized Regression Coefficient (Beta)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSGPA</td>
<td>1.020</td>
<td>.465</td>
<td>.001</td>
</tr>
<tr>
<td>SAT</td>
<td>.001</td>
<td>.218</td>
<td>.001</td>
</tr>
<tr>
<td>GROUP*</td>
<td>-.023</td>
<td>-.019</td>
<td>.667</td>
</tr>
</tbody>
</table>

* PASS Group students were coded as 1 and Comparison Group students were coded as 0. Therefore, the coefficient is multiplied by 1 to determine how much impact PASS Group membership had on the dependent variable.

Interpretation of unstandardized regression coefficients (B) provides a measure of the magnitude of the effect of each statistically significant variable in the
model. Interpretation of unstandardized Bs allows a researcher to understand how a 1.0 unit increase in the IV is associated with changes in the value of the DV, in this case FGPA. This interpretation is dependent on the measurement scale for the independent and dependent variables and how they are quantified. There is virtually a one-to-one relationship between HSGPA and FPA. For every 1 point increase in HSGPA, FGPA increased by 1.02 points (see Table 9). Given that a 1 point increase in a SAT score does not make sense given the wide scale of the SAT, the researcher multiplied the unstandardized coefficient for SAT by 100 for ease of interpretation. Results of that transformation indicate that for every 100 point increase in SAT score, FGPA increased by .10 grade points.

Table 9. Example of SAT unstandardized B impact on FGPA using a 1000 SAT score.

<table>
<thead>
<tr>
<th>Change in SAT Score</th>
<th>Change in FGPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 to1001</td>
<td>.001</td>
</tr>
<tr>
<td>1000 to1010</td>
<td>.010</td>
</tr>
<tr>
<td>1000 to1100</td>
<td>.100</td>
</tr>
</tbody>
</table>

Although this study did not include data about the student experience once on an OUS campus, the researcher did have data related to the campus in which the student was enrolled. Given that most students were enrolled at either Oregon State University (OSU) or University of Oregon (UO), the question as to a possible environmental effect (or campus effect) was examined through a post-hoc regression analysis. Two dummy variables were created (UO and OSU). Each case was coded
as yes or no with a 1 indicating the student enrolled at that campus their first year,
and a 0 if the student was not enrolled. When the UO and OSU were included in the
regression analysis, there was no change to the overall significance of the model, and
neither variable was statistically significant. This means that there were no campus
level effects that were contributing to the findings.

A second post-hoc regression analysis was conducted to explore the effect of
students being enrolled all 3 terms of the freshman year compared to students not
being enrolled all 3 terms on the DV. The addition of this variable into the
regression equation did not alter the overall model or the variables that were
significant. This means that students enrollment pattern in the first year did not
statistically significantly predict FGPA.

By interpreting the results of the ANOVA and the MLR, HSGPA had a
strong effect on FGPA, and that effect was independent of knowledge gained
through participation in PASS given the GROUP variable was not significant in the
MLR. Additionally, for every 1.0 point increase in HSGPA, there is a nearly
equivalent FGPA increase (1.02 points). These results are in alignment with the
academic literature presented in Chapter 2 which illustrated that HSGPA is the best
predictor of FGPA, followed by a combination of HSGPA and SAT.

First-Year Retention within OUS

In order to determine whether students with PASS proficiency data had
higher rates of first-year retention than students without PASS proficiency data, the
dependent variable (DV), *First-Year Retention*, was created by the researcher. This variable was coded as a dichotomous (yes/no) variable. The variable was created by examining the individual enrollment pattern of each student in this sample. Students had to have been enrolled during their freshman year and return the fall of their sophomore year to be considered retained within OUS. This snapshot approach to understanding first-year retention does not take into account enrollment patterns during the freshman year. For example, 11 students who were enrolled fall term, did not enroll for winter or spring or summer terms; however, were enrolled the subsequent fall term. Given that the students were enrolled the second fall term, these students were considered retained in the OUS system. There were an additional eight students who enrolled fall and winter, did not enroll in spring or summer, but enrolled in the subsequent fall term. These eight students were also coded as retained. Using this definition of first-year retention, all students in both the PASS and comparison groups were retained within the OUS system. As there was no variability in first year retention, statistical analysis of the difference in first-year retention between the PASS Group and Comparison Group students was not possible.

Exploratory analysis related to this question examined the enrollment patterns of students who were not enrolled in all three traditional academic terms: fall, winter, and spring. This exploratory analysis put aside the consideration about enrollment in the subsequent fall term. Chi-square analysis of this first-year enrollment pattern
found a statistically significant difference between the first-year enrollment pattern of PASS versus Comparison Group students, $X^2 = 6.15$, $p = .013$. Students in the Comparison Group were over three times more likely to not enroll each academic term of their freshman year as PASS Group students. Sixteen of the Comparison Group students (9.64%) did not enroll each academic term of the freshman year, whereas, only 5 (3%) of the PASS Group students showed an incomplete enrollment pattern within OUS. Although the particular reason behind the difference in enrollment patterns is unknown, it is clear that a statistically significant difference was found and that nearly 10% of the Comparison Group sample showed this incomplete freshman year enrollment pattern.

When the UO and OSU campus variables were included in the regression analysis, there was no change to the overall significance of the model, and neither variable was statistically significant. This means that there were no campus level effects that were contributing to the findings.

A second post-hoc regression analysis was conducted to explore the effect of students being enrolled all 3 terms of the freshman year compared to students not being enrolled all 3 terms on the DV. The addition of this variable into the regression equation did not alter the overall model or the variables that were significant. This means that students enrollment pattern in the first year did not statistically significantly predict FGPA.
In summary, all students in this sample who were enrolled at an OUS campus in fall 2001 returned to an OUS campus in fall 2002. However, exploratory analysis of the first-year enrollment patterns of these students indicated that PASS students were three times more likely to enroll each term of the freshman year than were Comparison Group students.

*Enrollment Persistence*

Although first-year retention was an important outcome to consider, it was also important to consider persistence from a broader perspective and determine whether students with PASS proficiency data had a higher rate of general persistence than students without PASS proficiency-related data. This question was first analyzed broadly using a Chi-Square technique, followed by a Cox Regression Proportional (survival/failure) analysis to understand the potential point(s) in time in which students differed in their enrollment pattern, specifically persisting or not within OUS.

Survival analysis is a technique that allows a researcher to examine the time it takes for an event to occur—*time to event*. Survival analysis is prevalent in medical research, but can be used to examine group differences on any time-based event to determine whether survival rates differ between two groups (e.g., employee attrition, death rate). In this study, survival analysis was used to examine group differences in time to dropout (DROPOUT) from the OUS system during the four-year time frame, fall 2001-spring 2005 (Tabachnick & Fidell, 2001).
In order to conduct these analyses, the enrollment pattern for each student was examined and assigned a code of either Dropout (1) or Persisted/Persisting (0). In most cases, students were enrolled during the traditional academic year (fall, winter, spring) with the summer off; however, some students enrolled year round (traditional academic year plus summer term), and some students took other terms off each year in a predictable pattern (e.g., winter off, but enrolled in fall and spring; or spring off, but enrolled fall and winter). If a student stopped enrollment but returned to OUS in spring 2005 s/he was coded as Persisted/Persisting (0), as there was not a penalty for not being enrolled each term during the four-year time frame. All students who graduated within the four-year time frame were coded as Persisted/Persisting (0). Once a student stopped attending any OUS campus, without graduating, the student was coded as Dropout (1). See Table 10 for selected examples of how students were coded as Persisted/Persisting versus Dropout. No cases had to be censored, meaning that their outcome based on the time to event was unknown. In all cases, students were either Dropout or Persisted/Persisting.

Results of the Chi-Square analysis did not indicate a difference on GROUP X DROPOUT. Thirty-nine (23.50%) of the PASS Group students and 42 (25.30%) of the Comparison Group students were coded as not persisting at an OUS campus during the four years of this study. Students in the PASS Group attended OUS for an average of 11.13 ($sd = 0.98$) quarters and students in the Comparison Group attended OUS for an average of 10.57 ($sd = 1.04$) quarters. Although the data related to
enrollment persistence did not show an overall difference, the researcher proceeded with the survival analysis to test whether time to dropout differed for the two groups. The results of this analysis confirmed there was no difference between the PASS Group and Comparison Group students on the likelihood of not persisting within OUS or time to DROPOUT.

Table 10: Example of Enrollment Pattern Analysis for Coding for Persisted/Persisting and Dropout. (X = Enrollment at OUS)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>F</td>
<td>W</td>
<td>S</td>
<td>F</td>
<td>W</td>
</tr>
<tr>
<td>A</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>B</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>C</td>
<td>X</td>
<td></td>
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<td>D</td>
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<td>E</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

*O = Persisting/Persisted; 1 = Dropout

When the UO and OSU were included in the regression analysis, there was no change to the overall significance of the model, and neither variable was statistically significant. This means that there were no campus level effects that were contributing to the findings.

A second post-hoc regression analysis was conducted to explore the effect of students being enrolled all 3 terms of the freshman year compared to students not being enrolled all 3 terms on the DV. The addition of this variable into the regression equation did not alter the overall model or the variables that were
significant. This means that students enrollment pattern in the first year did not statistically significantly predict FGPA.

In summary, students in the PASS Group showed a minimally better enrollment persistence rate than Comparison Group students. There was no difference on students’ enrollment persistence decisions within OUS during the four-years of this study.

Degree from OUS within Four Years

In order to determine whether students with PASS proficiency data persisted through the baccalaureate degree within OUS in a traditional four-year time frame at a higher rate than students without PASS proficiency data, a Pearson Chi-Square analysis was conducted. Chi-Square is an appropriate technique for this question as both the IV and DV are categorical in nature. The dependent variable, Degree within Four Years, was coded as a dichotomous (yes/no) variable. Results of the Chi-Square found no statistically significant difference between the graduation rates of the PASS Group versus the Comparison Group. For both groups, fewer than 40% of the students graduated within the four-year traditional time to degree: 37.3% of PASS Group students (n = 62), and 39.80% of the Comparison Group (n = 66).

