CHAPTER 2

Review of the Literature

Enhanced student retention has become a common goal of many institutions. The experience of less than satisfactory enrollment growth and subsequent reduced financial resources has obliged some institutions to better appreciate the benefits of retaining as many students as possible. Through the most recent 30 years, the growing acceptance of student retention’s importance is clearly reflected by the volume of related research and expanded institutional retention efforts. Research has sought to better understand the college student population and conditions that influence the persistence/departure process.

As a result of extensive institutional research, many higher education leaders are well aware of the possible factors, which may influence student outcomes across campuses. Evidence of higher completion rates at highly selective and often more homogeneous institutions has generally established that past academic performance is associated with degree completion (ACT, 1992, 1998; Adelman, 1999; Astin, 1993). Adelman (1999) determined that along with academic performance (high school grade point average), students’ preparation through four years of math and science as well as foreign languages were powerful factors associated with degree attainment.

Less than satisfactory institutional retention has been, in part, attributed to concerns that institutions have become less selective about the students they admit. The majority of high school seniors aspire to attain a bachelor’s degree and national policy encourages even more students to enroll or return to higher education (Gray, 1997; NCES, 1996). Aspiring students, however, are not always prepared for the demands of
college. Astin, Parrott, Korn, and Sax (1997) indicate, “grade inflation has apparently caused freshmen to be more optimistic about their academic prospects in college” (p. 16). They also report more freshmen now aspire to attain postgraduate degrees than in previous decades. Yet, more freshmen exhibit signs of academic disengagement. Since 1987, entering freshman report a significant decrease in hours dedicated to study during high school. These same high school students enter college with higher levels of academic confidence (Sax, Astin, Korn, & Mahoney, 1999). Aspirations or confidence not withstanding, it remains that only 25% of high school students and 33% of high school graduates ever earn a bachelor’s degree (NCES, 1997a).

Studies have found important changes in today’s college student populations. A broader demographic range of students has entered postsecondary education over the past 30 years than ever enrolled. Many more students can be categorized as Minimally, Moderately, and Highly nontraditional (NPSAS, 1999a). Research also demonstrates that certain characteristics not generally found among traditional students are associated negatively with persistence and degree completion (NCES, 1997a; NPSAS, 1999a). Characteristics of traditional students are more highly associated with continuous enrollment and on time (within four years) graduation, while students with nontraditional characteristics exhibit reduced course loads, increased stopout behavior, more off-campus employment, and lower persistent rates.

Institution Research

The subject of persistence has been studied extensively. Pascarella and Terenzini (1991) indicate “the volume of literature directly or indirectly addressing this [student persistence] area of inquiry the last twenty years is extensive to the point of being
unmanageable” (p. 387). Still, commentators (Dennis, 1998; Levine & Cureton, 1998a; Tinto, 1993; Upcraft & Gardner, 1989) justify the need for additional institutional specific assessment because unique institutional characteristics affect local persistence outcomes. Zaccaria and Creaser (1971) reporting on persistence at an urban commuter university stated,

> Studies and reviews of the literature concerned with the attrition of college students . . . have noted the great variability (12 percent to 82 percent) in attrition rates from one institution to another. These findings emphasize the need to confine conclusions regarding educational outcomes to student behavior within a particular environmental setting. (p. 286)

Additionally, Tinto (1993) stressed, “Despite the wealth of data which may be obtained from the experience of other institutions, each institution must ascertain for itself the particular attributes of its own situation” (p. 228). He also alerts institutions to the danger of universally applying retention studies, “Unfortunately, most discussions of student retention have implicitly assumed that institutions are largely uniform in character and in mission and that the forms of their actions are or should be largely similar” (p. 153). Within their works, Tinto (1993), Hossler and Bean (1990), and Dennis (1998), stress institutional assessment as the most important step in effective institutional retention efforts. As being proposed here, an institution specific study has the potential not only to add to the persistence and student development knowledge base, but the result of this assessment can also provide data essential to guide the institution’s leadership in establishing enrollment management policy.

Dennis (1998) echoed the frustration of other higher education administrators when she wrote, “no one knows, with absolute certainty, what makes a student enroll at a particular college or university or why that same student may decide to leave the school”
Adelman (1999), Astin (1977, 1993), and Pascarella and Terenzini (1991) acknowledged that ability, academic background, and individual student commitment play an important role in student outcomes. Spady (1970, 1971) and Tinto (1975, 1993) theorized that student interaction with the institutional environment (academic and social integration) impact student departure decisions. Bean (1980, 1982a, 1982b) and Bean and Metzner (1985), determined that off campus environmental circumstances and a range of nontraditional traits influence students’ persistence to complete a degree program. Institutional match and person-role fit as noted by Summerskill (1962) and Rootman (1972) is the synergy between an institution and an individual that plays the pivotal role in departure decisions. Dennis (1998) and her contemporaries make it clear that each institution must understand local circumstances if leaders hope to influence student persistence.

Student Selection and Orientation

Student bodies were substantially homogeneous during the earlier periods of American College growth. Students planning futures in the clergy or the several professions, or the gentlemen class dominated college enrollment until the late 19th Century. Further, an institution’s sectarian message was generally its founding and primary mission. Entrants were typically the age of secondary school sophomores, juniors, and seniors of the 20th Century. Until the public and private university system began to overshadow private denominational colleges near the end of the 19th Century, student retention was an institutional, not a national or even regional issue. Each student’s continued enrollment was as much related to conformity as any other consideration. Traditionally minded adherents to the 1828 Yale Report sought to maintain
uniformity of the dominant beliefs of western civilization through a [classical] curricula. Adherence to a denominational college’s philosophies was as much the basis for academic success, and therefore degree completion, as was scholarship (Brubacher & Rudy, 1997). As an outcome of multiple influences, this once dominant pedagogy in higher education evolved. “As late as 1879, G. Stanley Hall estimated that of the more than three hundred colleges then in existence in the United States, all but a score were still under the control of people who believed in mental discipline” (Brubacher & Rudy, 1997, p. 110).

There are two well-recognized approaches that have been relied upon by many institutions of higher education to affect student persistence toward graduation: (a) student selection, and (b) freshman orientation. The older and most often utilized has been student selection based upon institutionally developed criteria. Harvard established selective entrance requirements by 1650 as President Chauncey orally quizzed prospects in Latin and Greek. Chauncey personally authorized matriculation with a handshake as each student prepared a handwritten copy of institutional rules (Morison, 1936). To insure academically prepared applicants, King’s College established its own grammar school, which qualified students as future undergraduates in 1685 (Brubacher & Rudy, 1997). Since these colonial times, there has been considerable diversity in the way students were prepared for college. Articulation between secondary and higher education has always been a subject of debate. Student admissions, however, did not attain a degree of professional discussion until the end of the 19th Century.

It is well documented that highly select institutions retain and graduate a higher percentage of students within fewer years than less selective institutions. In fact, as
selectivity decreases, as measured by entering student standardized test scores along with secondary school background and performance, persistence and graduation rates also decline (ACT, 1992, 1998; Adelman, 1999; Astin, 1977, 1993; Tinto, 1993). The tendency has been to view this association between completion and selection as evidence of a causal relationship between students’ potential and degree completion (Copeland, 1991). Postsecondary institutions with selective admissions policies have a history of reaching out to their new students, not only through academics, but also in other ways that draw students closer to the institution’s values, culture, and tradition through orientation. For example, wearing beanies encouraged identification with one’s freshmen classmates. Further, participation in rituals and membership in campus organizations was an activity believed to develop cohesion among students.

The second approach utilized by institutions to affect persistence appears in the various forms of new student orientation. Throughout the 19th Century, upperclassmen had been expected to assume some responsibility in the orientation and protection of their younger brethren. Shortly after his inauguration in 1876, President Gilman at Johns Hopkins discarded this informal approach. Gilman recognized the need to guide its new 54 graduate and 35 undergraduates when he organized what is considered the first formal faculty-advising blueprint in 1877 (Brubacher & Rudy, 1997). Harvard University, under President Elliot, created the Board of Freshman Advisors to facilitate freshman assimilation in 1888, and President Lowell proposed segregating freshman into dormitories for a similar purpose in 1909.

Different orientation forms have evolved over time. On some campuses, orientation has taken the form of a one-day event, while on others it may consist of
weeklong pre-enrollment campus visitations. Often found at homogeneous private colleges, extended orientation programs may involve extensive class level bonding through freshman retreats, weekend tours, and off-campus mixers. New classmates participating with one another in a faculty-organized activity is an example of such interventions.

Another iteration of extended orientation comes in the form of the course or seminar. The first recorded orientation course was offered at Boston College in 1888 (Dwyer, 1989). In 1900, the University of Michigan required all freshman engineer students to receive orientation lectures that consisted of an orientation to the rules, history, and architecture of their campus. This orientation also included career content similar to present day First Year Experience (FYE) material. The first orientation course offered for credit was at Reed College in 1911 (Gordon, 1989). In the four decades following Reed, such courses became popular. Although the content of orientation courses probably varied and may have differed substantially from current FYE content, in 1948, Bookman found that 43% of all institutions offered an orientation course. By the mid-1960s however, the orientation course approach was nearly obsolete (Drake, 1966). Retention may have become a minor issue for many institutions whose enrollment bulged. Cultural changes, student rights issues, and political factors influenced campus climates during the 1960s. A diminished in loco parentis role throughout higher education may have also contributed to less emphasis on student orientation.

The University 101 course model developed at the University of South Carolina in 1972 initiated the current orientation course rejuvenation (Barefoot & Fidler, 1996). Academic performance and retention of freshman completing University 101 has been
evaluated throughout these past three decades (Fidler, 1991; Fidler & Hunter, 1989; Fidler & Moore, 1996; Gordon, 1992; Moore, 1994; and Shanley & Witten, 1989). These studies suggest some success in both improving student persistence and academic achievement, particularly for marginal (less select) students.

One form or another of each of these orientation approaches exists in its different iterations across nearly all institutions of higher education currently (Barefoot & Fidler, 1996). It is because each institution grapples with retention in its own unique way that each institution must examine the results of the approach it has chosen (Dennis, 1998). Each institution needs to assess this result not only from the standpoint of achieving (or maintaining) fiscal and academic soundness, but also from the standpoint of students’ educational outcomes (Smart, 1994; Tinto, 1993).

Curricular and Student Body Changes

Benjamin Franklin proposed a practical education when he established the Franklin Institute (later the University of Pennsylvania) in 1749. In support of a classical education of the whole man, the 1828 Yale Report on higher education continued to breathe life into the classical curricula and faculty psychology pedagogy in established institutions throughout the 19th Century. The practical (applied) college curricula was temporarily thwarted, but not purged. New York’s Rensslelear Technical Institute, established in 1824, along other technically oriented schools, continued to proliferate between 1820 and 1850. In the 1840s, Union College created a civil engineering school, while Harvard and Yale, through foundation support, respectively attached the non-degree granting Lawrence and Sheffield Science Schools. Schools that trained physicians
and attorneys remained separate from higher education institution into the 20th Century (Brubacher & Rudy, 1997).

American industrialization took advantage of the Morrill Act following the Civil War. Passed by Congress in 1862, this Act slowly began to expand higher education opportunities. The initial, and a second Morrill Act passed in 1890, promoted the growth nationally of agricultural and mechanical postsecondary education that attracted students pursuing specialized career objectives. Federal support for postsecondary education was acceptable under an umbrella to dispense knowledge to the general public and provide expertise for the nation’s general welfare. Increasing enrollment by students with an ever-widening range of backgrounds, preparation, and goals had been challenged by some higher education faculty, politicians, and commentators. Philosophical differences continued from those who would limit educational attainment to the intellectually worthy. Higher learning should be restricted to those who could benefit from mental discipline (Brubacher & Rudy, 1997).