In order to explore how other admission indicator variables (HSGPA and SAT) may predict student achievement of a degree within four years, a logistic regression was conducted (refer to Table 11 for the regression coefficients). The DV, degree within four years (DEGREE) was coded yes/no and the IVs included were
HSGPA, SAT and GROUP. The overall model was statistically significant, $X^2 (3) = 25.77, p < .001$, but the regression coefficients for the variables in the model indicated that HSGPA was the only significant variable predicting whether or not students received a degree from OUS within four years, $p = .001$.

Table 11. *Degree in Four Years Regression Coefficients*

<table>
<thead>
<tr>
<th>Equation Variables</th>
<th>Unstandardized B</th>
<th>p-value</th>
<th>Exp (B) Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSGPA</td>
<td>2.04</td>
<td>.001</td>
<td>7.66</td>
</tr>
<tr>
<td>SAT</td>
<td>.001</td>
<td>.368</td>
<td>1.00</td>
</tr>
<tr>
<td>GROUP</td>
<td>-.121</td>
<td>.605</td>
<td>.886</td>
</tr>
</tbody>
</table>

When conducting a logistic regression, results provide an odds ratio. This odds ratio allows the researcher to determine how the odds of graduating change with each one point increase in HSGPA. For a one point increase in HSGPA, the odds of graduating within four years increased by a factor of 7.66 (see Exp (B) Odds Ratio column of Table 11). For example, a student with a HSGPA of 3.67 is 7.66 times more likely to graduate within four years than a student with a HSGPA of 2.67.

SAT did not change the likelihood of graduating within four years after taking HSGPA into consideration as the p-value for that variable was not significant, $p = .368$. Consistent with the chi-square results reported above, GROUP was also not significant ($p=.605$) and is, therefore, not associated with a significant increase or decrease in the likelihood of graduating within four years.

When the UO and OSU were included in the regression analysis, there was no change to the overall significance of the model, and neither variable was
statistically significant. This means that there were no campus level effects that were contributing to the findings.

A second post-hoc regression analysis was conducted to explore the effect of students being enrolled all 3 terms of the freshman year compared to students not being enrolled all 3 terms on the DV. The addition of this variable into the regression equation did not alter the overall model or the variables that were significant. This means that students enrollment pattern in the first year did not statistically significantly predict FGPA.

*Cumulative Degree Grade Point Average for those Awarded Degree within Four Years*

For those students who graduated within four years, the research question focused on the DEGREEGPA of PASS Group students (N = 62) versus Comparison Group (N = 66) students. In order to answer that question, a one-way analysis of variance (ANOVA) was conducted. The independent variable (IV) was the student group (PASS or Comparison Group) and the dependent variable (DV) was DEGREEGPA.

Results of the ANOVA found no statistically significant difference between the DEGREEGPA of students with PASS proficiency data compared to students from the Comparison group. The average DEGREEGPA for the students in the PASS Group was 3.50 (sd = .32) and the average DEGREEGPA for students in the Comparison Group students was 3.53 (sd = .33). The students in the Comparison
Group had an average DEGREEGPA .03 points higher than the average DEGREEGPA of students in the PASS Group; this difference was not statistically significant and was too small to be considered relevant.

In order to explore the relative importance of HSGPA, SAT, and GROUP in predicting DEGREEGPA, a linear regression was conducted. The overall model was significant, $F_{(3,127)} = 19.92$, $p < .001$, and HSGPA, SAT, and GROUP explained 33% of the variance of FGPA; $R^2 = .325$, adjusted $R^2 = .309$. The HSGPA and SAT variables in the model were statistically significant: HSGPA ($t = 4.44$, $p < .001$), and SAT ($t = 3.212$, $p < .05$). The GROUP variable was not statistically significant in predicting DEGREEGPA (See Table 12 for the unstandardized and standardized regression coefficients).

**Table 12: Degree GPA Regression Coefficients**

<table>
<thead>
<tr>
<th>Equation Variables</th>
<th>Unstandardized B</th>
<th>Standardized Regression Coefficient (Beta)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSGPA</td>
<td>.612</td>
<td>.379</td>
<td>.001</td>
</tr>
<tr>
<td>SAT</td>
<td>.001</td>
<td>.275</td>
<td>.050</td>
</tr>
<tr>
<td>GROUP</td>
<td>-.026</td>
<td>-.040</td>
<td>.593</td>
</tr>
</tbody>
</table>

Interpretation of standardized beta and unstandardized regression coefficients (B) provides a measure of the magnitude of the effect of each statistically significant variable in the model and allow a researcher to understand how a 1.0 unit increase in the IVs, changes value of the DV, in this case DEGREEGPA. Results of this analysis indicate that for every 100 point increase in SAT score, DEGREEGPA increased by .10 grade points; and for every 1.0 point increase in HSGPA, DEGREEGPA increased by .61 points.
Interpretation of the standardized beta allows a researcher to understand the relative effect of the IVs to one another in predicting the DV. Results of this analysis indicated that the strongest predictor of DEGREEGPA was HSGPA (.379) followed by SAT scores (.275). See Table 12.

When the UO and OSU were included in the regression analysis, there was no change to the overall significance of the model, and neither variable was statistically significant. This means that there were no campus level effects that were contributing to the findings.

A second post-hoc regression analysis was conducted to explore the effect of students being enrolled all 3 terms of the freshman year compared to students not being enrolled all 3 terms on the DV. The addition of this variable into the regression equation did not alter the overall model or the variables that were significant. This means that students enrollment pattern in the first year did not statistically significantly predict FGPA.

**Summary of Analyses Comparing PASS and Comparison Group Students**

Thus far, the focus has been on determining whether there are differences between PASS and Comparison Group students on the persistence-related variables. To summarize, there is no difference on persistence-related outcomes that can be attributed to being a student from the PASS or Comparison Group. However, a statistically significant difference in the first-year enrollment pattern was identified.
Students in the PASS Group were 3 times more likely than Comparison Group students to enroll all 3 terms of their freshman year.

The analysis to this point has been strictly based on whether a student was identified as part of the PASS Group or the Comparison Group; the level of proficiency for the students in the PASS Group has not been included in the analysis. The next section examines how different levels of proficiency, using the Standards Proficiency Index (SPI) as an indicator, impacts or are related to the persistence-related outcomes of this study. These analyses only included PASS Group students as the SPI was a variable that was exclusive to that group and was calculated when those students submitted PASS proficiency data to the OUS Chancellor’s Office as part of a scholarship application in spring 2001. Still, an evaluation of the predictive nature of the SPI was critical to examine in order to determine how the level of proficiency, as evidenced by the SPI, impacts persistence-related outcomes for those students.

Proficiency and Persistence-related Outcomes for PASS Group Only Students

End of First-Year Grade Point Average (FGPA) for PASS Group Only Students

In order to explore the relative importance of HSGPA, SAT, and the Standard Proficiency Index (SPI) scores in predicting FGPA, a multiple linear regression was conducted. The SPI is an index score that takes into account both the breadth and depth of the demonstrated proficiency (see Table 3 for an example of how the SPI is calculated).
Table 13. *End of First-Year College Grade Point Average (FGPA) Regression Coefficients for PASS Group Students Only*

<table>
<thead>
<tr>
<th>Equation Variables</th>
<th>Unstandardized B</th>
<th>Standardized Regression Coefficient (Beta)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSGPA</td>
<td>1.038</td>
<td>.494</td>
<td>.001</td>
</tr>
<tr>
<td>SAT</td>
<td>.001</td>
<td>.195</td>
<td>.006</td>
</tr>
<tr>
<td>SPI</td>
<td>.023</td>
<td>.158</td>
<td>.013</td>
</tr>
</tbody>
</table>

Multiple linear regressions (MLR) allow a researcher to determine the effect of multiple IVs on one DV (Green & Salkind, 2003; Tabachnick & Fidell, 2001). The overall regression analysis was significant, $F_{(3,165)} = 46.04$, $p < .001$, and HSGPA, SAT, and SPI explained 46% of the variance of FGPA, $R^2 = .460$, adjusted $R^2 = .450$. All the variables in the model were statistically significant: HSGPA ($t = 7.51$, $p < .001$), SAT ($t = 2.78$, $p < .001$), and SPI ($t = 2.51$, $p < .001$). The standardized regression coefficients (Table 13) indicate that for students in the PASS Group, HSGPA was the strongest predictors of FGPA (.494), followed by SAT (.195) and the SPI (.158).

Interpretation of unstandardized regression coefficient (B) provides a measure of the magnitude of the effect of each statistically significant variable in the model. Interpretation of unstandardized B allows a researcher to understand how a 1.0 unit increase in the IV changes the value of the DV in this case FGPA. Consistent with the analysis of the total sample, results of this analysis indicate that for every 100 point increase in SAT score, FGPA increased by .10 grade points, and for every 1.0 point increase in HSGPA, FGPA increased by 1.038 points. SPI is a
measure that ranges from 0 to 105 and increases by one point increments. The results of the analysis indicate that for every 1 point increase in the SPI, FGPA increased by .02 points.

Thus, HSGPA had a stronger effect on FGPA than either SAT or SPI, although all three variables make statistically significant unique contributions to predicting FGPA.

*First-Year Retention within OUS for PASS Group Only Students*

During the design of this study, a research question was originally planned to determine whether the level of proficiency, using the SPI, was related to first-year retention, and if so, how it was related. However, the subsequent data showed that all students from both groups returned in the subsequent fall term, meaning there was no variance in first-year retention for either group. Therefore, as there was no variability in first-year retention, this analysis could not be conducted.

*Enrollment Persistence for PASS Group Only Students*

In order to determine whether the level of proficiency, as measured by the SPI, related to dropout from OUS in the four-year time frame, a logistic regression was conducted with HSGPA, SAT, and the SPI with DROPOUT as the dependent variable. The logistic regression was not statistically significant. This means that the variables HSPGA, SAT, and the SPI did not predict whether students from the PASS Group persisted at OUS.
Degree from OUS for PASS Group Only Students

In order to determine whether the level of proficiency, as indicated by the level of the SPI, related to rate that PASS students received a degree from OUS within four years, a logistic regression was conducted with HSGPA, SAT, and the SPI. Results of the logistic regression indicated that the overall model was statistically significant, $X^2(3) = 13.45, p < .001$. However, the only variable in the model that was statistically significant was HSGPA, $p = .004$. Thus, SAT ($p = .707$) and the SPI ($p = .432$) did not predict whether PASS Group students graduated from OUS within four years (see Table 14 for unstandardized B, and odds ratio).

When conducting a logistic regression, the analysis provides a researcher with an odds ratio. In this case, the odds ratio indicated that for every 1 point increase in HSGPA, the odds of graduating within four years increased by 10.52. Therefore a full point increase in HSGPA is associated with a relatively large increase in the likelihood of graduating in four years. For example, a student with a HSGPA of 3.67, is 10.52 times more likely to graduate within four years than a student with a HSGPA of 2.67. When a similar logistic regression was conducted to determine group differences on a four-year degree (inclusion of the GROUP variable and exclusion of the SPI), results indicated that a 1 point increase in HSGPA translated into a 7.66 odds ratio. This means that when considering PASS Group students only, the odds ratio increased by 2.86 points.
Table 14. *Degree in Four Years Regression Coefficients for PASS Group Students Only*

<table>
<thead>
<tr>
<th>Equation Variables</th>
<th>Unstandardized B</th>
<th>p-value</th>
<th>Exp (B)</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSGPA</td>
<td>2.35</td>
<td>.004</td>
<td></td>
<td>10.52</td>
</tr>
<tr>
<td>SPI</td>
<td>.034</td>
<td>.432</td>
<td>1.03</td>
<td></td>
</tr>
<tr>
<td>SAT</td>
<td>-.001</td>
<td>.707</td>
<td>.999</td>
<td></td>
</tr>
</tbody>
</table>

This suggests the long term effects of higher HSGPAs for PASS students are stronger than for the sample as a whole. SAT and the SPI did not change the likelihood of graduating within four years as those variables were not statistically significant in the model.

*Degree Grade Point Average for PASS Group Only Students*

In order to explore the relative importance of HSGPA, SAT, and the Standard Proficiency Index (SPI) scores in predicting DEGREEGPA, a multiple linear regression was conducted. The overall model was significant, $F_{(3, 61)} = 14.56$, $p < .001$, and HSGPA, SAT, and SPI explained 43% of the variance of DEGREEGPA, $R^2 = .43$, adjusted $R^2 = .40$. However, only HSGPA was a statistically significant variable in the model, HSGPA ($t = 4.75$, $p < .001$). Results of the regression analysis indicate that for students in the PASS Group, HSGPA was the strongest predictors of DEGREEGPA. Interpretations of unstandardized regression coefficients (B) indicate that for every 1.0 point increase in HSGPA, DEGREEGPA increased by .917 points (See Table 15 for the regression coefficients). SAT and SPI were not significant unique predictors of degree GPA after controlling for HSGPA.
Table 15. *Degree Grade Point Average Regression Coefficients for PASS Group Students Only*

<table>
<thead>
<tr>
<th>Equation Variables</th>
<th>Unstandardized B</th>
<th>Standardized Regression Coefficient (Beta)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSGPA</td>
<td>.917</td>
<td>.526</td>
<td>.001</td>
</tr>
<tr>
<td>SPI</td>
<td>.014</td>
<td>.186</td>
<td>.095</td>
</tr>
<tr>
<td>SAT</td>
<td>.000</td>
<td>.109</td>
<td>.368</td>
</tr>
</tbody>
</table>

*Summary of All Analyses*

In conclusion, the results of the analyses indicated that, in general, students from the PASS Group did not have more positive outcomes on the student-persistence outcomes that were defined a priori when examined against the Comparison Group. The one variable that consistently indicated a statistically significant relationship with the persistence-related outcomes was HSGPA. SAT scores were also frequently a predictor of persistence-related outcomes; however, the relative magnitude of that relationship was always smaller than HSGPA.

One point of interest related to the PASS Group students was the ad hoc analysis related to the first-year enrollment pattern. Exploration of that enrollment pattern indicated that PASS students were 3 times more likely than Comparison Group students to be enrolled each of the 3 academic terms of the freshman year. Although the actual number of students results represents (PASS Group n = 16, Comparison Group n = 5), the results are an interesting finding to consider given the
research on the importance of the freshman year experience and how that experience impacts other persistence-related outcomes.

When examining only PASS Group students, the level of proficiency as evidenced by the standards-proficiency index (SPI) was not a statistically significant variable in understanding persistence-related outcomes. Again, HSGPA was consistently the strongest predictor of persistence-related outcomes with the SPI and SAT being only statistically significant in understanding first-year grades (FGPA).

In closing, this chapter has presented the results of each of the planned and ad hoc analyses for each of the persistence-related outcomes indicating that HSGPA coupled with SAT scores were the best predictors of the persistence-related outcomes included in this study, and the predictive nature of HSGPA and SAT were present across the PASS and the Comparison Groups. In general, there were no group differences on the persistence-related outcomes; however, students from the PASS Group showed a higher likelihood of being enrolled each of the 3 academic terms of the freshman year.

The subsequent chapter will briefly review this study including the purpose, relevant literature, research design, methods, and results. After this summary, a discussion of the findings, specifically the researcher’s speculation as to reasons for certain results, a critique of the study, and questions for future research will be presented.
Chapter 5: Summary and Discussion

This chapter begins with a study summary in which the relevant literature, research design, data analysis methods, and key findings are reviewed. Following the summary, the importance and a critique of the study will be discussed. This will be followed by reflections on the results and study limitations and suggestions for future research and policy implementation.

Study Summary

During the 1970s, the world economy began shifting from a manufacturing-based economy to a knowledge-based economy. To be competitive in this knowledge-based environment, workers need to be prepared to compete in a global market where they are equipped with the skills, knowledge, and adaptabilities to work and succeed in ever-changing environments and in disciplines that are yet to be discovered. Many of these skills, knowledge, and adaptabilities are learned through the process of completing the baccalaureate degree. Given individual and societal costs associated with a low college completion rates, it is critical that: a) educational leaders increase the likelihood that students are prepared to enter higher education, b) colleges and universities receive appropriate and adequate admission indicators of student preparedness, and c) students select the college that fits their specific needs, skills, and ambitions.

The keystone to this process is the nature of the college admission standards. Admission standards are the primary criteria used by students and higher education
institutions to gauge student preparedness and likely success in college, and to assist students in identifying colleges that are capable of serving their needs and ambitions. Similarly, colleges and universities rely on admission standards to guide them in determining whether a student is prepared for the academic demands of the institution and whether there appears to be an overall student-institutional fit.

Admission standards have evolved over the past 100 years and are relatively uniform across the 3,500 colleges and universities in the United States, providing shared measures commonly interpreted both in K-12 and higher educational systems. The four common admission indicators include: (a) possession of a high school diploma, (b) high school grade point average (HSGPA), (c) the number of Carnegie units of instruction in key subject areas, and (d) standardized entrance examination scores, such as the SAT (formerly known as the Scholastic Aptitude Test, but now officially renamed SAT), or ACT (formerly known as American College Testing, but now officially renamed ACT). Although these four admission indicators have been utilized by higher education for some time, each have their own limitations related to the accuracy in which they predict student success.

Twenty-five years ago, the National Commission on Excellence in Education published *A Nation at Risk* (1983) that sent shockwaves through the federal and state educational systems and triggered a tidal wave of school reform designed to address the issues identified in that report. One specific recommendation was that four-year colleges and universities should raise
admission standards and ensure that potential applicants were aware of these new standards, including specific course work and higher achievement requirements in "each of the five Basics" (National Commission on Excellence in Education, 2001, p. 153). The report also called for better articulation between the expectations of secondary schools and the colleges and universities.

After the release of *A Nation at Risk*, Oregon educational leaders designed new high school curriculum and graduation requirements in order to respond to the demand for higher academic achievement of high school students and better preparedness for entry into college. Oregon House Bill 3565 ("Oregon Educational Act for the 21st Century", 1991) was designed to address the K-12 school reform agenda and ultimately to tie it to greater success at the postsecondary level. The cornerstone of HB 3565 was the development of comprehensive statewide assessments for 3rd, 5th, 8th, and 10th graders (Oregon University System, n.d., p. paragraph 1) and the development of two levels of high school certificates: the Certificate of Initial Mastery (CIM) and the Certificate of Advanced Mastery (CAM) (Smith, 1999). Shortly after HB 3565 legislation was approved, the Oregon State Board of Higher Education (OSBHE) identified a need for the Oregon University System to respond and, in 1993, approved the creation of a proficiency-based admission system that was to be connected to the state K-12 school reform; this system was called the Proficiency-admission Standards System (PASS).
The overarching goals of PASS were to increase access to postsecondary education and to provide a framework in which students would be better prepared for college entry and, thus, be more successful in meeting the rigors of college and graduate in a timely manner. Demonstrated proficiency through PASS was to be the recommended pathway for entry into OUS beginning fall 2001. All Oregon students were to participate in PASS and all OUS campuses were to use PASS transcript information to make admission and placement decisions by fall 2005.

From a theoretical perspective, this study is framed around the assumption that the more specific information students have about their academic proficiencies, the more successful their future performance on tasks related to those proficiencies will be. The assumption of PASS is that students who participated in the PASS process have a greater self-knowledge of their academic abilities in relation to college expectations, which, in turn, enables them to be successful and persist at higher rates than students without this information. Therefore, the primary research question was focused on determining whether students with PASS proficiency data would show evidence of more successful student persistence-related outcomes than did students without PASS-related data. The student persistence-related outcomes examined in this study included: a) first-year grade point average (FGPA), b) first-year retention; c) enrollment persistence; d) graduation
within four-years from OUS; and e) cumulative degree grade point average (DEGREEGPA).