The 1918 finding of the National Education Association’s secondary school administrator dominated Committee of Ten, however, placed the Yale Report in the archive. This Committee expressed the view that higher education should not be limited to any select individuals or groups. The Committee wrote, “higher institutions of learning . . . are under a similar obligation . . . to those whose needs are no longer met by the secondary school and are disposed to continue their education beyond that point” (NEA, 1918, p. 20). In 1926, the Washington State Supreme Court indicated “that it is the public policy of the state that a college education should be had, if possible, by all its citizens” (Esteb v. Esteb, 138 Wash 174, p. 177).
The President’s Commission on Higher Education in 1947 also provided support for expansion and increased democratization in American higher education. This Commission appeared intent to promote equal access to all forms of education. In doing so, the Commission found a basis to dispel intellectual elitism in higher education curricula and enrollment. Pressures from pragmatic progressives, education consumers, and employers in commerce may have influenced the Commission’s finding that nearly half of college age youth possessed college aptitude. The Commission based its projection on the results of the Army General Classification Test completed by almost 10,000,000 Army inductees during World War II. They wrote,

1. At least 49 percent of our population has the mental ability to complete 14 years of schooling, and 2. At least 32 percent of our population has the mental ability to complete an advanced liberal or specialized professional education. (President’s Commission, 1947, p. 41)

The Carnegie Open Door Colleges Report of the Commission on Higher Education (1970) further promoted continued open admission among postsecondary institutions, particularly in public four-year institutions. This Report influenced expansion of public two-year community colleges nationally and promoted greater access to public four-year colleges. In 1994 however, only 26% of high school graduates obtained a bachelors and 11% an associate degree. Thirteen percent were continuing work on a degree (NCES, 1997a). These numbers are short of the 1947 Commissions projections even though access of previously under represented groups has increased (Berkner & Chavez, 1997; McCormick, 1997).

Since 1947, however, institutions expanded programs and opportunities to pursue postsecondary education increased for many more Americans. Changing roles of college
curricula continued to spawn debates between academic traditionalists and the pragmatic demands of an increasingly influential commercial ideology in an evolving political economy. The outcome of such discussions within each institution helped create the kind of learning environments, which ultimately impact each institution’s retention through direct contact with student and its public image. According to Kamens (1971), an institution’s public image influences the types of students who seek admission and impacts students’ willingness and commitment to remain associated with that institution.

Brubacher and Rudy (1997) suggest that the added role thrust upon higher education by increased numbers seeking marketable employment skills challenged assumptions upon which American higher education’s early development had been established. Higher education has and will continue to play a role in, “generally distributing or allocating places in the occupational and social structure” (Brubacher & Rudy, 1997, p. 261). Industrialization, with its increased reliance on technology, and specialization in academic and scientific fields eroded the mental discipline pedagogy. Students who often found subjects not relevant to their interests encountered more success in the expanding specialized curricula of engineering, in the sciences, and elective course work first promulgated by Harvard’s Elliot.

Student selection remains controversial. There are those in higher education not sharing either the 1947 President’s Commission’s view or greater access to higher education for a wider range of Americans proposed by the Carnegie’s Report. Regardless of institutional mission or faculty attitudes concerning student access, many more young Americans aspire toward a college degree for upward economic mobility,
self-validation, or family expectations following the publication of these reports (Bracey, 1996).

Often, it was believed, less select students had little interest in education for the sake of intellectual development, but were more interested in training for a career. The more classically minded faculty expressed concern over the dilution of the core curriculum by one demanded by a commercial, industrial, and scientifically based economy. Alternatively, the faculty of many state universities accepting less select applicants or their own state’s high school graduates, “flunked their freshman unmercifully when they failed to meet traditional standards” (Brubacher & Rudy, 1997, p. 259). It was the smaller, private colleges, such as Reed, that did not promote specialized departments where educational leaders may first have recognized the need for student develop and its influence on retention.

In another Carnegie Commission on Higher Education study however, Taubman and Wales (1972) found that quality had not declined. On the contrary, academic preparation had actually increased between 1925 and 1961. Berliner and Biddle (1996) admit that college entrance tests have fallen slightly since 1941. However, they wrote that public schools have accomplished a remarkable feat in student preparation for higher education. Schools have not only addressed the educational needs of a growing diverse population, but have demonstrated significant increases in standardized achievement measures across the population.

In another study sponsored by the Carnegie Commission (Withey, Stephen, & Coble, 1972), a comparison between youth who attended and did not attend a postsecondary institution found that minimal college attendance lead to increased
awareness of cultural and national issues, open-minded attitudes, aesthetic values, and a wide range of positive personal behaviors. This study suggests societal benefits generally far beyond career skill acquisition or scholarship. Regardless of contentious philosophical and curricular differences, the issue of persistence continues to draw national as well as institutional attention (Adelman, 1999; Belcheir, 1997; Tinto, 1999).

When fewer Americans earn college degrees, substantial psychological, occupational, and economic consequences on individuals as well as society may result (Leslie & Brinkman, 1988). NCES’s Condition of Education reports (1996, 1997a, 1999b, & 1999c) indicate that college degrees are associated with better access to employment and higher earnings. For example, in 1997 males whose highest educational level was a bachelor’s degree or higher earned 52% more than males possessing a high school diploma. Of even greater significance is this statistic for females. In 1997, bachelor’s degree holding females earned 91% more than females with high school diplomas. For men and women respectively in 1998, the median annual income was $51,405 and $36,559 for full time workers with a bachelor’s degree compared to $31,447 and $22,780 for high school graduates (NCES, 1999a & 1999b). Additionally, between 1990 and 1996, the inflation adjusted annual income of men with four or more years of college increased by one percent compared to a five percent decline for men who had only completed high school.

Individual student background and demographic factors have been found to play a role in prolonging an individual’s tenure as a student (Adelman, 1999; Astin, Tusi, & Avalos, 1996; Belcheir, 1998). Part-time attendance and stopout behavior, more prevalent among minorities and female students (Sandler, Silverberg, & Hall, 1996) add
to student completion dilemmas. Bean and Metzner (1985) and Levine and Cureton (1998b) also found many more students must deal with external circumstances which inhibit traditional, often more intrinsically rewarding attendance patterns. Students of the 1980s and 1990s are working longer hours to offset the rising cost of tuition, are stopping out and attending part-time, and more students must allow extra time for remediation.

In light of individual, institutional, and environmental factors, some public postsecondary institutions have a growing concern for studying and understanding these areas in the hope of improving their retention and graduation rates. According to Barefoot and Fidler’s National survey (1996), over 700 institutions provide First Year Experience type courses to assist entering students make a transition to their campus. Evaluations of these programs have documented some improvement in student academic performance and persistence to graduation for several student groups (Broudreau & Kromey, 1994; Cartledge & Walls, 1986; Farr, Jones, & Samprone, 1986; Fidler & Hunter, 1989; Fidler & Godwin, 1994; Potter & McNairy, 1983; Shanley & Witten, 1989; Von Frank, 1986). Nonetheless, expenditure of scarce resources must always be evaluated in light of competing institutional as well as state-wide demands and the use of limited resources must find justification through continuous assessment of outcomes. In the main, it is the financial side of institutional management, which drives student retention efforts and in the form we examine here, subject-based First Year Experience courses.

The following sections will review the development of retention research and studies related to the general departure model and related concepts. This section will also examine research on the models, student traits as well as institutional and environmental
factors that have been studied in relation to student persistence. In addition, nontraditional student characteristics that have been associated with student persistence will be reviewed. Research on the development of First Year Experience courses and the subject-based approach in particular is another focus of this section.

Retention Research

Summerskill’s (1962) literature review covered a wide spectrum within its nearly 200 retention related studies spanning 1913 through 1960, but still determined that with so much at stake, research into student retention was fragmented and did not “deliver results of general value” (p. 627). Summerskill did find, however, evidence that the then popular conjecture which attributed departure to students’ academic difficulty was in fact, only the case for about one-third of four-year college students. Marks (1967) stimulated a new approach to attrition studies when he wrote that instead of departure being the result of students’ academic failure, there is “a sizeable proportion of college dropouts, around 60%, for whom the dropout process is considerably more complex and probably multiply caused” (p. 211).

Pantages and Creedon (1978) reviewed attrition studies from 1950 to 1975. They found research had determined a substantial basis for the notion of match or fit between student and institution with regard to departure decisions. They wrote, “The degree to which the attitudes and values of the students correspond with those of the institution is also the degree to which the student is likely to persist at that college” (Pantages and Creedon, 1978, p. 80).

Pantages and Creedon (1978) cautioned that the notion of pre-determining individuals solely on the basis of their fit could eliminate otherwise academically
qualified individuals. They also expressed concern regarding the cost in human capitol that in-depth personal investigations would entail. Consideration of all possible individual characteristics or personality variables would add so much complexity to any predictive model so as to restrict its practical applicability by practitioners. Still, regarding the roots of attrition, their review found research had substantiated several concepts that have found their way into institutional planning and departure prevention over the past quarter of this century.

Pantages and Creedon (1978) determined that many studies had concluded academic factors such as high school grade point average, class rank, and scholastic aptitude measures were the “most significant predictors of attrition” (p. 93). They noted, however, that separate research had uncovered equivocal results. For example, several studies found there were no significant differences in departure among students entering with different grade point averages or class ranks (Blanchfield, 1978; Rossman & Kirk, 1970) and once enrolled in an institution, higher achievement is not always associated with institutional retention. A proportion of students in the upper grade point average quartile large enough to draw the attention of many institutions, leave before degree completion. The departure of capable students is a concern for further consideration.

Tinto (1993) indicated that higher ability or achievement is not necessarily consistent with degree completion in the traditional four-year time frame. Tinto found that when involuntary dismissals were excluded, students who voluntarily leave often had higher grades as well as higher levels of intellectual development than those who remained. Such information drew some of Tinto’s attention toward a model that incorporated institutional environments and their influences.
Finally, Pantages and Creedon (1978) found a student’s parent education level to be significant, but not the primary factor in departure decisions. Their review found age, gender, size of hometown, and high school (Downey, 1978; Monk & Haller, 1993) was also discounted as major explanations of departure. They did suggest that the random quality and overall character of specific student populations (applicant pools) could be contributing factors. Although individual traits remain part of the persistence equation in present models, Pantages and Creedon suggested individual traits might be more useful as guidelines for proactive intervention.

Historically, recruitment was generally the role of specific practitioners who were held responsible for meeting number criterion. Litten (1980) suggested the role in marketing an institution should “Provide counseling on match between students and institutions early in [the] recruitment process” (p. 51). Hossler and Bean (1990), Dennis (1998), and other commentators including Tinto (1993) and Astin (1993) make the point that once on campus, the environment exerts a significant influence. Responsibility for retention, therefore, is defused throughout the entire institution encompassing faculty, staff, and institutional policy.

Hossler and Bean (1990) viewed student selection in admissions as more than academic potential alone. In their view, enrollment management (an integrated recruitment and retention process) should achieve the best possible match between student characteristics and their expectations and a college program initially. They suggested a process, which assesses student characteristics in conjunction with program outcomes as a vehicle to enhance persistence. Dennis’ (1998) approach to enrollment management further specifies a comprehensive campus-wide, top to bottom assessment
process. She indicates institutional research and self-assessment are key to improved outcomes. Each college should evaluate every dimension of its campus community to determine what the institution can best offer its prospective students. Colleges and universities must determine which functions the institution performs well through an assessment of the full range of student outcomes.

Dennis emphasized the importance of a well thought out secure, yet workable, user-friendly data warehousing system vital to an assessment effort. The foundation of institutional research revolves around data collection, accessibility, and a formative perspective toward improved student outcomes. Institutions, she insists, need continuous program and outcome assessment to ascertain what it is that they do well and to improve what in not meeting performance standards. All institutions should incorporate a coordinated campus-wide marketing effort to attract those prospective students who are motivated to acquire what that institution has to offer. She wrote that most of the 900 colleges that have merged or closed entirely since 1980 were forced to do so because “these schools were no longer able to offer their students the courses and programs demanded by the marketplace” (Dennis, 1998, p. 2).