Although not originally intended, PASS can be viewed within a particular theoretical framework. Stage and Hossler’s (2000) Student-centered Theory of Persistence (SCTP) is an integrated theory that includes components typically found in the college choice literature and components found in the student persistence literature. The core components of the SCTP are Background, Middle and High School Behaviors and Educational Experiences, Intentions and Engagement, College Entry, and Persistence. The SCTP model shares a philosophical perspective with PASS in that it conceptualizes academic preparation and the meeting of admission standards as a process that begins several years before a student actually applies to a college or university. This unique feature of PASS provides early feedback to students about their academic preparedness in the timeframe during which they are solidifying their aspirations to attend college and are beginning the search for colleges or universities of interest. Additionally, when students participate in PASS and work towards demonstrating proficiency in the different domain areas, that process can be conceptualized as a getting ready behavior, which is reflected in the SCTP model and a core concept linked to college success (Attinasi, 1989; Stage & Hossler, 2000).
The persistence-related outcomes identified for this study were based on the success measures PASS intended to effect: grade point average at the end of the freshman (FGPA) and four years in college (DEGREEGPA); first-year student retention within OUS; persistence towards the four-year degree within OUS; and whether a bachelor's degree was awarded from OUS within a traditional four-year baccalaureate timeframe (Tell, n.d., p. 3). In order to determine the value-added of PASS, a comparison of the persistence-related outcomes between two groups of students, students with PASS proficiency information and students without, was made. After examining the data for group differences, the data were examined to determine whether the level of proficiency (PASS Group only) impacted the persistence-related outcomes.

Both descriptive and inferential statistical analysis techniques were used in this study. Descriptive data analysis indicate that the students from both groups were very similar in their incoming academic preparedness characteristics, with an average HSGPA of 3.73 (sd = .28) which was .40 points higher than the average incoming OUS student (m = 3.35) and .80 points higher than the national average of college freshman (m = 2.94) (Oregon University System, 2002; U. S. Department of Education National Center for Education Statistics, 2004). Average SAT score for both the PASS and Comparison Group students was 1135, which is above the OUS average of 1061, higher than that statewide average of 1052, and higher than the
national average of 1020. These data suggest that the students were well prepared for entry into OUS.

Descriptive analysis of persistence-related outcomes indicated that freshman grade point average (FGPA) for PASS students was 3.24 ($sd = .60$) and 3.26 ($sd = .64$) for the Comparison Group students. For those who graduated with degrees from OUS, the PASS students' (n = 62) cumulative degree grade point average (DEGREEGPA) was 3.50 ($sd = .32$) and the Comparison Group students (n = 66) was 3.53 ($sd = .33$). These data indicate that the students in this sample were at least B students at the end of their freshman year and, a subset of them were able to graduate with a cumulative degree GPA of at least 3.50.

In addition, all first-year PASS students and Comparison Group students who were enrolled in fall 2001 returned to OUS in fall 2002. Even though not all the students were enrolled for each term of their first year, all students returned at the beginning of the next academic year. When examining the persistence pattern for students in this study across the four-year time frame, similar four-year persistence rates were seen between the two groups as well. In spring 2005, 127 (76.5%) of the PASS Group students persisted or were persisting towards an OUS degree and 124 (74.7%) of the Comparison Group students had graduated or were consistently enrolled and working towards an OUS degree. This meant that three-quarters of all
students in this study had graduated or were consistently enrolled at an OUS campus during the four-year time frame of this study.

Table 16: *Summary of Research Questions and Data Analysis Results Related to Group Differences and SPI Variable (PASS Group Only)*

<table>
<thead>
<tr>
<th>Persistence-related Outcome</th>
<th>Group Difference</th>
<th>SPI variable significant in the regression models (PASS Group Only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman Grade Point Average (FGPA)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>First-year retention*</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Enrollment persistence</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Degree from OUS within 4 years</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Cumulative Degree GPA (DEGREEGPA)</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

*All students returned in fall 2002; no variance to analyze.

In order to examine the primary research question focused on determining group differences on persistence-related outcomes between students with PASS proficiency data and the comparison group, ANOVA and regression analysis techniques were used. Results indicated no statistically significant GROUP differences on the persistence-related outcomes. Additionally, when the SPI was a significant variable in regression models the relative magnitude of the SPI was always below HSGPA and SAT. Table 16 summarizes the results of all the planned analyses with a specific focus on presenting the value-added of PASS.

Two other findings were identified during post-hoc exploratory analysis. The first was that students from the PASS Group (n = 16) were three times more likely than students in the Comparison Group (n = 5) to be
enrolled each term of the first-year (2001-2002). Although the relative numbers related to this result is small, they represent 10% of the total Comparison Group (n = 166).

The second finding related to the odds-ratio when conducting the logistic regression on the DV relating to being awarded a degree from OUS within the four-year time frame.

When this analysis was conducted with both PASS and Comparison Group students included in the model, the odds-ratio was 7.66. This meant that for every 1.0 increase in HSGPA, students were 7.66 times more likely to graduate from OUS within four years; however, when the logistic regression was conducted with only PASS Group students, that odds-ratio increased to 10.52. This meant that for every 1.0 increase in HSGPA, the PASS students' likelihood of graduating in four years increased an additional 2.86 times. This result suggests that the long-term effect of the higher HSGPA for PASS students was stronger than the sample as a whole. Although, it is unclear what contributed to this higher odds-ratio, it may be due to an underlying experience related to PASS that was not part of this study. Another possible explanation to the difference in the odds-ratio is the method of demonstrating proficiency. Given that students can demonstrate proficiency through multiple methods, (e.g., PASS Teacher Verified projects or standardized assessment/test scores), it is unknown whether there was an
underlying pattern to the method of demonstrating proficiency that may contribute to this difference.

Importance of the Study

This study was important for several reasons. The first is that this is the only study of students entering OUS postsecondary universities with PASS proficiency that has looked beyond the first term of their enrollment at an OUS campus. This study not only provides the PASS program administration an analysis of the persistence-related outcomes for students who experienced PASS, but also reports on how their persistence outcomes differ from students who did not experience PASS. The results of this study, in particular the results related to a better first-year enrollment pattern for PASS students, should provide valuable evidence for the future of PASS as it evolves.

Second, the results of this study should inform the broader school reform administrators and researchers of the outcome of one specific school reform that originated in the later part of the 20th century. Though many of these agendas are now latent, the Oregon Department of Education has launched *The Oregon Diploma* (Oregon Department of Education, 2007) with graduation requirements framed around *essential skills* (see Appendix D). As demonstration of these essential skills will rely on a combination of standardized testing and teacher assessment of proficiency, Oregon
Third, this study is important because it frames PASS within the student persistence literature. Although PASS is logical, it was not designed from a specific theoretical perspective. The development of PASS was motivated by concerns that K-12 assessments being designed in the 1990s would be overly focused on vocational training instead of college preparation (Bueschel & Venezia, 2004; Conley, Brownbridge, Dungan, & Hildresom, 1994).

Although this study was not designed to validate Stage and Hossler's (2000) Student-centered Theory of Persistence (SCTP), it did attempt to frame the study from a K-16 perspective and use a theoretical framework with a similar philosophical foundation. Specifically, the SCTP and PASS shared the presumption that positive student persistence outcomes are based on students having positive middle and high school academic experiences. Both PASS and the SCTP build on the concept of positive academic experiences to serve the foundation for future student intentions and engagement in the student persistence process.
Reflections on Study Design

As with all applied studies, there is room for improvement in the design and implementation of this one. This section will discuss four areas wherein the study may have been improved.

The first area has to do with the identification of students that would be included in the PASS Group. In spring 2001, 270 students submitted PASS data to OUS for scholarship consideration, and 182 of these students matriculated to an OUS campus the following fall term. Although it would have been possible to track students with PASS data who did not matriculate to OUS through the National Student Clearinghouse, the only available information would have been enrollment data and whether a degree was awarded. Given that the purpose of this study was to investigate the value-added of PASS, an OUS-specific admission system, the research did not include processes to locate students who did not matriculate to an OUS campus, all first-time freshmen at OUS from Oregon high schools, or students that chose to begin their education at an Oregon community college.

The decision to limit the scope of the students included in the PASS Group to those students who matriculated to an OUS campus including potential PASS Group students who matriculated to an Oregon community college in the fall of 2001, did limit the sample. However, given the academic preparedness indicators of these students and that each of the students in the
PASS Group applied for a scholarship that was not transferable to non-OUS campuses, it is unlikely that a different inclusion process would have significantly altered the composition of the sample. This is not to say that understanding how students who matriculate to a community college and then transfer to an OUS campus is not important—it is a critical issue to understand. However, in spring 2001, PASS was not used within the Oregon community college admission processes, nor was the intention of this study to examine the transfer experience for students in Oregon. In future studies of proficiency as an indicator of student preparedness, it will important to consider how the population of students being studied intersects with both the community college and four-year universities. As students are increasingly mobile, enrolled at multiple institutions and four-year universities increasingly deliver aspects of their curriculum on community college campuses, such partnerships will need to be more fully understood.

Another area that may have been improved was to use the National Student Clearinghouse to track the enrollment pattern of PASS and Comparison Group students who left the OUS system prior to completion of a degree. Given that students are more mobile than in past generations, it would have been valuable to determine whether students who stopped their enrollment at OUS without earning degree subsequently transferred to a non-OUS four-year institution and completed their degree. This tracking step
would have determined whether the time to degree differed for students with
PASS data from the average 59 months students take to complete a four-year
degree when they attend more than one institution (U. S. Department of
Education National Center for Educational Statistics, 2003). This persistence
and degree completion data would have provided a more complete
enrollment picture and would not have limited the scope of the study to
students who entered and remained at an OUS campus.

The third area that may have improved the study was to conduct a
follow up on the students who had not graduated at the end of five and six
years. This follow up would have been possible by requesting updated
information from OUS/OIRP or the National Student Clearinghouse data
base. This additional step may have shed some light into enrollment patterns
for PASS versus Comparison Group students within OUS and those that may
have transferred to a non-OUS university to complete their degree. This step
was not integrated into the study as one of the targeted outcomes of PASS
was to reduce the time it takes students to achieve a baccalaureate degree to
four years. Therefore, the researcher did not include this additional step into
the process.

A fourth area of limitation is that the study relied solely on secondary
data sources and did not utilize primary data (e.g., survey, interviews) into
the research design. Although originally part of the proposed study, this
decision was grounded in the need to limit the scope of the study and the feasibility of collecting primary data when most of the students were about to leave OUS. Most importantly, the lack of such primary data limits information on how the process of participating in PASS-related activities and the completion of the PASS Transcript influenced decisions to attend OUS and the role PASS played in their preparation for their freshman year at an OUS campus.

The Challenge of Applied Program Evaluation Research

The goal of research is to generate or verify knowledge by using appropriate research design(s), measurements, and data analysis techniques. However, when that research takes place within a real-world context, Lipsey et al. (1987) point out that there are “numerous practical difficulties inherent in the matching of good research design to practical program circumstances” (p. 154) and that many applied settings are “intrinsically inhospitable to the methods of social science” (p. 154). In order to understand the challenges of conducting applied program evaluation and assess evaluation outcomes that did not detect an effect, Lipsey et al. (1987) present three sources that may influence the outcome of such research. These are categorized as methods failure, implementation failure, and theory failure. The following section will reflect on methods and implementation failure as they relate to this study. Theoretical considerations will be discussed in a subsequent section.
Methods failure.

Lipsey et al. (1987) identify inappropriate research design; low statistical power; and use of measurements that lack validity, reliability, or sensitivity as sources of possible methods failure that should be considered before labeling a program a failure. This study relied on an ex-post facto experimental design coupled with a strict matching process to reduce selection bias in this design. An ex-post facto design is used when a researcher is attempting to simulate experimentation as the independent variable has already occurred. Given that the PASS proficiency data were collected prior to the beginning of this study and that the purpose was to determine the difference between two groups of students the ex-post facto design was appropriate given the context and purpose.

The second source of possible methods failure is low statistical power. Statistical power, commonly referred to as power, is a concept related to committing a Type II error when a researcher infers that there was no difference or treatment effect when there was a difference or effect that was not detected (Howell, 1997; Lipsey, Crosse, Dunkle, Pollard, & Stobart, 1987; Shavelson, 1996; Tabachnick & Fidell, 2001). Power can be increased by changing the level of statistical significance required (e.g., changing from .05 to .01), increasing the sample size, or selecting participants that are very similar to one another, thereby reducing variation in the sample (Shavelson, 1996). Additionally, power is influenced by how much of the treatment participants received (Shavelson, 1996), which, in this case, was the
amount of exposure to PASS. Given that the intent of PASS is to serve all Oregon high school students, and the number of students with PASS data in spring 2001 was already limited, it would have been an inappropriate decision to further limit the scope of the available sample more than absolutely necessary. Additionally, as indicated previously, PASS was designed to serve all of students in Oregon, not certain subsets at either point in a student preparedness continuum. Therefore, intentionally limiting the student included in the study would be counter to this aspect of PASS.

The final source of methods failure to be considered is related to measurement. Lipsey et al. (1987) indicate that if studies use dependent variables that are not valid, reliable, or sensitive enough to detect program outcomes, issues of measurement failure may occur. These issues are mitigated in this study as most variables in the study were dichotomous variables (e.g., enrolled or not enrolled) or numerical data based on mathematical formulas (e.g., freshman grade point average and the standard proficiency index) which minimized the amount of measurement error that could be introduced and more common in attitudinal-type measures. However, it is possible that the persistence-related outcomes used in this study were not sensitive enough to reflect the underlying influences of student participation in PASS and how that participation may have impacted other more subtle college outcomes related to cognitive and affective development (Astin, 1993). The researcher recognizes that there are many ways to define college student success.
The dependent variables used in this study were based on the goals of PASS; therefore, the researcher believes that measurement failure was not a significant factor in the program outcomes.

In summary, although Lipsey et al. (1987) points are important to consider in conducting program evaluation research, given the purpose of this study, the researcher believes that the experimental design, sampling decisions, and measurements used were appropriate for the study and the methodology of the study was not a major source of the null results.

*Implementation failure.*

Lipsey et al. (1987) second potential source of null results is *implementation failure*. Implementation failure occurs when the treatment, in this case the implementation of PASS, did not have “adequate strength and integrity” (p. 156) to alter the dependent variables. The strength and integrity of the PASS implementation (or lack, thereof) was a significant issue for this study and likely contributed to the inability to identify differences of persistence-related outcomes between students in the PASS and Comparison Groups. In order to understand the implementation issues experienced by PASS, it is important to understand the state of implementation in spring 2001 (see Appendix B for a policy summary).

In spring 2001, high school students had variable exposure to PASS concepts and PASS teachers to help them demonstrate proficiency. Additionally, students who were exposed to PASS and had access to PASS teachers likely had differential
experiences in the actual process of documenting their proficiency. In spring 2001, there were approximately 65 Oregon high schools with between two and four PASS-trained teachers per school; there are 195 high schools in Oregon, which means that Oregon high school students had only a 30% chance of even having access to a PASS teacher.

Another issue was that the intent of the PASS Recognition Program Scholarship (PRP) was to recognize K-12 teachers and their students who were involved in the early implementation of PASS (Oregon University System, 2001b). As a consequence of the number of students aware of the opportunity to demonstrate proficiency via PASS, and as the PRP being the underlying mechanism for identifying PASS Group students for this study, many otherwise proficient students were systemically screened out from being included in this study.

Another issue in the implementation of PASS relates to the OUS decision to not require students to address all content domains and all standards. For example, if a student’s proficiency on a specific standard was scored relatively low as Working towards Proficiency level, he/she could choose not to report that score. Additionally, students were not required to document their level of proficiency across all the standards. This practice could have contributed to measurement error because it allows students to demonstrate their higher level proficiencies and ignore the lower level proficiencies that provide a more complete proficiency assessment.
This section has summarized some of the PASS implementation challenges that likely impacted the limited number of positive outcomes in relation to PASS Group students and persistence-related outcomes. Generally speaking, the variability of what constituted the designation of the PASS Group could have influenced key characteristics of the treatment group. Also, the rules for reporting proficiency could have impacted outcomes.

**Theoretical Considerations**

Lipsey et al. (1987) note that “program activities may not, in fact, produce the effects expected even though they are implemented as intended” (p. 157) and define this as *theory failure*. One must wonder whether PASS’s lack of a theoretical foundation contributes to questions raised in this study about PASS’s ability to influence persistence-related outcomes such as grade point average and enrollment persistence rates. As indicated previously, PASS has been logically developed within a political framework, not from a theoretical framework such as the SCTP. Without a clear program theory and theoretical framework from which to assess PASS, it is difficult to ensure that the measures used in this study were most appropriate in order to assess PASS outcomes.

Within program evaluation, it is common for programs to be assessed against a logic model which describes the program context, activities that support the implementation and delivery of the program and the linkages between those activities and the short- and long-term program outcomes. Without a clear and
explicit model, it is difficult to assess whether PASS was designed to fully impact the student-persistence outcomes it was designed to target.

Kirst and Venezia’s (2004) summary of the Bridge Project, a six-year research study on K-16 systems with a focus California, Texas, Illinois, Oregon, Georgia, and Maryland K-16 efforts, questioned whether PASS would be able to deliver on their goals and objectives. They state, “Oregon students were consistently performing near the top in national and international tests of student performance; consequently, some wonder whether there was an effort to fix something that was not really broken” (Bueschel & Venezia, 2004, p. 153). This criticism, linked with the lack of a clear program theory, make the researcher question if PASS was designed to impact the issues that policymakers viewed as preparedness issues for Oregon students.

The other theoretical consideration is the use of Stage and Hossler’s (2000) Student-centered Theory of Persistence in proficiency-based assessment efforts. Specifically, when utilizing a student-centered theory to understand the long-term process of a student successfully moving through the K-12 system into the postsecondary education system, it is critical to consider student motivations and intentions and develop assessment systems that are linked to those motivations and intentions. Without PASS being required either as part of a high school graduation assessment, or requires as part of an OUS entrance requirement, there is little motivation for students to participate in this process. Therefore, it is critical that the
future iterations of proficiency-based assessments consider how students' intentions and motivations intersect with the utility of the assessment.

Even though PASS was built on the foundation of K-12 assessments, the policy decisions to not require the CIM/CAM for high school graduation or require PASS for admission to OUS seriously dampened the frequency in which students used PASS as part of the admission process. Other states understand that in a student-centered process there has to be a streamlined process built upon existing activities. For example, California high school students planning on attending California State University (CSU) take additional exam items on their 11th grade exams. CSU uses those item scores for automatic placement in college courses instead of requiring students to take a placement exam (Achieve Inc., 2007). This method of aligning K-12 processes with CSU admission makes sense from a student-centered model of persistence.

Agnes Hoffman, Associate Vice Provost for Enrollment Management and Student Affairs at Portland State University, articulated a vision of PASS where OUS notifies students who met the Oregon 10th grade assessment benchmark that they had met part of the OUS admission criteria. Such notification and the explicit connection to students across the K-12 and higher education sectors is central to the elements described by Stage and Hossler's (2000) Student-centered Theory of Persistence. Specifically, Stage and Hossler (2000) refer to the concept of Intentions
and Engagement which includes *getting ready* behaviors', for students, a key component of getting ready for college is knowledge of their academic preparedness.

**Thoughts Related to Future Research and Policy Implementation**

As is the nature of scientific inquiry, this study raises questions that can be the basis of future studies and provide some lessons for policymakers as they consider similar school reform policies. This section will present ideas from an evaluative and implementation perspective that could serve as a foundation for moving proficiency-based assessment forward and present the researchers thoughts on the future of proficiency-based assessments.