**Departure Models**

Higher education researchers have sought some unifying model for student persistence since retention research began to proliferate. There is an important distinction between departure models. Institutional departure models suggest concepts that attempt to describe the variables that play some role in individual decision processes. Such a model may describe a highly idiosyncratic longitudinal process. A system departure model, however, provides normative data across higher education generally.
Tinto (1993) cautions that although student departure research has established “patterns of rates of departure among student populations generally” (p. 35), aggregate patterns from multi-institutional studies “cannot be used to study institutional departure” (p. 6). To this end, the focus of this section is on the evolution of a model that attempts to explain institutional rather than describe system-wide student departure. Tinto suggests that aggregate patterns “are of little use to either researchers or policy planners concerned with the character and roots of student departure from specific institutions” (p. 36).

In one explanation of institutional influence on student persistence Kamens (1971) explored the notion of institutional and student match. He reported evidence that argues that persistence could be explained by an institution’s size and social charter. According to this approach, prestigious institutions possess a power over students by virtue of their status-allocating roles. There is a negative association between the prestige of an institution and its student attrition such that higher prestige results in lower student departure.

According to Kamens, each institution is attractive due to its status-allocating role initially perceived by prospective students. Students may perceive they have more choices or prospects for access to vocations, professional and graduate schools, and important groups outside the institution once in attendance. Pantages and Creedon (1978) found support that congruence between a student’s educational or career goals and an institution’s orientation are significant factors in departure decisions. They wrote,

It is clear that students have different motivations for attending different types of institutions, and that these institutions pre-select their applicants through their public image. These facts suggest that different institutions attract specific types of students with specific personality characteristics. (p. 80)
Rootman (1972) asserted that voluntary departure is related to the goodness of person-role fit suggested by Summerskill (1962). Rootman theorized the existence of an interaction in which an individual’s departure decision results from an internal psychological state rather than characterized by institutional status or the social milieu. The degree of fit determines the individual’s internal stress level, and each student’s psychological ability to cope with that stress is a component of the departure decision process. Departure becomes an alternative defense mechanism for coping with the tension. Students’ perceive this process as exceedingly individualized. Institutional policy through personalized interventions and specific student services may ameliorate student stress. Informal interactions with faculty, staff, and classmates may also mediate departure decisions (Pascarella & Terenzini, 1980).

Spady (1970, 1971) provided the first fully developed model of student attrition. He based his conceptions upon Durkheim’s (1951) 19th Century work on the cultural aspects of suicide. Durkheim found individuals shared group values and found departure as the interaction between students and institutional variables. Through interactions, students experience a range of opportunities for successful assimilation into the social fabric of an institution. The degree of assimilation as a result of their interaction, play an influential part in departure decisions.

Spady suggested that individual student characteristics as well as their unique antecedent experiences and academic backgrounds interact with institutional factors to influence the departure decision process. Students’ subsequent departure decisions being largely the result of the degree to which students’ social-psychological needs are fulfilled.
by an campus environment. Spady argued that students depart when they do not share institutional values and there is an inadequate level of support that mediates conflicts between student perceptions of the institution’s values.

Tinto (1975) stressed the longitudinal nature of the attrition process and the need for an explanatory model. The model he developed was built upon Spady’s Durkheim analogy and focused on interactions as well as Rootman’s (1972) notion of fit. Like Spady, Tinto argued by analogy that students decide to withdraw from higher education for the same reasons individuals would decide to leave any other social sphere. In emphasizing the longitudinal nature of departure decisions and the importance of antecedent factors, Tinto conceptualized shared values into the concepts, academic integration, and normative support as social integration.

The core concepts of Tinto’s Student Integration Model are academic and social integration, “Given individual characteristics, prior experience, and commitments, . . . it is the individual’s integration into the academic and social systems of the college that most directly relates to his continuance in that college” (Tinto, 1975, p. 96). Academic integration has been operationalized as performance through a student’s grades, while social integration is often assessed through students’ association and activity levels with campus organizations and social groups.

Tinto’s model (1975, 1993) refined Spady’s concepts and was the first to be referred to in the literature as a comprehensive framework on persistence (see Figure 2). He developed a departure decision model that is based upon the degree of fit between the student and the environment of the institution. This model suggests that students arrive on campus with various background traits. These traits include an initial commitment to
Tinto’s (1975) Theoretical Model of College Withdrawal

FIGURE 2. A Longitudinal Model of Institutional Departure
earning a degree and an initial commitment to the specific institution in which they have enrolled. Background traits and initial commitment level influence how each student’s perception and how academic performance interacts with institutional components. These factors combine to influence how students become integrated into the institution’s academic and social systems. The greater the level of a student’s academic and social integration, the greater is the student’s subsequent commitment to graduation and to his or her institution. Higher commitment levels are viewed as having a positive relationship to persistence.

Tinto’s model also includes conceptual work by Hackman and Dysinger (1970) in which they determined a student’s educational goal and institutional commitment to higher education “may interact in determining persistence and withdrawal” (p. 321). Hackman and Dysinger distinguished (a) persisters, (b) transfers, (c) voluntary withdrawals, and (d) academic dismissal as four distinct departure categories that could be studied independently. Subsequent researchers, Pascarella and Terenzini (1978), further categorized voluntary departure on the basis of academic and nonacademic reasons and were able to link departure behavior with educational goal commitment.

Astin (1984) suggested the concept of involvement, operationalizing social and academic integration concepts as influences on learning outcomes that received attention in Tinto’s Leaving College, 2nd edition (1993). The first edition (1987) had added Van Gennep’s Rites of Passage (1960) stages (separation, transition, and incorporation) as part of the personal psychological dynamics involved in the decision process. Tinto (1988) utilized Van Gannep to suggest that attrition can occur when a student’s passage is
not complete. Students that do not develop sufficient levels of shared values with the institution, may transfer elsewhere in search of integration at another institution.

Bean’s Student Attrition Model (1980), like Tinto’s, is referred to as a comprehensive framework. Bean argued that student attrition is analogous to turnover in work organizations and stressed behavioral intentions (expressed intent to stay or leave) as the best predictors of future persistence behavior. Bean owes the model’s intellectual debt to models of organization turnover (Price, 1972) and attitude-behavior interactions (Bentler & Speckart, 1979).

The Attrition model acknowledges the capacity of an institution, as well as other environments, to impact the departure decision process through social interaction. Like Tinto’s, Bean’s model reflects a perspective that emphasizes individual perceptions of the social milieu. Student experiences and relationships affect their beliefs. These beliefs, however, may be shaped within the institution as well as by an off-campus environment. In turn, beliefs shape student attitudes about the institution, which influence the decision.

Another aspect in Bean’s conceptual model implies that family, employment, or other commitments that are external to the campus community may be less subject to institutional influence. Off-campus environmental (external factors) influences may provide support alternatives and shape student values and beliefs regarding on-campus involvement. The support received alternatively through extra-institutional mechanisms may have a substantial influence on nontraditional students. External sources of support functions in much the same way as social integration does on traditional entrants (Bean & Metzner, 1985).
One finds Bean’s (1986) and Tinto’s (1975) institutional models are substantially compatible. Subsequently, Tinto’s 1993 model has included off-campus environmental influences as an additional consideration (see Figure 3). There is also agreement that both models are institutional specific, that is, neither is a model for general use across all institutions. Bean (1986) stated that due to institutional and student heterogeneity, “a single model of attrition will tend to work poorly in explaining the dropout process for individual students at particular institutions” (p. 49). This again argues for institutional specific assessments and the development of a weighted departure model specific for individual institutions. In support of institution specific assessment, Gillespie and Noble’s (1992) ACT sponsored multi-institutional study also found a “large reduction in prediction accuracy” (pp. 2-3) for their model when a cross-validation analysis was used for individual institutions.

There is an extensive body of research on persistence in higher education. These models are valuable guides in the assessment of institutional departure and are frequently used as a basis for conceptualizing institution specific research (Cabrera & Castaneda, 1993; Munro, 1981; Pascarella & Chapman, 1983; Pascarella, Duby, & Iverson, 1993; Pascarella & Terrezini, 1991; Pascarella & Wolfe, 1985; Tinto, 1999).

**Departure/Persistence Research**

A great deal of earlier attrition research focused on the associations between leavers and individual characteristics. By the 1970s, researchers were beginning to recognize that persistence or departure from higher education was the result of a more complex process that involves multiple institutional and student factors. The attention that remained focused on student characteristics led to the construction of the
Tinto’s (1993) Theoretical Model of College Withdrawal

FIGURE 3. A Longitudinal Model of Institutional Departure
Cooperative Institutional Research Project (CIRP) and to one of the largest studies reporting on nearly 50,000 students attending over 200 postsecondary institutions (Astin, 1977). Astin’s initial CIRP study analyzed over a hundred variables related to attrition.

From this analysis, he developed a persistence worksheet for the admission process containing 50 predictors in six categories: (a) academic background and ability, (b) family background, (c) educational aspirations, (d) study habits, (e) expectations about college, and (f) personal characteristics. Astin established an inter-correlation between high school grades, aptitude, and college degree completion with the 1969-entering cohort. He found 66% of the students with A high school averages completed degrees, while 48% of the B students and only 27% of the C students persisted to completion within four years. He also determined that as a group, completion rates increased as achievement test scores or socio-economic status (SES) increased.

Pascarella and Terenzini’s (1977, 1978, 1979) analysis of two variable sets found that both social and academic integration were significantly and independently related to voluntary attrition. Their research tended to confirm Tinto’s (1975) Integration Model’s basic concepts. They controlled for previous academic achievement and aptitude, to determine that persisters had “more positive perceptions than leavers” (p. 39) and persisters “reported significantly more contacts with faculty” (p. 39). This study failed to support the importance of student SES, previous academic achievement, or aptitude as Astin (1977) had found. On the contrary, their analysis suggested greater impact on persistence resulted as “what happens to a student after matriculation may be more
important in subsequent voluntary attrition among freshmen than are the attributes the student brings to college” (Pascarella & Terenzini, 1978, p. 362).

Admissions test scores are, because of their national norms, more often associated with institution selectivity than is academic performance. Noel (1987) and Tinto (1993) noted that highly select colleges had the lowest attrition and highest graduation rates. Highly select institutions, are those whose entrants all score a combined 1100 or above on the Scholastic Aptitude Test (SAT) or a composite 26 or above on the American College Test (ACT). Highly select institutions experienced first year student attrition of only 10% in 1983 and just eight percent in 1992.

Institutions have been categorized according to selectivity on the basis of the admissions test score of their entrants. As indicated, highly select schools have entrants with SAT scores greater than 1100, followed by selective schools with SATs ranging from 931 to 1099, traditional colleges with SATs ranging from 801 to 930, liberal institutions with SATs ranging from 700 to 800, and open institutions with SATs 700 or less. Further, those most selective institutions had lower attrition when compared with 18%, 26%, 33%, and 46% for selective, traditional, liberal, and open admission public postsecondary institutions respectively (Tinto, 1993, Table 2.5, p. 18).

Tinto (1993) also reported that the most selective institutions had significantly higher graduation rates. Highly select public institutions graduated 66% and highly select private institutions graduated over 80% in four years. This was compared to 52%, 45%, 40%, and 38% for selective, traditional, liberal, and open admission public institutions respectively (Tinto, 1993, Table 2.7, p. 19).
On an individual basis, low test scores prove to be insufficient to predict voluntary departure from institutions solely as some students with lower admissions test results invariably do persist to degree completion (Copeland, 1991). A lack of significant correlation between admission test scores and first term college grades was also found by Sedlacek and Adams-Gaston (1992) wherein scores alone were determined not to be adequate for predicting completion of four-year degrees.

Munro (1981) investigated the “antecedent attributes such as pre-college schooling, personal attributes, and social background” (p. 134) factors from Tinto’s model. He used SES, ethnicity, gender, aptitude, locus of control, self-esteem, high school grades, perceived parental aspiration, educational aspiration, academic integration, social integration, and goal and institutional commitment as independent variables. Persistence in the institution and persistence in higher education as results of a decision process were the dependent variables. Munro’s study supported Tinto’s assertion, which indicates that academic integration most directly affects goal commitment and social integration most directly affects institutional commitment for the newly enrolled. The study determined that although student and parent education aspirations have the most powerful affect on primary commitment, social integration was a significant influence during the first years. Academic integration had a stronger influence on subsequent institutional commitment during upper class years.

Equivocally, Herndon (1984) found that higher high school achievement existed among college students who persist to degree completion than those who do not complete degrees. Stoecker, Pascarella, and Wolfe (1988) used CIRP survey data from over 10,000 students in nearly 500 institutions to analyze the relationship between student’s
previous high school achievement and persistence. They verified Astin’s earlier finding that a significant relation existed between previous secondary school background and achievement and persistence. However, they also found that a stronger relation existed between first year college grades and persistence than existed between pre-college academic achievement. Porter (1989) and Baird (1990) found that previous grade performance was related to persistence and degree completion, and Moores and Klas (1989) reported a significant difference in previous academic achievement between persisters and voluntary leavers.

Stage (1989) took an entirely different approach to the influence of background characteristics. She differentiated students on the basis of scores on social relationships, external expectations, social welfare, professional advancement, escape, stimulation, and cognitive interest as measured on the Educational Participation Scales. She then placed respondents into three motivationally distinct groups: (a) certification, (b) cognitive, and (c) community service groups. Stage used logistic regression to examine pre-college characteristics, commitment levels, involvement, and persistence for students to identify the significant predictors of persistence. She determined several patterns of persistence, which “differ markedly among the three subgroups” (Stage, 1989, p. 396). These patterns were:

1. Student background does influence persistence.

2. Persistence effects were found to be different for subgroups on social or academic integration interactions.

3. Initial goal and institutional commitment have a large effect on later goal and institutional commitment.
4. Later goal and institutional commitment significantly effects persistence. Her findings that demonstrated persistence patterns differed significantly among motivationally different groups, suggest, “some aspects of the [Tinto] model are more important than others” (Stage, 1989, p. 385).

Stage and Williams (1990) found evidence that illustrated the effect college attendance had on first year students’ initial ranking of reasons for enrolling in college. They found that there was “a decrease in the factor that had first been identified as the most important reason” (p. 520). Although the reasons for such changes cannot be directly attributed to college attendance, the authors provided two explanations that the college environment was responsible. First, students often enter college as idealist and their initial reasons are not as important as originally believed. Secondly, an objective of most institutions is to broaden every student’s focus on an array of issues that may initiate a range of possible changes. This supports Pascarella and Terenzini’s (1978) statements regarding the impact the institution has on students once they arrive on a college campus.

Astin (1993) revisited pre-college characteristics to find that factors such as SES, high school academic performance and course work, and admissions tests remained associated with persistence nationally. Thompson (1998) examined the relationship between pre-college characteristics and freshman to sophomore persistence in a private four-year college. He also found that characteristics such as financial need and parent education do play a role in the persistence equation. He concluded that pre-college characteristics could be better utilized to identify students who could benefit from proactive interventions.
In two 1993 studies, Astin and Lewallen both found a strong correlation between high school achievement and college degree completion. Further, Stage and Rushin (1993) determined SES and high school grade point average was directly related to college grade point average. Belcheir’s (1997) use of first semester academic performance as both an input variable and an outcome measure in her evaluation of Boise State’s Cluster program, established a relationship between grade point average and persistence. In her logistic model, she found first semester academic performance to be the best predictor of re-enrollment in a subsequent term.

Some researchers have investigated pre-college course work as a higher education completion indicator. Adelman (1999) used a six level multiple variable logistic regression analysis for the dichotomous variables, did or did not complete a degree on HS&B/So data. He determined higher levels of math and advanced placement courses in high school accounted for .17 of the variance associated with degree completion in a model that accounted for a persuasive .4275 $R^2$. Adelman indicated higher ability and higher performance in high school manifests itself similarly in college courses, “Common sense wins again: students entering college with a low degree of academic resources evidence continuing remedial problems dominated by reading and do not earn degrees” (Adelman, 1999, pp. 76-77). This model demonstrated that continuous enrollment was also very potent even when students change schools. Adelman wrote, “changing institutions has minor effects on completion. Academic preparation, continuous enrollment, and early academic performance, on the other hand, prove to be what counts.” (p. 83). Eno, McLaughlin, Brozovsky, and Sheldon (1998) attempted to develop predictive equations for freshman success in specific courses based upon data from high
school records, but determined from their institutional level sample that results were “not very conclusive” (p. 21) however.

Noel, Levitz, and Saluri (1987) indicated that effective retention practices might provide not only significant increases in enrollment, but result in quality educational experiences for students. Based upon 10 years of consultation with nearly 400 postsecondary institutions, these authors state, “there are few institutions in this country that could not reduce their freshman-to-sophomore year attrition rate by one-third” (p. xiii). The steps these authors suggest to improve student retention parallel the campus wide approach suggested by enrollment management proponents (Dennis, 1998; Hossler & Bean, 1990). Along with Astin (1984) and Tinto (1993), Noel, Levitz, and Saluri connect retention to the quality of educational experiences students receive.

When students find that their needs are being met, when we facilitate their success in the classroom and help them translate that success into their lives beyond the campus, education becomes a clear priority for them and they return to campus. (Noel, Levitz, and Saluri, 1987, p. xiv)

The authors forecast that in the future, successful campuses will be those that focus on student needs in order to facilitate classroom-learning experiences.

**The Course Intervention Approach**

A proliferation of orientation programs followed Reed College in 1911 (Gordon, 1989), but their momentum began to wane as enrollments bulged during the Great Depression and post-WWII eras. They may have become less important with the influx of large numbers of baby boomers (Drake, 1966). Since the 1970s, however, there has been a resurgence of a type of orientation course contemporarily known as Freshmen or First Year Experience. There were over 900 colleges and universities offering such
courses in 1995 and several hundred more contemplating such an intervention (Barefoot & Fidler, 1996). More recently, though, their increase appears to be the result of both institutions’ needs to maintain enrollment during a period of shrinking applicant pools as well as a movement to re-focus higher education’s mission on student learning and outcomes (Astin, 1984; Banta, Lund, Black, & Oblander, 1996; Neumann & Finaly-Neumann, 1989; Tinto, 1993).

Since 1979, the University of Nevada, Reno, Counseling and Educational Psychology (CEP) Department had offered courses that focused on academic skill development. In 1989, UNR promoted Freshman Year Forums. Based on the University of Oregon Freshman Interest Group Model, Forums were designed to promote student adjustment. Forums had an undetermined influence on retention. Campus wide access to CEP courses exposed interested students at all levels to educational strategies and academic skill development. These courses had not included the full range of FYE content nor had they been directed toward beginning students within identified academic majors. Forums were intended to enable students to share their personal concerns during non-credit group discussions as students enrolled in the Freshman Forum along with courses linked together and attended by these same students, called clusters. Freshman Forums were designed to increase the likelihood that students could develop student learning communities. Unfortunately, participation was voluntary and student attendance was found not to be consistent. Administrators have suggested that students may have felt less pressure to attend a non-graded elective course regularly. They also indicated Forums caused considerable student scheduling difficulties (D. A. Hansen, personal communication August, 1999).
UNR’s present model offers FYE sections of traditional introductory courses on an experimental basis. Courses are for academic disciplines based within the College of Arts and Sciences as well as other departments, wherein faculty interest and background exist. Growing support for retention interventions within the university and the availability of fiscal support enabled such courses to be offered in 1998-1999 and 1999-2000. Approximately 350 first semester students were enrolled in courses described as FYE during fall 1998. In fall 1999, 17 graded FYE courses enrolled over 600 new and transfer students across UNR’s campus. Data from these students were used as the basis for this study.

Subject-Based First Year Experience Courses

Extended student orientation, freshman retreats, residence life activities, and FYE courses have demonstrated some influence for new students in the transition process and many result in higher retention and completion rates (Boswell, 1996; Hoff, 1996). At present, there appears to be less disagreement in the literature about the positive effects of extended orientation programs than there is regarding their coordination and cost. Since the goal of all orientation programs is to help students become more successful within their institution, research continues to explore iterations of orientation in institution specific settings. One implementation of subject-based FYE courses has been in beginning composition classes. This administrative structure facilitates course coordination and content delivery to entering students. However, several studies have shown academic performance and retention effects when FYE content is included in introductory courses that are prerequisites for courses in a student’s major (House & Kuchynka, 1997; Maisto & Tammi, 1991; Sommers, 1997).
The first study that discussed the outcomes for a subject-based, freshman seminar was Maisto and Tammi (1991). They examined the effect of a content-based freshman seminar on academic and social integration. Their examination of the effect of a graded, semester-long, three credit, subject-based, elective course measured academic integration via student GPA and earned academic units. They also included social integration as measured via involvement with campus organizations at the University of North Carolina at Charlotte. Maisto and Tammi utilized an instrument originally developed by Terenzini and Pascarella (1977) that assessed a range of student perceptions including commitment to complete a degree and to the institution. The FYE focus for this course was similar to other FYE courses. Course content included time management, study skills, test-taking and note-taking strategies, and library skill topics as well as activities to increase student involvement in intellectual and cultural aspects of campus life. Although this study did not focus on retention as a dependent variable, it determined that seminar participants “earned significantly higher grades than non-participants” (p. 42) and seminar participants reported more informal faculty contacts and social interactions than non-participants did.

The study concluded that their findings on academic and social integration as a result of participation in a subject-based freshman orientation course were positive. These researchers offered the interpretation that course participants may have increased their positive perception of the faculty as a result of the support received during the seminar. They suggested that a student’s perception of a “caring faculty member may be the most important factor influencing the individual’s social integration and retention” (Maisto and Tammi, 1991, p. 45). Informal faculty interactions have been shown to be

House and Kuchynka (1997) tested Fidler and Hunter’s (1989) hypothesis that differences in academic performance and retention between treatment groups are suitable measures of FYE outcomes to evaluate the effectiveness of a subject-based FYE course at Northern Illinois University. These researchers compared College of Health and Human Science majors who took a subject-based orientation course with other freshman majors who did not complete a course. They used students’ mean GPA after one and two semesters and retention for two years as outcome measures. The course’s FYE content focused on an introduction to the university, lifestyle adjustments, academic success strategies, career decision strategies, and graduation requirements.

Students in FYE and NFYE courses were found to be equivalent in high school rank; however, the students who took the FYE course had significantly higher ACT composite scores. After controlling for differences in ACT scores, however, students who took the FYE course had significantly higher GPAs in each of their first two semesters. Further, students who took the FYE course had significantly higher rates of re-enrollment (82.4%) into their second academic year than students who did not (64.5%). This study was limited to a single program’s implementation with encouraging results. They illustrated that completion of a subject-based FYE course by health science majors was associated with “higher grade performance and retention rates” (House & Kuchynka, 1997, p. 541).

Sommers (1997) studied student outcomes following their participation in introductory Geography courses that included FYE content at Central Connecticut State
University. Of particular interest was a comparison of the economic and organizational concerns between subject-based and freestanding (not subject-based) FYE courses. Sommers suggests subject-based courses promote the limited field and program, thus recruiting new majors, and also that the best possible outcome, better academically prepared majors, builds a stronger Geography department.

This Central Connecticut study used a survey method to assess student perceptions. In addition, retention and course drop rates were analyzed for introductory Geography courses with and without FYE content. Survey data indicated slight positive differences between the groups. Specifically, “students felt that they had more help with their choice of majors and careers, as well as with, study, note taking, test taking, and research skills than did the non-FYE students” (Sommers, 1997, p. 247). Other data demonstrated that fewer FYE students reported academic problems and dropped fewer classes throughout the year.

Overall, Connecticut’s FYE participants indicated a stronger connection to the university, the faculty, and the campus than the NFYE group. Sommers reported that FYE participants possessed a more thorough understanding of the purpose of a college education and believed professors were interested in their success. Finally, Sommers found a difference of six percent in retention between the FYE (72%) and all freshmen (66%) for students returning for their sophomore year. He suggested that when small differences are projected over the entire freshman class, the numbers of students retained (90) would “offset the cost of smaller FYE class sections” (Sommers, 1997, p. 248).