First, one might consider designing a study to explore the two statistically significant results of this study that were identified through exploratory analysis (not the planned analyses). Specifically, these include which factors or experiences may contribute to the sustained enrollment pattern of PASS students during the first-year (compared to students in the Comparison Group) and what may be contributing to the higher odds-ratio for PASS students in relation to HSGPA and being awarded a degree in 4 years. The answer to these questions would be important to explore as PASS moves forwards and possibly attempts to align itself with the Oregon Diploma.

Second, one might consider determining which Oregon high schools have sufficient numbers of PASS-trained teachers, proceeding with a case
study comparing the experience of students from those schools to a cohort of students from a similar school who are not as engaged with PASS. By using a case study approach, one may be able to better understand how PASS operates from the perspective of high school counselors, teachers, and students in relation to their perceptions of how proficiency data will be used for admission and placement at an OUS campus. Linked to understanding the current high school experience and PASS is a need to better understand how the concepts of proficiency are being developed and used for student progression at the university level.

Using a case study approach, a researcher should consider the integration of a student survey into the case(s) study. Although Stage and Hossler (2000) student-centered theory of persistence (SCTP) is the theoretical foundation of this study, data were not collected that address some of the SCTP components (e.g., middle and high school experiences, intentions and engagement). Future research on proficiency-based initiatives should consider how the student-persistence literature may serve as a theoretical underpinning to that research.

Third, a more detailed analysis of the relationship between HSGPA, SAT, SPI, and student persistence-related outcomes needs to be completed. This type of analysis should be designed to isolate the unique aspects of the SPI in comparison to the other indicators or college readiness. An additional
consideration is that the current indicators used by higher education to measure persistence and success are not valid for this type of study; the outcomes that PASS influences are more subtle and need a more subtle persistence-related measure.

Fourth, this study did not conduct analysis based on specific content standards (e.g., English, Math) in relation to the persistence-related outcomes. Future research may want to examine how the two more commonly addressed proficiencies, English and Mathematics, relate to the persistence-related outcomes and whether the method of demonstrating proficiency impacts these outcomes. Given that one of the novel aspects of PASS is the ability to include PASS Teacher Verified projects and that those projects are given equal weight to a high or low standardized test score, the reliance on that methodology in comparison to test scores needs to be examined in relation to persistence.

Whatever the future research agenda holds for PASS, it still has to be determined how PASS will evolve and connect with the proposed Oregon Diploma. This process will parallel what occurred with the definition of the relationship between the CIM, CAM, and PASS. As Bueschek and Venezia (2004) noted, these school reforms have different histories, purposes and goals, but they share an interrelated set of reforms that are effected by changes in one another. This researcher would highly recommend that those
responsible for PASS be encouraged to determine how PASS will relate to
the proposed Oregon Diploma and other states' standards for recruiting and
retaining out-of-state students, develop early and appropriate infrastructures
and teacher training models to ensure the availability of PASS at all Oregon
high schools, define how it will be used in higher education, and evaluate the
long-term future of this educational policy. Even though it is valuable to
understand the status of PASS and the student outcomes for those that
demonstrated proficiency, from a policy perspective it will be more important
to ensure that PASS can evolve and is closely aligned with the shifting
Oregon K-12 school reform agenda.

In closing, this study did not find evidence that proficiency-based
assessments are better predictors of college student outcomes than HSGPA or
SAT, nor was there evidence that there were campus-level environmental
effects on student outcomes. The concept of requiring students to
demonstrate proficiency remains on the forefront of school reform agendas.
Oregon was the first state in the country to have formal K-16 systems in
place and PASS was being watched by other states and countries (i.e., Japan)
as the leader in the development of proficiency-based admission systems.
However, the lack of a full program theory and the appropriate infrastructure
to support such an endeavor has been the Achilles heel for PASS. Partially
due to the fact that PASS was not able to meet its implementation timelines,
school districts, legislators, and the leaders of this movement began to shift into different priorities and projects. These shifting commitments and underlying leadership changes translated into a series of implementation decisions that allowed other programs such as the International Baccalaureate to become a stronger focus in K-12 school districts and turned the PASS Transcript into supplementary admission materials.

This researcher believes that the concept of PASS, particularly the elevation of PASS Teacher Verified (PTV) projects as a valid and reliable assessment component, makes PASS unique when held against other systems such as CSU or Indiana's Core 40 Initiative. For example, while the CSU and the Indiana models have stronger K-16 linkages between the pre- and post-matriculation, they rely heavily on coursework grades, and scores on either statewide assessments, or college entry examination scores. These models overlook the need for applied and authentic assessment techniques which is a hallmark of PASS. The PTV aspect of PASS is unique in that it attempts to place the teaching and learning process at the center of the student assessment process. As this debate continues, educational leaders and policy makers need to consider how to develop assessment systems in that are grounded in theoretical perspectives and assessment protocols that place the teaching and learning process in the center. In such, the Student-centered Theory of Persistence (Stage & Hossler, 2000) is a theoretical model that
should be strongly considered as the Oregon University System begins the
work of re-envisioning proficiency-based admission systems.
References


Appendix A: PASS transcript and standards (4 pages follow)
### Student Information

- **Student Name**: ___________ Last ___________ First _________ MI.
- **College Name**: __________________________

**PASS Standards Transcript 2005-06**

*Proficiency-based Admission Standards System (PASS) / Oregon University System*

**Note:** Enter student and college name at top, put information only in the 2 gray-lined boxes on this page, then fill out page 2.

### Standards Ratings Summary

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I certify that the information provided in this transcript is accurate and that all PTU ratings were provided by PASS-trained teachers or by members of a validated content area according to PASS guidelines.

**Authorized School**

**Signature**: ___________ Date: ___________
### Student Persistence

165

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<td>D US History</td>
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<td>F Economics</td>
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<td>G Human Behavior</td>
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### Visual and Performing Arts

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<td>D Exhibit Skill</td>
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<tr>
<td>E Critique</td>
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<td>C Writing</td>
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</table>

Language(s) Assessed:

*All B or E Ratings must be externally verified by a second form of assessment unless the original score is from IB or AP tests.
In-state applicants should submit the PASS transcript, but not any other application materials, to:

Office of the Chancellor
Attention PASS Office
PO Box 3175
Eugene OR 97403-0175

About PASS

The Oregon University System (OUS) is phasing in a new admission system, the Proficiency-based Admission Standards System (PASS). PASS provides more accurate and varied ways for all students to demonstrate their knowledge and skills than the traditional method of admissions. The PASS standards and assessments are aligned with Oregon’s K-12 standards, the Certificates of Initial and Advanced Mastery (CIM and CAM). This alignment allows students to build on the work they do for CIM and CAM and use it for university admission.

Beginning fall term 2003 and beyond, applicants have the option of meeting OUS requirements in a subject area by meeting all the required PASS standards in that subject. Additionally, including information about any PASS standards not that indicate a student’s application. Students can meet PASS standards through CIM state assessment requirements, through national assessments such as Advanced Placement (AP), SAT II, and International Baccalaureate (IB), or through collections of student work rated by trained teachers through “PASS Teacher Verification” (PTV).

Students applying to out-of-state schools may include the PASS transcript with their application to provide additional information about their knowledge and skills. Admissions offices across the country are increasingly interested in information about standards met.

An Explanation of PASS Ratings

Only PASS-trained teachers may enter PASS ratings, which are rated on a 5-point scale and should be interpreted as follows:

- E Exemplary: The student demonstrates exemplary mastery of the standards and exhibits exceptional intellectual maturity or unique thinking, methods, or talents.
- H Highly Proficient: The student demonstrates mastery of the standards at a level higher than entry-level college coursework.
- M Meets the Standard: The student demonstrates proficiency or mastery of the standards.
- W Working Toward: The student is approaching readiness for entry-level college coursework.
- N Not Meeting: The student is not prepared for entry-level college coursework.

Note: Blank scores indicate that a student has not had an opportunity to demonstrate that standard and should be considered a neutral score. As PASS is phasing in, most students will have partial information on this transcript.

An Explanation of CIM Scores

The Certificate of Initial Mastery (CIM) was established by the state of Oregon to prepare all students for challenging future adventures and contributions to society in the 21st century. The standards and assessments for CIM and PASS are closely aligned. The three scores indicated on this transcript are for standards that are considered prerequisites to PASS. The ratings for CIM are:

- Exceeds CIM: Equivalent to PASS-level performance, but does not directly correlate to a given PASS standard.
- Met/CIM: Meets the CIM standard, but is below PASS-level performance.

Note: Blank scores indicate that a student has not had an opportunity to demonstrate that standard.

The Standards Proficiency Index (SPI)

The SPI is a numeric summary of the academic profile for Oregon students. Unlike the averaging that takes place with GPA, the SPI accumulates in each content area based on the number of standards met and the level of proficiency demonstrated. This is much like the sub-scale scores on many standardized assessments (e.g., ACT) that report, by content area, a summary of a student’s proficiency. The SPI assigns points for the achievement of PASS and CIM standards and for working toward (W) PASS standards.

Social Security Number Disclosure

Eligible educational institutions, like those of the Oregon University System (OUS), must get your current social security number (SSN) to file certain returns with the IRS and to furnish a statement to you. The returns contain information about qualified tuition and related expenses.

Privacy Act Notice—Section 6109 of the Internal Revenue Code requires you to give your correct SSN to persons who must file information returns with the IRS to report certain information. The IRS uses the numbers for identification purposes and to help verify the accuracy of your tax return. For more information please refer to IRS code 6109. By providing your SSN you authorize OUS institutions to use your SSN for tracking and statistical purposes only as outlined by federal law and state law.

Refer to the PASS website at http://pass.uoregon.edu for more information about PASS.
PASS Standards

A. Write for Varied Purposes
Write clearly, coherently, and effectively in a range of modes to discover and convey meaning.

B. Read from a Variety of Literary Genres and Periods
Read a broad selection of literature from a variety of historical periods, cultures, literary perspectives, and genres, including poetry, novels, short stories, essays, and dramas.

C. Interpret Literary Works
Analyze literary forms, elements, devices, and themes to interpret and critique literary texts and performances, and make inferences.