Sommers (1997) contends that subject-based courses tend not to exclude and further isolate commuters as extended orientation or FYE programs instituted through
residence life can do. Lastly, he indicates that subject-based courses address the issues of how to fund the course sections, how to involve faculty in retention and accountability efforts, and organizationally, which administrative unit will coordinate the program with reasonable, workable solutions.

Nontraditional Traits

Belcheir (1998) wrote, “The era of the traditional college student is gone, especially at urban and metropolitan colleges and universities” (p. 1). Student characteristics that were not generally present among traditional cohorts of the college attending population have been identified as nontraditional traits (NCES, 1997a & 1998b). These nontraditional traits are those often believed to place students at risk of non-completion, as these traits have been negatively associated with retention. Many of these traits may be characterized as background traits or environmental factors (Bean & Metzner, 1985). These NCES reports identified eight nontraditional factors “negatively associated with students’ persistence and attainment” (NPSAS, 1999a, p. 14). The range of factors include:

1. First Generation Status: First-generation students are those whose parents highest level of education attainment is a high school diploma or less. Familial support for educational goals may be low, but given parental support, a lack of experience may not promote transition to college.

2. Delayed Entry: These beginning students are those who delayed entering a post secondary institution for one or more years following high school graduation. Influences of off-campus environmental factors may inhibit educational commitment.
3. **Part-time Attendance**: Beginning students who are enrolled less than full-time (12 units) often spend less time on campus. Part-time students’ off-campus environments influence educational commitments.

4. **Off-Campus Employment**: Students who are employed 20 hours or more off-campus have less time available to dedicate to academics as well as the social and cultural milieu of on-campus life. Off-campus employment may influence institutional as well as educational goal commitment.

5. **Financial Independence**: Beginning students that are independent of familial financial support expend more time and energy dealing with personal financial matters. These matters can become distractions that affect educational commitment.

6. **Dependents**: Beginning students with child, parent, or other responsibilities face uncontrollable time constraints that inhibit their ability to fully focus on educational matters. Such commitments detract from students’ potential academic and social integration.

7. **Single Parenthood**: Beginning students who have at least one dependent other than a spouse have responsibilities and constraints on academic and campus activities that restrict their potential for campus involvement and integration.

8. **Absence of a High School Diploma**: Beginning students who did not earn a diploma following four years of high school and/or earned an alternative diploma.

There are additional factors found in the literature, which have also been associated negatively with retention:

1. **Commuters**: Commuters are beginning students who do not reside in their institution’s residence halls or institution managed housing.
2. **Socio-Economic Status (SES):** Beginning students whose background included lack of family and other financial support face economic stress. These students must deal with financial concerns as well as possible cultural differences.

3. **Race and Ethnicity (Minorities):** Beginning students who are non-White may have difficulty negotiating environments dominated by different values.

4. **Age:** Beginning students who, having delayed entry into a postsecondary institution are over 24 years of age.

5. **High School Size (Rural Location):** School size and the setting in which the school is located may affect the character of course offerings. Math, science, foreign languages, and advanced placement courses, subject to resource and teacher variables, are associated with preparation for higher education and may effect student transition to college.

**First-generation status (parent education level)**

College students were traditionally the sons of at least one parent who had completed a college degree. These second and subsequent generations often attended one of the more select institutions. As previously mentioned, the more select the institution, the greater were their chances that degrees would be completed. It has been in two-year institutions as well as liberal and open admissions public four-year institutions that first generation college students have most often sought admissions.

A significant number of the 35% of first year entrant to public four-year institutions nationally who will not complete their degree, can be categorized as first-generation students (NCES, 1998a & 1998b). First generation students who enter postsecondary education are more likely than those whose parents attended college to be
25 years or older, married, have dependents, financially independent of their parents, and enter 2-year institutions initially. Students with this characteristic persist and attain bachelor’s degrees at lower rates than students of parents who had higher levels of education.

Differences between first and other generation students were noted in Nunez and Carroll (1998) National Center for Educational Statistics study. They found first generation students bring to college several common traits (they are older, have lower incomes, are married, have dependents, attend part-time while working, are more likely to delay entry, and are more apt to take remedial courses), all of which are negatively associated with persistence. They found first-generation students select particular institutions because they are similarly motivated as other students to better their occupational and economic position. First-generation students more frequently prefer to live at home and work while attending. Consequently, first-generation students who aspire to attain a bachelor’s degree more frequently select two-year institutions than four-year institutions initially. As a consequence, many first-generation students extend the time to completion by one or more years or do not transfer to four-year schools at all.

Finally, even though there is no significant differences in proportions of first generation (35%) or non-first generation (40%) who earned their degrees, barely one-half as many (11% to 20%) persist toward their degree after five years (Nunez & Carroll, 1998). Those first generation students who attend four-year colleges are less likely to persist overall than students whose parents had completed or had attended only some college. Further, even though they aspire to earn a four-year degree, a significant
proportion who begin their postsecondary education at a two-year colleges never enroll at a four-year institution (Adelman, 1999).

Graham (1998) summarized the concerns of others regarding a neglected area in higher education research by writing “research literature is dominated by studies of White, traditional-aged, full-time students attending residential colleges” (p. 239). The dearth of investigations of college students possessing nontraditional traits has made a synthesis of available studies problematic. Students with other traits negatively associated with completion often share among the traits the added condition of being a first-generation student as well. Students with other nontraditional traits defined their social status as first-generation students often do, “by the parents’ place in the community, by their place in high school, and by their place within their peer group” (Martin & Dixon, 1989, p. 362). Many of these individuals find they have entered an environment where they have no support group, no familial history, and environmental commitments that demand more time off campus than on.

Delayed Entry, Off-Campus Employment, Financial Independence, Dependents, Absence of High School Diploma, and Age

It should be clear that the demographics of American higher education’s student bodies have undergone noticeable changes. Historically, it has been the younger recent secondary school graduate who continued their postsecondary education. Students who did not earn a high school diploma, earned a General Equivalency Diploma, or delayed entering postsecondary education by one or more years after their scheduled high school graduation, persist at colleges in fewer numbers than traditional-aged students. Clearly,
many of these students are older, are employed, and often support dependents, which at the very least may influence time and continuity toward degree completion.

Kemperer and Kinnick (1990) wrote, “If we are to suggest one thing to high school graduates who aspire to a bachelor’s degree it is to enter immediately” (p. 45). In their study encompassing gender, race, SES, and education aspiration variables, they were able to demonstrate the limited success of degree attainment for adults who delayed entry. Specifically, they found that compared with on-time entrants, both with educational aspirations of a bachelor’s degree or above, on-time entrants eventually attain their goals at a rate of 66% for males and 60% for females. Delayed entry adults, on the other hand, generally had a range of off campus commitments such that their completion rates were 16% for males and 27% for females. Adelman’s study of HS&B/So data (1999), determined that continuous enrollment was a significant factor related to bachelor’s degree completion. He also determined that stopout behavior was associated negatively with completion, accounting for the greatest variance in non-completion.

At some point in their college tenure close to 90% of all postsecondary students will have worked while enrolled. “Faced with the rising costs of higher education, students are increasingly opting to work in order to help finance their postsecondary education” (NCES, 1997d, pg. 1). Regardless of the type of institution students attend, those who work often adjust their enrollment or attend part time and are less likely to complete a degree or be enrolled five years after their initial postsecondary entry. Less that one-third of students who work full time while enrolled earn a degree or persist toward a degree, while 79% of the students who work zero to 15 hours per week graduate or continue to persist.
McCormick (1997) indicated that changes in family status become influential variables related to postsecondary access as well as completion. Adelman (1999) determined that “having a child prior to age 20 ranked third (behind SES and family income), and well ahead of race, among demographic factors associated with entering postsecondary education, in this case, a negative association” (p. 37). This association was also confirmed by NELS-88 data Horn (1996, 1997). Horn found that the earlier one has children, the greater the risk student’s have of not completing a postsecondary educational goal.

In earlier periods, American colleges enrolled students of secondary school age students today. Over time, the average student age demonstrated an upward trend until it abruptly spiked following World War II (Brubacher & Rudy, 1997; Upcraft & Gardner, 1989). Since that period adult enrollment has leveled off somewhat, but continues to show a slight upward trend. In the mid-1970s, the total for 24 year old and older students accounted for 20% of the student body; but by 1989, students over 24 accounted for 30% of total enrollment (Tinto, 1993). In 1998, 70% of full-time undergraduate students were age 18 to 23, while the 24 year olds or older remained at 30% (Horn, 1998). There are indications that a larger percentage of minorities delay postsecondary entry than White students and greater numbers select two-year colleges initially.

Sax, Astin, Korn, and Mahoney (1999) found even though a majority of new freshmen begin college at age 18 (66%), the percentage that begin at age 19 has increased from around 14% in 1967 to nearly 28% in 1999. “By the 1850s the mean age of college students was 19.99. Today older students (age 24 and older) make up about 40 percent of the total college population” (Peltier, Matranga, & Laden, 1999). On commuter
campuses, similar risks have been identified for traditional and nontraditional aged students (Johnson, 1989). Also, off campus influences often play a greater role in departure decisions among adult students (Bean & Metzner, 1985).

There are equivocal studies, which indicate that older students perform better academically than their younger counterparts. Whisnant (1992) reported that older students did better in community college introductory social science courses than their younger peers, but Hall (1990) determined an adult four-year college sample had more environmental commitments than his traditional-aged sample; while attending part-time, they earned a lower mean grade point averages. Graham and Donaldson (1996) found different levels of campus involvement when they compared adults with younger students. This supports Bean and Metzner’s (1985) suggestion that social integration is less important for successful nontraditional aged students than academic integration because social involvement revolves around their life off-campus. They argued that adults have a support system established through an off-campus environment and they have fewer academic and social interactions within the campus community than younger students.

Older student are not consistently associated with negative learning or completion outcomes. Graham (1998) provided evidence that adult students perform better academically than traditional-aged students on four measures of academic and intellectual growth; intellectual development, problem solving, scientific reasoning, and career development. Further, Belcheir (1998) suggested that older students have more difficulty organizing new material, but their knowledge gains, demonstrated by academic performance, were greatly affected by instructional methods. Although she found some
differences between age groups in terms of effects from direct instruction and learner self-perception, she concluded that any overall higher academic performance among older students was attributable to their motivation and commitment to educational and career goals.

**Part-time Attendance**

Carrol (1989) found that students who delay entry to college or attend part-time are much less likely to complete an undergraduate degree. Full-time entrants who do not delay entering four-year institutions are five times more likely to complete an undergraduate degree than part-time students. Graham (1998) and others suggest changes in attendance patterns indicate more adults return to attend full-time, and more traditional-aged students attend part-time than in prior decades. Even though the differences between these and other groups may become obscured by evolving enrollment patterns, Astin (1993) insists “that it would be a serious mistake to lump these nontraditional students together with traditional-aged students in a single study” (p. xvii).

Kasworm and Blower (1994) indicated that as more adults attend college on a full-time basis, patterns similar to those of traditional-aged students’ on-campus involvement emerge. Institutions must become cognizant of changing characteristics among their student bodies, adjusting institutional programs and policies to address evolving student development needs. This does suggest a different role for effective student development services and a new focus on interventions that facilitate on-campus social integration for students with off-campus commitments. Pascarella, Bohr, Nora, and Terenzini (1996) found differences between full-time and part-time students in overall first year cognitive growth. Adelman (1999) found that part-time attendance was
associated with more frequent stopout behavior, which again was negatively associated with four-year degree completion.

Commuter Status

Commuters are defined as those students who do not live in institution-owned housing. This group represents a diverse population that includes (a) full-time traditional-aged students who live with their parents, (b) part-time students who live in rental housing near campus, and (c) adults who have careers and children of their own. Pascarella (1984) emphasized the different influences student experience as a result of commuting versus living on campus. Jacoby (1986) indicated that findings of the research on commuter students are generally inconsistent and inconclusive. The proportion of college students commuting to campus continues to grow (Jacoby, 1992), yet research continues to be based on the premise that the residential experience is normative while the experiences of commuters are less legitimate or worthy. She has been critical of institutions that develop policies and practices dominated by a residential tradition even when their student population is predominantly commuter. She stresses that despite background or goal differences, commuter students share a common core of needs and concerns. In a recent article (Jacoby, 2000), she reports data that indicate the importance of increasing commuter student involvement can promote their academic success.

Student retention and performance in a nonresidential university was examined by Pascarella, Duby, Miller, and Rasher (1981). They determined that commuters are significantly less likely to
engage in educationally and developmentally influential activities and experiences . . . participate in nonrequired social, cultural, and intellectual offerings . . . interact with an institution’s important agents of socialization . . . or be influenced by their college experience. (p. 330)

Students who do not reside in residence halls tend to isolate themselves from developmental activities found on campuses and generally limit their involvement to the required activities of their course work. Pascarella, Duby, and Iverson (1989) found little support for the “person-environment fit aspects” (p. 88) of Tinto’s model as it applies on a nonresidential campus. Their results suggest students’ interaction with the academic and social campus environments do not ameliorate departure decisions, while other student characteristics and individual commitments have more direct influence over the decision process. Students residing in residence halls appear to have higher levels of commitment to education goals and their “entering institutional commitment may have a direct influence on academic integration, which, in turn directly influences subsequent institutional commitment” (Pascarella, Duby, & Iverson, 1989, p. 99). However, Pascarella (1985) had found that although measures of student interaction with faculty and peers were positively associated with intellectual and self-concept development, residing on campus was not. Pascarella and Wolfe (1985) supported Astin’s (1984) argument, which suggests that the level and quality of student involvement influences student persistence.

Students living in dormitories have always had higher retention rates than students living off campus (Astin, 1977; Fidler & Moore, 1996). Wolfe (1993), reporting on an FYE intervention designed for new commuter students, found results contrary to the positive FYE outcomes on non-differentiated students reported by Fidler and Hunter.
Even with the intervention, she found “commuting and working serve to limit the time available and opportunities for interaction with peers and faculty” (Wolfe, 1993, p. 324). Using faculty contacts and involvement in campus activities and organizations as a measure of social integration, Wolfe (1993) found that the difference in non-participating residences and participating commuters raised questions about FYE regarding the “usefulness of the intervention for commuter students” (Wolfe, 1993, p. 325). This study did find differences in academic performance between genders, as female commuters had higher grade point averages than males.

Blimling’s meta-analysis of research from 1966 through 1987 found in studies, which did not control for initial differences in past performance, a great deal of evidence to indicate the positive effect residence halls had on retention. Residence hall students performed better academically than students living off campus in apartments or fraternity and sorority houses. Pascarella, Bohr, Nora, Zusman, Inman, and Desler (1993) first explored differences in critical thinking between residence hall and commuting students. Inman and Pascarella (1998) examined data on over 300 residence hall and 300 commuter students from six institutions and suggest that on campus residence may transcend the influences of student backgrounds and intervention efforts; however, residence alone did not contribute to difference in critical thinking.

Finally, Berger (1997) examined residence hall students’ sense of community, social integration, and persistence. He confirmed Pascarella and Terenzini’s (1978) suggestions that initial levels of commitment to an institution are less important than a student’s experiences on campus. Since today’s college students attend multiple institutions in greater numbers, Adelman (1999) suggests “as convenience applies not
only to place, but also to time, subject, and price, it is not surprising to find students filling their undergraduate portfolios with courses and credentials from a variety of sources, much as we fill our shopping bags at the local mall” (p. 39). The trend toward part-time attendance at multiple institutions and the consequent growth in numbers of commuting students further highlights concerns for means to retain nontraditional student groups.

Socio-Economic Status and Social Class

There is evidence that suggests not only a lack of family support and relevant experience among first generation students, but also some differences in self-perceptions among students with lower SES backgrounds. Parents’ occupation and/or the level of their education do not always determine SES; however, there is a significant correlation between the parents’ income and their attained education. Hellman (1996) found, for example, that first generation students have lower self-perceptions of their academic ability than students whose parents have even some college experience. Early evidence (Eckland, 1965) indicated that social class membership did determine who would graduate from college when he stated, “social class is an important determinant of college graduation for students from the lower rank of their high-school classes but relatively unimportant for those from the higher rank” (p. 48). The implicit expectation for higher SES students to attain higher levels of education is often explicit among the family and peer groups.

Adelman’s (1999) analysis revealed, however, that the effect of SES was not consistent across lower SES groups. In his logistic model, he found that for students in the lowest SES quintile who were in the highest quintile on measures for academic
background (math, foreign language, and advanced placement courses) and entrance
eexamination, there was no difference on any measure associated with bachelor’s degree
completion. Although, Adelman’s study did not account for access to higher education
factors directly, his data demonstrated that once in attendance, these lower SES, high
academic resources students are as successful in degree completion as high SES students.
These students did, in fact, achieved significantly higher completion rates than all of the
lower academic quintiles regardless of SES. The major question for lower SES students
therefore, may be more one of access than persistence.

Race and Ethnicity

Astin, Tusi, and Avalos (1996) examined racial rates for degree attainment across
postsecondary institutional type. Data were collected via the CIRP annual survey of
entering freshman in the fall of 1985. Degree attainment data were collected at four, six,
and nine year intervals beginning in the summer of 1989 on random samples of 100 to
250 students from 365 baccalaureate granting institutions. Four, six, and nine-year
degree attainment data were eventually collected for over 75,000 students who had
completed the 1985 CIRP survey.

“Dramatic differences in degree attainment rates by racial groups” (Astin et al.,
1996, p. 6) were revealed. Examination of CIRP data found that by extending the period
for from four to nine years, degree attainment rates increased 4.6%, from 42.7% to
47.3%, for White students. Given the extended timeframe, however, degree attainment
increased much more for African Americans (14.5%), American Indians (10.3%),
Mexican-Americans (9%), Puerto Rican-Americans (10.1%) and Asian Americans
(7.4%). Nine-year degree attainment rates across postsecondary institutional type (Astin
et al., 1996, Table 6, p. 10) indicated attainment rates from public universities (40.8%) and colleges (38.4%) were the lowest for all ethnic groups. The authors stated:

What these differential rates show is that the under representation of these minority groups among entering college freshman is being substantially exacerbated by their relative low degree attainment rates during undergraduate years. In other words, the undergraduate years represent a major leak in the educational pipeline for students from underrepresented ethnic/minority groups. (p. 6)

Minority student degree attainment in science and engineering and the attainment of advanced degrees by minorities have also been of some interest:

Between 1977 and 1993 the percentage of S/E [science and engineering] bachelor’s degrees awarded to African Americans remained essentially unchanged at 6%, and the percentage of Ph. Ds in S/E awarded to African Americans remained at less than 2% during the period. Just to illustrate how small the numbers are, only 52 Black U.S. citizens earned Ph.D.s in physical sciences in 1994. (Grandy, 1998, p. 590)

Grandy (1998) uses National Assessment of Educational Progress (NAEP) survey data that indicated high-ability minority students performed academically as well as White students in grades four through 12, but once in college “enthusiasm for science and engineering either builds or diminishes during the first two years of college” (p. 613). Minority student commitment to a science or engineering major in their sophomore year proved an excellent persistence predictor, and commitment was explained by factors identified as science ambition, minority support systems, and grades.

Even though the nation’s non-White population approaches 50%, the 1995-1996 beginning postsecondary cohort entering public four-year institutions remained predominantly White. This entering cohort accounted for “over 81% of the new enrollment” (NCES, 1998a, p. 7). The 1998 CIRP new freshman data found that 83% were White, seven percent were African American, two percent were American Indian,
seven percent were Asian, and 1.4% were Hispanic (Peltier, Matranga, & Laden, 1999). These figures represent a slight increase in 1998 White freshman enrollment, but a decrease in all other ethnic groups since the 1996 CIRP data was gathered. The 1999 CIRP national norms on new freshman enrollment in public universities mirrored these 1998 data (Sax et al., 1999).

Compared to five percent in 1975 (Sedlacek & Webster, 1978), African Americans still accounted for 8.9% of the nation’s 1999 freshman enrollment across all institutional types (Sax, et al., 1999). Instead of 1.3% in 1975, Hispanics now account for 5.4% in 1999. Rather that .8% in 1975, Asian/Pacific Islanders filled nearly 5.1% of college enrollment in 1999, and Native Americans accounted for slightly less than 2.5% of public four-year college enrollment, a eight-fold increase from .3% in 1975.

**African Americans.** Research focused on African American students over the past 50 years reveals measurable academic difficulty in persistence and degree attainment (Allen, 1992). Compared with White students, African Americans come from lower SES levels, attend public high schools of average quality, are very likely to be first generation, and have lower academic grades and admissions test scores. For African Americans, the largest minority group enrolled in colleges of that period [Asians are now the largest non-White group enrolled, 8.6% (Sax, et al., 1999)], enrollment rose steadily from three percent in 1969 to six percent in 1973. Enrollment remained regionally different throughout the country, however. Middle states college student bodies reached nine percent, while in Western states enrolled only five percent African American students in 1975. Between 1975 and 1995, minority enrollment had increased for all non-White student groups. Since 1982, minority enrollment rose 17% compared to a nine percent
increase for white students (Schmitt, 1994). Present data indicated this trend has reversed somewhat (Sax et al., 1999).

Research on student persistence of ethnic groups has proven problematic in that different ethnic groups exhibit different retention rates as well as within group differences (gender, SES, GPA, etc.), which are common if not typical in many groups. Astin et al. (1996) found that degree attainment within four and six years was the lowest among African Americans at 19.4 and 31.2% respectively (Table 3, p. 7). Nine-year African American degree attainment (33.9%) was only .7% higher than that for American Indians, the lowest group with 33.2% degree attainment.

Pascarella and Terenzini (1983) and Pascarella and Chapman (1983) studied differences among demographic group students attending different types of institutions. They found evidence for an interaction among variables. In a national nine-year multi-institutional study, the effect of background characteristics were found to be differentiated between White and African American men and women college students (Stoecker, Pascarella, & Wolfe, 1988). For African American males, only the background characteristics of SES and high school achievement (GPA) were found to have had a direct relationship with persistence measures. For African American females, it was determined that such characteristics exhibited less direct influence with all effects being indirect through the intervening variables, institutional selectivity, and their college academic performance. SES and degree aspirations (goal commitment) were found to have a direct effect on persistence for White females, but not so for White males. Based upon background characteristics, most of the effects were related indirectly to persistence
through a range of intervening institutional characteristics ranging from selectivity, to size, and academic major.

Although it had been determined that “not only do proportionately fewer African Americans persist until graduation, those who graduate generally take longer to do so” (Gosman, Dandridge, Nettles, & Thoeny, 1983, p. 210). The Gosman et al. (1983) analysis found that “racial differences in performance disappeared when other student and institutional characteristics were taken into account through the application of multiple regression techniques” (p. 233). These authors concluded that race was probably not a significant predictor of progression through higher education. However, in the face of the data referred to above, nine-year degree attainment only exceeded that of American Indians (62.0% to 56.1%) at private universities (Astin et al., 1996, Table 6, p. 10). For all other institutional types, nine-year degree attainment of African American ranges from 29.9% at public universities to 36.5% at four-year non-sectarian colleges. Nonetheless, persistence and degree attainment differences across racial groups have been uncovered in several studies. Robinson (1990) found that among African American college students, the largest proportion of withdrawals were evident during the first year. Keller and Rollins (1990) determined that African Americans were more likely to be academically dismissed and these students reported an inability to sustain financial support that led to departure. Differences in departure rates between African American and White students, found by Galicki and McEwen (1989), and first year dropout rates for African Americans were 19% higher (57% to 38%) than for White students (Lichtman, Bass, & Ager, 1989).
Thompson and Fretz (1991) studied bicultural adaptive variables (strategies) used by African American students to cope with the predominantly White college student bodies to predict level of social and academic adjustment. They determined that adaptive variables influence a student’s level of environment stress which in turn, could contribute to withdrawal. Their analysis found that grade point average did not contribute to social or academic adjustment as measured by the College Adjustment Questionnaire, but the adaptive variables measured by the Social Independence Scale contributed 17% and 15% of the variance respectively. Their study suggests minority students social adjustment is a potent retention factor and the “recognition of the relevance of culture-specific adjustment strategies may assist students in enhancing their self-image” (Thompson & Fretz, 1991, p. 448).