D. Conduct Inquiry and Research
Conduct inquiry and research, using a variety of primary and secondary sources and information resources to investigate questions and topics, gather and synthesize information, and create and communicate knowledge in written form.

E. Analyze Relationships of the Humanities and Social/Global Experience
Explore how literature and the humanities reflect, influence, and comment on human experiences and societal assumptions, traditions, structures, and changes.

F. Communicate in Oral, Visual, and Written Forms
Use oral, visual, written, and multimedia communication forms to convey information and ideas for a variety of purposes, audiences, and contexts.

I. Mathematics
A. Solve Mathematical Problems
Apply mathematical problem-solving strategies to problems from within and outside mathematics, device, implement, and evaluate processes and solutions, and use appropriate models, operations, and algorithms.

B. Perform Algebraic Operations
Use numeric and algebraic operations and mathematical expressions to solve equations and inequalities.

C. Use Geometric Concepts and Models
Represent and solve problems with two- and three-dimensional geometric models, properties of figures, analytic geometry, and right triangle trigonometry.

D. Use Probability and Statistics to Collect and Study Data
Use probability and statistics in the study of various disciplines, situations, and problems; understand and apply valid statistical methods and measures of central tendency, variability, and correlation to the collection, organization, analysis, and interpretation of data.

E. Use Functions to Understand Mathematical Relationships
Use patterns and functions to represent, analyze, and solve problems; interpret and understand the connections among numeric, graphic, and tabular representations of linear, quadratic, and exponential functions.

F. Represent, Analyze, and Use Advanced Geometric Concepts
Analyze the nature and behavior of more advanced functions, including trigonometric, logarithmic, general polynomial, and rational, and use such functions to model mathematical relationships.

G. Analyze Physical Science
Analyze and interpret the fundamental principles of the physical sciences, life sciences, earth and space sciences, and their applications.

H. Design and Conduct Scientific Inquiry
Plan and conduct investigations using scientific inquiry, investigative processes of the sciences, scientific instruments, and technology.

I. Collect and analyze data, critique experimental designs, and communicate scientific problems, results, and arguments.

J. Analyze Scientific Knowledge, Theories, and Research
Analyze and evaluate scientific information and claims to understand the nature of scientific knowledge, the context in which scientific theories and concepts develop, and the implications of scientific research for society.

K. Understand, Use, and Investigate a Field of Science
Understand, use, and investigate essential concepts, principles, diseases, relationships, and organizational principles in a field of science, exhibiting specialized scientific competency.

L. Visual and Performing Arts
A. Understand Elements, Principles, and Processes in the Arts
Understand the ways in which artists use elements, materials, technology, the creative process, and organizational principles in similar and distinctive ways in various art forms or disciplines.

B. Interpret Art from Various Cultures and Historical Perspectives
Interpret works of art from various historical periods, cultures, and people, analyzing the contexts in which they were created, the characteristics of the works, and the range of possible interpretations.

C. Understand the Role of the Arts in Society
Understand the role the arts play in society and the ways in which the arts empower people to create works that manifest their beliefs, social relationships, values, and skills.

D. Exhibit Skills in One Discipline of the Arts
Theater, Visual Arts, Music, Dance
display skill and understanding in at least one area of the arts, defining and responding to artistic problems with insight, technical ability, and creativity.

E. Analyze and Critique Artistic Works
Analyze and evaluate works of art and performances from functional and structural/perceptual perspectives, using definable criteria and communicating effectively through writing, speaking, and expressive media.

F. Use Geographic Information
Know and use geographic information, concepts, and skills to understand and analyze historical, social, economic, political, cultural, and environmental issues.

G. Understand Patterns of Human History
Examine knowledge of the chronological flow of human history, identify major themes of historical change in prehistoric through contemporary periods.

H. Understand United States History
Understand significant eras, concepts, people, events, and relationships in U.S. history, employ historical thinking and inquiry to understand events, issues, developments, relationships, and perspectives of history, and to interpret current trends and issues.

I. Understand Structures and Systems of U.S. Government
Understand the principles, purposes, structures, and functions of government in the United States, its philosophical bases and historical evolution, the structure of power, authority, and governance, the relationship of the states to the federal government, the Constitution and Bill of Rights, the dynamic of conflict and exchange in the American political system, the role and responsibilities of citizenship, and patterns of political participation in American politics. Compare other forms of government and political systems to those found in the United States.

J. Understand Economic Systems
Analyze the structure and functioning of various economic systems, their relationship to national and international politics, social, and geographic systems, and the conditions that influence the development of such systems.

K. Examine Aspects of Human Behavior
Examine dimensions of individual and group behavior and the effects of culture and ethnic diversity within and among societies, using information from the behavioral and social sciences.

L. Oral/Spoken Communication
Use spoken or sign language to communicate the content of your message to others and to comprehend the content of others' messages to you.

M. Writing
Compose general meanings and specific details contained in written texts or in AQA vocabularies.

N. Listening
Convey context through legible and comprehensible text.
Appendix B. PASS policy implementation 1993-2002 (4 pages)

The Proficiency-based Admission Standards System (PASS)
A Summary of Policy Implementation 1993-2002

Background
The Proficiency-based Admission Standards System (PASS) was established by the Oregon State Board of Higher Education in July 1993, in response to an agreement between the Board of Higher Education and Board of Education to clarify and define the relationship between the Certificates of Initial and Advanced Mastery (CIM and CAM) and college admission. Without such clarification, the two education systems would tend, over time, to be organized around different measures of learning - K-12 around standards and higher education admissions around grades and Carnegie units (seat time). PASS would provide a means for admitting students based on demonstrated proficiency, allowing students to move continuously through the education system based on their performance. Since 1993, the Board annually reviews in February the projected implementation of PASS as well as approves undergraduate admission policy for the next calendar year.

Principles Guiding Development of PASS
Throughout the subsequent period of PASS development and initial implementation, the Oregon University System (OUS) has been guided by three principles: (1) OUS has a legislative mandate to develop and implement PASS; (2) the State Board of Higher Education annually reviews admission policy and projects the schedule for full PASS implementation; and (3) OUS continues to work with Oregon schools, OUS campuses, and ODE on the transition to PASS, and is responsive to changes in K-12 policy and the implementation of school reform.

In keeping with these principles, and previous policy and practice, the Chancellor's Office staff reviewed the K-12 system's capacity to successfully implement CIM, CAM, and PASS assessments by fall 2005. It was determined that the following support systems require further development as Oregon high schools transition to PASS in a manner that benefits their students: (1) integration of assessments required for CIM and PASS and those being developed for CAM into one system; (2) development of a statewide mechanism for transferring student data from K-12 to college admissions offices; and (3) development of the capacity of high school teachers, counselors, and related personnel to implement a proficiency-based system. In January 2002, the Joint Boards of Education directed staff to make progress on the first two by June 2003. In addition, from December 2001 to March 2002, the Board of Education modified high school graduation requirements and defined the CAM. These changes suggested that OUS should continue development of PASS and an aligned K-16 standards system while allowing high schools time to transition.

The framework of PASS standards and assessments has been developed in six content areas. Beginning in fall 2001, OUS admission policy gave students the option to submit English, math, and second language proficiency information in their application. By fall 2005, this option will be expanded to all content areas and students will be expected to meet as many PASS standards as
possible as part of the Board of Education's newly defined education plan that is required for graduation. Campus admissions officers and faculty will consider how this information might be used for admission as well as for class placement and as part of the information that goes into scholarship decisions. The long-term objective is for PASS to gradually transition from this "proficiency advantage" strategy into the required method of admission as information indicates the readiness of the K-16 system to support it.

The principles guiding PASS development and implementation are further elaborated below. (A brief chronology of related policy actions from 1992 through the present is attached.)

1. **The Oregon University System has a legislative mandate to develop and implement PASS.**

   Senate Bill 919, sponsored by the Senate Committee on Education and approved by the 1997 Oregon Legislative Assembly, directed the State Board of Higher Education to continue development and implementation of strategies to improve and extend educational services and accountability in six areas.

   One of these six areas is PASS, specifically SB 919 Section 1, (2) states: *Continue development of a proficiency-based admission standards system that aligns with school reform requirements for kindergarten through grade 12 under ORS chapter 329 in order to improve student performance and better articulate expectations for student learning among the educational sectors.* On March 20, 2001, the Chancellor's Office presented a progress report to the Oregon Legislative Assembly that included work on PASS.

2. **The State Board of Higher Education annually reviews admission policy and projects the schedule for full PASS implementation.**

   It is the Board's policy to approve undergraduate admission requirements for each academic year in February of the preceding calendar year. This schedule is necessary for institutional planning, program implementation, publications, and timely notice to prospective students.

   At its February 15, 2002 meeting, the Board approved the admission policy for the 2003-04 academic year. A policy option allows applicants to submit evidence of PASS proficiency as determined by specified scores on state tests, on approved national tests, or through the PASS Teacher Verification process. Board members accepted the following staff recommendations: (1) that the 2001-02 general admission policy be continued as updated for the 2003-04 academic year; and (2) that staff continue to work with Oregon schools, OUS campuses, and the Oregon Department of Education on the transition from the traditional admission policy to the proficiency-based admission standards system. <http://www.ous.edu/board/minutes.htm>

3. **OUS continues to work with Oregon schools, OUS campuses, and Oregon Department of Education (ODE) on the transition to PASS, and is responsive to changes in K-12 policy and the implementation of school reform.**

   During the fall of 1993, PASS involved high school teachers and higher education faculty in the process of developing the proficiency standards, which were presented to the Board in January 1994. After additional input and review from OUS faculty and public school educators, the Board at its May 1994 meeting, endorsed the proficiencies as the basis for future admission to
OUS institutions. Subsequent revisions of the PASS proficiency standards and the development of criteria for assessment have involved hundreds of OUS faculty, community college faculty, and high school teachers.

Annual reviews ensure that the PASS standards and assessments maintain alignment with both OUS admission and changes in the implementation of CIM and CAM. Timelines have been revised annually in response to progress in the K-12 system. Current OUS policy indicates that OUS seeks to align its admission processes with changes that are occurring within Oregon high schools. Assuming that the requirements of school reform legislation are being met by the majority of Oregon high schools, an increasing number of students will be receiving CIMs and will be able to demonstrate the ability to function at higher academic levels.