In a study of African Americans who graduated in four years, Robinson (1990) reported that first term grades and high school rank predicted graduation better than SAT scores. Robinson determined African American students’ high school grade point averages, regardless of SAT scores, proved predictive of degree completion and that first semester was even more predictive of degree completion in four years. More recently, instead of achievement test and academic records, studies of minority populations have focused on non-cognitive characteristics in attempts to develop minority persistence models (Mason, 1998; Gloria, Kurpius, Hamilton, & Willson, 1999).

In studying the persistence of low SES African American students, Donovan (1984) found that compared to White students, their integration into an institution’s social system was significantly related to persistence. This study supports earlier mentioned claims (Pascarella & Terenzini, 1980; Munro, 1981) that persistence is more the result of
what happens on campus rather than antecedent characteristics or individual background resources. In effect, the persistence process for African Americans may be somewhat similar for all college students once enrolled.

To further support ideas regarding the impact of the institution, Mallinckrodt (1988) found support for the effect of the on-campus social environment. He reported that although social support was a significant predictor of persistence, sources of support were different between African Americans and Whites. African Americans appear to be more influenced by involvement in social organizations and family support for continued enrollment than Whites. Such results, therefore, suggest that involvement and social integration may play an even larger role in the departure decision of minority students.

Tracing minority enrollment over the 10 years, 1969 to 1978, Sedlacek and Webster (1978) found that private institutions, which emphasized integration into academic programs enrolled and retained minority students in greater numbers than institutions that emphasized other career benefits. Tracey and Sedlacek (1984) examined the potential association of persistence between social integration and race. They developed the Non-Cognitive Questionnaire, an instrument that assesses non-cognitive variables related to academic success of minority students. In a subsequent study, Tracey and Sedlacek (1985) indicated student attitudes and perceptions before college may predict later success. In particular, “The NCQ also predicted African American student attrition after three, six, and eight semester, although no strong prediction, with either the NCQ or the SAT scores, was found for Whites” (Tracey and Sedlacek, 1985, p. 409). Lewallen’s (1993) analysis of CIRP data found that higher student persistence was indeed associated with being White.
Using one of Sedlacek and Brooks’ (1976) non-cognitive variables, realistic self-appraisal, Trippi and Stewart (1989) determined it to have the most consistent relation to African American student persistence. Their findings further supported the predictive validity of non-cognitive variables, an approach recommended by Gloria, et al. (1999). These authors further suggested the use of non-cognitive measures to augment achievement and admission test variables in both admissions and prediction of institutional performance and persistence. Also, differences in student experiences, which account for distinctions in persistence measured by Non-Cognitive Questionnaire items, assess students’ ability to deal with racism as a persistence predictor. Perceived racism, like sexism, is associated with high student stress levels.

Loo and Rolison (1986) used one of Tinto’s (1975) concepts, mal-integration, to focus on the role socio-cultural alienation plays in explaining minority attrition. In suggesting that the values of minority subcultures may not be congruent with those of the broader institutional community, they evaluated the impact of peer group interactions in terms of fit of the student within both the overall student community and their ethnic subgroup. The primary finding of their study on one college campus was that “socio-cultural alienation of minority students in a predominantly white university is greater than that of white students and that feelings of cultural domination and ethnic isolation are the forms in which alienation is experienced” (Loo and Rolison, 1986, p. 71). Loo and Rolison (1986) indicated that these finding are mostly the result of minority student perceptions because alienation was not due to difficulties in establishing white or minority friends nor forms of racial animosity. Belcheir (1997) attributed higher
minority retention to the strength of active recruitment and formal involvement in campus
minority organization activities.

Gloria, et al. (1999) studied influences on African Americans by examining quality of life issues: (a) perceptions of the university environment, (b) cultural congruity, and (c) academic stress. They found support that “higher levels of social support, more comfort in the university environment, and positive self-beliefs would be associated with more positive academic persistence decisions” (Gloria, et al., 1999, p. 263). African Americanpersisters had more positive views of their institution, experienced less academic stress, and perceived a cultural fit between the institution and themselves. Fries-Britt (1998) examined the Meyerhoff program, which provides 13 specific support components for gifted minority students. She determined that such efforts appear to be effective and necessary to enhance minority persistence by building communities of students.

Several authors have indicated how interventions may mediate the effects of racial or cultural alienation. Nettles, Thoeny, and Gosman (1986) and Trippi and Cheatham (1991) confirmed that poorer academic integration, low satisfaction, poorer study habits, and more adjustment problems can be positively influenced with regard to persistence when special counseling programs are made available for African American students at predominantly White institutions. Young and Rogers (1991) also indicated a positive association with academic success and persistence existed when an “Early Advising and Scheduling System” for African American students was utilized. These authors determined that African American students who participated in a special program of academic advising, study-skills, and the use of services (similar to FYE course
content) significantly improved their academic performance compared to an equivalent
group of students not involved in such activities. Some admissions test research has
focused on other variables for different ethnic groups. Trippi and Stewart (1989)
reported little correlation between African American student persistence and their
admissions scores. Instead, African American male student persistence was more closely
associated with their high school and first year GPA than test scores.

In studying the variables related to social integration which affect the academic
performance of three groups of minority students, Mayo, Murguia, and Padilla (1995)
concluded, as did Belcheir (1998), that African Americans, Mexican Americans, and
Native Americans were all influenced by their formal membership in campus
organizations. Membership had a more consistent effect on academic performance than
informal social factors, although African American students’ enjoyment of their social
life also had a positive influence. The effects of outside of class informal faculty-student
contacts were also stronger for African Americans, but the function of faculty or staff
role models was important for all three minority groups being studied. Mayo, et al.,
(1995) found that minority faculty and staff serve a beneficial academic performance
function for minority students. The authors indicated that differences among racial
groups, however, underscored the need to study minority groups separately. Astin’s
(1996) follow-up of the 1985 freshman cohort attending four-year colleges determined
that minority graduation rates were 19% after four years, 31% after six years, and 34%
after nine years - a graduation rate only half that of White students.

Nora and Cabrera (1996) found negative effects on both cognitive and affective
development based upon minority student perception of prejudice, but that the effect
could be diminished through various means of support. According to Grandy (1998), minority support could have a notable effect on ambition and commitment to science majors during the sophomore year such that its effect was positively stronger, counterbalancing the negative effect of perceived prejudice. Support can come from peers or parents, but academic and social support from the institution’s upper class students within their own ethnic groups was most valuable.

Finally, Cabrera, Nora, Terenzini, Pascarella, and Hagedorn (1999) in examining stress as a result of perceived prejudice found a notable effect on academic performance. They concluded that “exposure to this type of campus climate impinges on college-related outcomes regardless of the ethnicity of the student” (p. 152), and that “factors affecting African American students were largely similar to those affecting White students’ decisions to persist” (p. 152). Adelman’s (1999) analysis of HS&B/So data determined that race did not contribute significantly to the variance related to degree completion. He found that among high ability students possessing strong high school academic backgrounds, neither SES nor racial characteristic were associated with departure.

Hispanics and Native Americans. Hispanics, which now represents the fastest growing group of students, have been underserved by higher education in the United States (McCool, 1984). McCool provides two major factors for this situation. First, “A major problem in Hispanic participation in the higher education system has been the high withdrawal rate which occurs in the secondary system” (McCool, 1984, p. 30). Individuals who do not complete their secondary education find it difficult to continue their education later. Secondly, Hispanic college students have “a higher than average
attrition rate at undergraduate colleges” (p. 30). According to McCool, Hispanics predominately attend two-year institutions. In the 1986 entering cohort, a greater proportion of high school graduates enrolled in four-year than two-year institutions except for students of Hispanic origin (Tinto, 1993). “Hispanics were most likely to earn an associates degree and least likely to earn a bachelor’s degree” (McCool, 1994, p. 28). Castro and Chabran (1994) found that although 21% of the general population over age 25 had earned baccalaureate degrees, only ten percent of Hispanics had earned a four-year degree.

Sedlacek and Brook (1976) advised that the indicators used for minority or culturally different admissions are inappropriate, and suggest several non-cognitive variables upon which to augment minority admission decisions. Murguia, Padilla, and Pavel (1991) attempted to reconstitute Tinto’s institutional departure model for Hispanic and Native American students using a qualitative design. The authors found evidence that suggests students in larger university settings attempt to scale down the social, physical, and academic environments so that they can deal with them effectively. A similar approach as that incorporated by the Meyerhoff program noted earlier. Once integrated into one or more enclaves, “the rest of the campus simply becomes a backdrop” (Murguia, et al., 1991, p. 436). Intriguingly, this implies that social integration for minorities may be one of smaller scale wherein institutional commitment is more a matter of the enclaves association or membership with the larger environment than that of the individual student.

Belcheir (1997) found that minority students had higher retention rates than the predominantly White students as a whole and attributed this to the presence of very active
minority support groups. Finally, Arbona and Novy (1991) draw attention to the problem of grouping student solely on the basis of ethnicity. Their findings alert researchers to the probability that there are substantial differences among individuals within ethnic groups and that subgroups may differ in terms of demographics as well as academic characteristics.

Nunez and Carroll (1998) also determined first generation students nationally were less likely to be white and more likely to be Hispanic and female compared to non-first generation students. Both groups have demonstrated less academic or social integration and persistence than their counterparts. As illustrated earlier, “Whether or not a student attained a degree or was still enrolled in postsecondary education was strongly associated with his or her parents’ education level” (Nunez & Carroll, 1998, p. 35). Individual interaction should not be discounted as an explanation however. To illustrate the college effect, Astin (1993) found “white students [71% of postsecondary enrollment] tend to become more politically conservative during the undergraduate years, whereas black students tend to become more political liberal” (p. 406). These two groups essentially, growing further apart in their views of such things as racism, institutionally and societal.

Among Native Americans, persistence was significantly affected by academic preparation and student interaction with faculty and staff (Brown, Robinson & Kurpius, 1997). Poor academic preparation, poverty, and limited educational experience among Native American parents that contributes to the under representation among many ethnic groups also contributes to higher college departure rates than among White students (Astin, 1982). Degree Attainment for both Hispanics (71.6%) and Native Americans
(56.1%) was higher in private universities. Rates were also higher among private colleges; however, as with all groups, nine-year degree attainment among public universities was only 29% for Hispanics and just under 30% for Native American (Astin, et al., 1996, Table 6, p. 10).

**Asian Americans.** Being identified as a member of the Asian-American group is not negatively associated with early departure or degree attainment. Neither is Asian-Americans underrepresented in higher education. Enrollment for this group is proportionate to their presence in the general population. Asian-American enrollment was 8.6% among all universities, 7.6% among public universities, and 12.1% on the campuses of private universities (Sax, et al., 1999). Asian-Americans nine-year degree attainment (57.6%) represented the highest rate across all types of institutions (Astin et al., 1996). In public universities this ethnic groups’ rate (39.2%) approaches the overall rate of 40.8%. Among private universities, however, their nine-year degree attainment (78%) exceeded the overall rate of 72%.

**Gender**

On some types of postsecondary campuses, the enrollment of men and women vary from national norms. In general, however, across all institutions, public and private, first-time freshman female enrollment ranged for approximately 53% to 56% (Sax et al. 1999). As with race, ethnicity, or other distinguishing characteristics, individuals who perceive a chilly climate, which they attribute to their personal characteristics, inhibits their participation and learning. These students will tend not to persist in that particular institution (Sandler, Silverberg, & Hall, 1996). Drew and Work (1998) report extensively
on gender related research chronicling the achievement and persistence of females in higher education. They quote Kramarae and Treichler, (1990):

Our work is prompted by continuing reports from female university students suggesting not only that their classroom experiences are different from males’ but also that their experiences are often unsatisfactory in ways that are not recognized by most university teachers and critics of education policy. (p. 41)

Drew and Work cite considerable work that characterizes the nature of 1980 and earlier gender related experiences on college campuses. Brooks (1982) indicated that males dominate classroom discussions by speaking longer and more frequently than females. Follet, Andberg, and Hendel (1982) reported that more females (50%) than males (30%) perceived sex discrimination on campuses. Hite (1985) found that females’ perception of inadequate faculty support “might contribute to premature program termination for women” (p. 543) in graduate programs. Rosenfeld and Jarrard (1986) determined males and females found female professors less sexist. Overall, females reported being more dissatisfied with their classes than male undergraduates. Durio and Kildow (1980) found prediction of academic achievement was easier and more accurate for females than male engineering students. They were unable to determine, however, a cause for higher female attrition. They did speculate that academic ability and achievement were less related to retention in engineering for females than for men.

Other studies (Constantinople, Cornelius, & Gray, 1988; Cornelius, Gray, & Constantinople, 1990) found other reasons for differences in gender participation, but there was no evidence that faculty behaved discriminatorily toward females. Cranston (1989), while uncovering indications that even with perceived between gender inequities, found that most students report their campus environments to be generally gender neutral.
Instructional or interpersonal style may have only minimal effects, but the way courses are designed and the background traits brought to classes by students were more influential on student participation in Fassinger’s 1995 classroom interaction study.

Drew and Work (1998) found no evidence of a chilly climate among their broad sample, suggesting that no such gender bias “exists extensively in higher education” (p. 552). In fact, in this recent work, females reported more faculty interactions than male students did. This suggests that although there was the possibility that the classroom climate may have been consciously or unconsciously inhospitable toward women in past decades, today’s higher education learning environment appears gender neutral with regard to its impact on retention.

As with other retention research studies relating gender and persistence have also been equivocal. Trippi and Baker (1989) found specific gender differences among African American students, which suggest the importance of social variables in retention of females. African American women’s academic performance was positively related to living with other academically successful women of either race. While living with higher achieving roommates, African American women were more inclined to persist. Academic variables were considered more important than social ones for African American men, as their first year academic performance, a variable significant for both white genders, was associated more significantly with persistence. African American male living situations, however, were not found to be significant. Such information is confounding and suggests that it is additional support, group membership, a sense of community, or other factors that are viewed more as social integration influences, that contribute to persistence.
Finally, even though Moore and Klas (1989) found no significant differences in persistence between genders, Baird (1990) did determine that gender was related to retention. Astin (1993) and Lewallen (1993) also noted significant differences in degree completion between genders. Astin noted that the 1970s and 1980s did not reduce difference between females and males. In fact, college seemed to widen their differences as it often did between Whites and minorities. Trippi and Baker (1989) were unable to determine future persistence on the basis of gender alone, and other studies across groups were also unable to report that gender alone could determine academic performance or persistence. Tinto (1993) suggests that women do leave higher education more often because of social rather than academic factors, but Robertson (1991) suggests their leaving may be better characterized as stopout than dropout. And although gender is not predictive of actual academic performance, Wolfe (1993) found that females achieve significantly higher grade point averages their first year than do men when other differences are controlled.

High School Size and Rural Settings.

In Adelman’s (1999) analysis of HS&B/So student secondary school academic background, he developed three indicators to describe a “master variable” (p.11). The first indicator was a standardized college entrance test, the second was class rank, and the third was academic curriculum intensity. He discovered that test scores were correlated with each school’s overall academic quality ($r = .924$) and taking higher levels of math ($r = .756$). GPA and class rank were highly correlated, but were not as strong as SES in relation to degree completion. Academic quality refers to the availability of advanced and quantitative (science and math) courses. Adelman first evaluated high school
transcripts to assess credits in the areas of science and mathematics to determine academic intensity.

Secondly, he examined credit distributions in English, mathematics, lab science, history, social science, and foreign language to create five levels of intensity. He writes in regard to secondary school background, “The adjusted R\(^2\) is solid: it says that, in the absence of any other controls, these three components of academic resources students bring to higher education account for about 35% of the variance in bachelor’s degree completion.” (Adelman, 1999, p. 22). His determination that the level of courses taken in secondary school substantially explains postsecondary outcomes. His analysis, however, did not consider restrictions placed upon students as a consequence of the availability of those academically intense courses.

Monk and Haller (1993) used HS&B/So data to investigate how the effects of school size on the curriculum vary within subject areas to assess equality of educational opportunity. They attempted to differentiate the impact of schools in urban, suburban, and rural settings by considering differences in the availability of teachers, differences in the nature of teacher education, and differences in the effect of class size. Through their analysis, they determined 338 secondary school student enrollments as the “cut point” (Monk and Haller, 1993, p. 12). An increase in course offerings was highly associated with SES and urban setting, while “No such interaction was found for rural schools” (p. 12). Overall, Monk and Haller (1993) determined that “differences exist in the strength of the positive relationship between school size and course offerings” (p. 14). Further, they determined that in larger schools, mathematics, followed by science, offered a
greater proportion of advanced course, while in smaller schools, mathematics offerings ranked close to the bottom.

Monk and Haller (1993) were able to determine that high school size was related to course offerings, but that “impact of school size on academic curricular offerings is highly differentiated” (p, 18). Although these findings indicate that high school size does contribute to course offerings, which are also associated with bachelor’s degree completion (Adelman, 1999), they caution against making broad generalizations about the relationship of high school size and educational opportunities. Their determination that the school size is related to course offering is not equal among smaller schools. This suggests that each institution should be examined individually regarding those courses related to degree completion.

University of Nevada, Reno Student Population Profile

In Nevada, a state university was constitutionally established as a land grant institution in 1964. The University of Nevada was founded in Elko, Nevada, but was relocated to Reno where the first postsecondary instruction began in 1887. Since 1992, UNR has operated under the auspices of the University and Community College System of Nevada. Eleven extra-institutional members of its Board of Regents govern the state system.

According the UNR Databook (2000), during the fall 1999 semester, UNR offered 67 baccalaureate degree program to the undergraduate students. Of the 8,816, 2,469 were classified as freshmen, 1,548 were new freshmen and 953 were identified as new transfers. Specific class levels were not provided for transfer students. Seventy-six percent (34.8% male, 41.5% female) of the UNR undergraduate student body was
identified as White. American Indians/Alaskans (0.6% male, 1.0% female),
Asians/Pacific Islanders (2.9% male, 3.4% female), African American (1.1% male, 1.0%
female), Hispanic (2.2% male, 3.2% female), non-resident aliens (1.7% male, 1.9%
female), and Unknown (2.0% male, 2.5% female) composed the balance of UNR’s ethnic
student body across all four class levels. CIRP data for public universities (n = 64,323)
indicate that the 1999 new freshmen class nationally was composed of 82.6% White,
2.3% American Indians/Alaskans 6.8% African Americans, 7.6% Asian/Pacific Islanders,
3.5% Hispanics, and 2.5% others (Sax, Astin, Korn, & Mahoney, 1999).

Freshmen ages ranged from 15 to 60 years and new freshman average age was 19
years. The average age of all undergraduates was 23 years; however, female averages
age was 24 years. In contrast, 1999 CIRP (Sax et al., 1999) data indicate men attending
public universities were older. Seventy-two percent of new freshman women were 18
years compared to 63.2% men and 24.8% were 19 years compared to 33.4% for men.
Overall, females represented 54.8% of UNR’s entire student body. Nationally, 52.7% of
new freshmen enrolling in public universities were females. Approximately 73% of all
undergraduates were enrolled full time (at least 12 units) and the average credit load for
freshmen was 13.2 units at UNR. Ten percent of the student body was living in
university residence halls, with the remaining 90% classified as commuters during fall
1999. This contrasts sharply with 1999 CIRP data that found 82.6% of new freshmen
planned to live in college dormitories.

Nevada 1999 high school graduates accounted for 83% (1,288 students) of the
newly enrolled freshmen. Washoe, the county in which UNR is located, accounted for
50% (646). Clark, Nevada’s most populace county, enrolled 23% (298). Two Nevada
counties within one-hour drives of the UNR campus enrolled 8.1% (Carson, 104) and 5.3% (Douglas, 69). The remaining 13 Nevada counties enrolled the remaining 13.3% (171) of 1999 Nevada high school graduates who entered UNR during the fall 1999 semester. The mean ACT Composite test score for fall 1999 new freshmen was 22. Twenty-eight percent of this group scored an ACT Composite of 25 of better, 56% scored between 19 and 24, while 16% scored between 13 and 18.

Of the 8,616 undergraduate students enrolled full and part time during fall 1999, 8,084 (93.8%) were also enrolled in the spring 2000 semester. The freshman class, however, enrolled only 1660 (67%) of the 2,469 who had enrolled during fall 1999. It was not possible to determine whether the class status of some members for the beginning 2,469 freshmen group had changed. From the group of 1,548 new freshmen enrolled during fall 1999, 1,214 students (78.4%) enrolled in classes during the fall 2000 semester. Data do not appear or were not collected which would provide retention rates for the 953 fall 1999 transfer students. The 78.4% retention rate is not the same cohort used for Student Right-To-Know Act retention calculations (Databook, 2000). This rate is a substantial increase over the 1997 and 1998 74.1% rate. Further, the overall retention rate for freshmen female students increased from the 1998-1999 rate of 61.7% to 81.6% for 1999-2000. Male freshmen retention dropped from 88.6% in 1998 to 1999 to 74.7% for 1999-2000.

Summary of the Review of Literature

Research into the causes of student attrition has revealed a complex set of student variables. A general departure decision model (Tinto, 1993) has been presented that explains the individual departure process. The model suggests that student characteristics
interact with institutional policy, the faculty and staff, and the curriculum specifically and longitudinally. The model may be used to assess individual departure and institutional specific conditions. Studies of system departure patterns, however, are of limited use to evaluate institutional departure. Each postsecondary institution has been urged to assess its student body characteristics and institutional strengths and weaknesses in order to identify and weigh those factors that are most common among students and which are most influential in student performance and persistent decisions.

Specifically, the variables that distinguish students who are traditional from nontraditional students and how the institution interacts with these groups through its policies may impact each student’s commitment to remain enrolled at that school. Differences in traits between traditional and nontraditional students have been associated with differential amounts of persistence. System-wide, nontraditional students leave college with greater frequency than traditional students. Minority, commuter, and older students have lower completion rates, while women have higher performance and graduation rates than men do. First generation students and students from smaller sized (or rural) secondary schools potentially lack a familial history or requisite academic resources to sustain students’ transition to the academic and social demands of higher education easily.

System-wide research suggests that a student’s academic preparation is more positively associated with college degree completion across postsecondary institutions. Institution specific research on academic and social integration suggests that the First Year Experience course format is associated with increased academic performance (GPA) and persistence at specific institutions. Introductory subject-based FYE courses
have also been found to have positive academic performance (GPA) and persistence outcomes. The relationship between the amount of time spent on campus as a circumstance of residence, not being employed off campus, and attending full time is similarly associated with academic success and persistence. Students who enter college immediately following high school graduation and are the children of a parent with some college experience persist at higher rates system-wide. Those students who have time to focus on course work and/or who participate in campus life as a consequence of fewer hours spent off campus have persisted in greater numbers than students who are otherwise occupied off campus.

Students identified as marginal have been shown to perform at higher academic levels and persist longer as a result of interventions such as a First Year Experience course at specific institutions. Studies indicate that FYE courses that are subject-based may have positive outcomes related to academic performance and retention. The relationship between academic and retention outcomes and a campus-wide, institution specific, subject-based FYE approach has not been investigated to date. Further, the outcomes have not been studied within this FYE format among new students with characteristics associated with lower persistence. This study proposes to investigate differences in the outcomes noted previously for FYE and NFYE groups and for nontraditional categories within these groups that did and did not complete a subject-based FYE course during their initial semester of enrollment on the UNR campus.