On March 21, 2002, the Board of Education defined the CAM and modified graduation requirements. Following past practice, OUS staff examined how PASS implementation should reflect this latest development in school reform. Input on readiness for implementation was gathered from practitioners during ten regional forums held in 8 locations around the state with 320 people attending. Attendees from 36 districts, 77 high schools, and 5 middle schools expressed support for students developing proficiency but indicated severe teacher and counselor workload issues likely to impact implementation. For example, the lack of integrated data systems, partially integrated assessment systems, and an insufficient level of professional development would not support full implementation of PASS by 2005.

The change in graduation requirements mandates that each student have an education plan and profile in preparation for “next steps.” Working with the ODE assessment staff and Board of Education members, OUS staff further connected proficiency for college entry with standards that students would meet as part of the CIM or CAM. The result is a preliminary draft of a “Standards Profile” that high school graduates might present to employers and admission officers.

The transfer of data in this profile depends on the continued development of the Oregon Student Record by ODE. Simply stated, high schools need a system to transfer student proficiency data from the high school to the community college or university admissions office. Data that are not transferable must be “hand entered” by teachers and admissions officers. In this last round of budget cuts, the ODE funds designated for the further development of data systems were severely cut and the Oregon Student Record was not funded. Further budget cuts over the last few months have severely reduced or eliminated districts’ professional development funds for building the capacity of teachers and counselors to fully integrate CIM, CAM, PASS, and the education plan and profile into their schools on the existing timeline.

OUS staff, along with our colleagues in ODE, are determined to move ahead with the vision of school improvement to which Oregon has been committed for over a decade. At the same time, timelines for implementation will be balanced with realistic strategies that staff believe will work in Oregon’s high schools given their current budgetary circumstances.

Office of Academic Affairs/IOUS
June 21, 2002
Chronology of Policy Actions 1992 to 2002

February 1992 — Oregon State Board of Higher Education identifies the need to respond to the Oregon Education Act for the 21st Century (HB 3565).

February 1993 — Board of Higher Education approves policy creating proficiency-based admission connected to K-12 school reform.

Annually — Board of Higher Education approves admission policy for the next academic year and reviews status of PASS implementation in light of progress in state standards and assessments.

February 1994 — Board of Higher Education concurs that the development and implementation of PASS must be aligned with anticipated changes in high school curriculum and assessment related to the implementation of Certificates of Initial and Advanced Mastery (CIM and CAM).

July 1995 — Passage of SB 2091 by the state legislature requires that OUS establish standards and assessments benchmarked at grades 3, 5, 8, and 10 in six content areas. OUS begins alignment of emerging K-12 standards and assessments with PASS.

February 1995 and 1997 — Changes in the CIM and CAM implementation timelines are reflected in changes in expected implementation dates for PASS.

February 1997 — OUS policy language on projected implementation refers to PASS as being “expected” rather than “required” of all Oregon residents graduating from a public high school who wish to enter an OUS institution.

July 1997 — Passage of SB 919 requires OUS to continue with PASS and ensure alignment with K-12 school reform to articulate expectations for student learning between the education sectors.

March 1998 — Board of Education adopts standards, benchmarked at grades 3, 5, 8, 10, and PASS, making Oregon the first state to formally adopt standards aligning K-12 with college admission.

June 2001 — Passage of SB 180 by the state legislature changes the second language requirement from two years of seat time for all high school graduates to district-determined proficiency levels for all CIM recipients.

December 2001-March 2002 — Board of Education changes high school graduation requirements so that each student has an education plan for “next steps,” a profile of proficient performance, an extended application of knowledge and skills, and evidence of career-related learning. CAM is defined and connected with some of the CIM assessments in six content areas. In response to these policy changes, OUS begins working with ODE on the next phase of integrating college admission with K-12 reform. This integration includes a review of the status of student data transfer systems, assessment options, and high school teacher and counselor capacity.

January 2002 — A Joint Boards’ resolution directs ODE and OUS staff to (1) form a K-16 Technology Implementation Group charged with developing and implementing by June 1, 2003, the plan for a student data transfer mechanism; and (2) by June 1, 2002, complete the development of an integrated assessment system for CIM, CAM, PREP, and PASS.

February 2002 — Board of Higher Education approves undergraduate admission policy for 2003-04 academic year and projected admission policy through 2004-05 academic year. Current admission policy for OUS describes options for students to use PASS to meet certain subject-area requirements in fall 2001. All Oregon applicants are expected to include evidence of proficiency beginning fall 2005.

June 4, 2002 — Stan Hunn, Superintendent of Public Instruction; Clark Brody, Deputy Superintendent, ODE; Terri Johanson, Assistant Commissioner, Department of Community Colleges and Workforce Development; and Christine Tell, Director, PASS, appear before the House Education Committee. They describe the commitment of OUS and ODE to the implementation of CIM, CAM, and PASS and the challenges to be overcome in order to succeed.
Appendix C. List of PASS group high school and high school options for selecting comparison group students

<table>
<thead>
<tr>
<th>PASS Group Student Network High School</th>
<th>2001 PASS Match 1 with enrollment as criteria</th>
<th>High School Match 2 with enrollment as criteria</th>
<th>High School Match 3 without enrollment as criteria</th>
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Appendix D. The Oregon Diploma Essential Skills

1. Read and comprehend a variety of text* at different levels of difficulty
   *Text includes but is not limited to all forms of written material, communications, media, and other representations in words, numbers, and graphics and visual displays using traditional and technological formats
   - Demonstrate the ability to read and understand text.
   - Summarize and critically analyze key points of text, events, issues, phenomena or problems, distinguishing factual from non-factual and literal from inferential elements.
   - Follow instructions from informational or technical text to perform a task, answer questions, and solve problems.

2. Write clearly and accurately
   - Adapt writing to different audiences, purposes, and contexts in a variety of formats and media, using appropriate technology.
   - Develop organized, well-reasoned, supported, and focused arguments.
   - Use appropriate conventions to write clearly and coherently, including correct use of grammar, punctuation, capitalization, spelling, sentence construction, and formatting.

3. Listen actively and speak clearly and coherently
   - Listen actively to understand verbal and non-verbal communication.
   - Give and follow spoken instructions to perform a task, ask and answer questions, and solve problems.
   - Use appropriate language and non-verbal techniques to present or discuss ideas clearly, effectively, and coherently.

4. Apply mathematics in a variety of settings
   - Interpret a situation and apply workable mathematical concepts and strategies, using appropriate technologies where applicable.
   - Produce evidence, such as graphs, data, or mathematical models, to obtain and verify a solution.
   - Communicate and defend the verified process and solution, using pictures, symbols, models, narrative or other methods.

5. Think critically and analytically across disciplines
   - Identify and explain the key elements of a complex event, text*, issue, problem or phenomenon.
   - Develop a method to explore the interdependency of the key elements of a complex event, text*, issue, problem or phenomenon.
   - Gather, question and evaluate the quality of information from multiple primary and secondary sources.
   - Propose defensible conclusions that address multiple and diverse perspectives.
   - Evaluate the strength of conclusions, differentiating reasoning based on facts from reasoning based on opinions.

6. Use technology to learn, live, and work
   - Use creativity and innovation to generate ideas, products, or processes using current technology.
   - Use technology to participate in a broader community through networking, collaboration and learning.
   - Recognize and practice legal and responsible behavior in the use and access of information and technology.
   - Use technology as a tool to access, research, manage, integrate, and communicate ideas and information.

7. Demonstrate civic and community engagement
   - Demonstrate civic virtues such as concern for the rights and welfare of all people, social responsibility, tolerance and respect, and belief in the capacity to make a positive difference.
• Apply knowledge of (local, state and national) history and government processes to current social and political issues.
• Demonstrate an understanding and awareness of public and community issues through research, critical thinking and dialogue among people with different perspectives.
• Participate in their communities through service with organizations or groups working to address an array of cultural, social, environmental or political interests and beliefs.
• Apply the skills, knowledge and commitment needed for political action to accomplish public purposes, such as voting, monitoring government policies and actions, redress of grievances, consensus building, valuing compromises, petitioning and voicing opinions.

8. Demonstrate global literacy
• Evaluate local, state, national or international issues (such as global power, resources and opportunity distribution, world history, and physical geography and economic, political, environmental and cultural systems) in the context of globalization and interdependence among nations.
• Demonstrate understanding of diverse cultural, linguistic and artistic expressions to open opportunities for understanding, future jobs, and collaboration within a global community.
• Apply multiple socioeconomics and cultural perspectives in order to learn from and work collaboratively with diverse cultures, religions, and ways of life in a spirit of mutual respect.

Proposed: Merge the overlapping Career-Related Learning Standards (CRLS) and add the following as an Essential Skill:

9. Demonstrate personal management and teamwork skills
Learn and contribute productively as an individual and as a member of a group.
• Participate productively in collaborative work teams to solve problems and perform tasks.
• Identify tasks that need to be done and initiate actions to complete the tasks.
• Plan, organize, and complete projects and assigned tasks on time, meeting agreed upon standards of quality.
• Exhibit appropriate work ethic and behaviors.

Essential Skills in HS Diploma: Questions for Faculty

• New HS diploma will require
  1. More courses: English, Math, Science
  2. Mastery of Essential Skills

• Faculty input sought:
  1. How should each Essential skill be assessed?
  2. Should results be used for more than HS graduation? (e.g. automatic college/university admission, scholarships, placement in some courses)

• For each of the Essential Skills, which of the following kinds of assessments do you think should be used?
  1. SAT, ACT or other national test
  2. Statewide test, scored by third party
  3. Work samples (portfolios) scored by local teachers or schools

Please respond with your thoughts to any of the following:

Karen Sprague (ksp@uoregon.edu)
Bob Turner (Bob_Turner@ous.edu)
Connie Green (Connie.Green@eastoregon.edu)