



CHAPTER TWO



The Keys to First-Year Student Persistence

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Ask almost anybody in higher education the question, "What are the keys to first-year student academic persistence?" and most will reply, "preparation, ability, and motivation." That is, if first-year students have the basic academic skills and abilities necessary to succeed and if they are willing to attend class and study hard, they will earn satisfactory grades and persist into the second year and eventually earn a degree. The corollary to this belief is that students who drop out were not adequately prepared, not smart enough, and did not work hard enough to earn the grades necessary to stay in college and graduate. Although it is certainly true that preparation, ability, and motivation are very important factors in first-year student persistence, they are substantially deficient in explaining all the reasons that first-year students persist or drop out.

The purpose of this chapter is to expand readers' conceptions about first-year student persistence, based on the substantial and abundant theory and research dedicated to this issue in the past thirty years. We will discuss some of the most cogent theories about student academic success and review what the research and literature conclude about the variables that influence student persistence.

FIRST-YEAR STUDENT PERSISTENCE

The Introduction to this book offers a comprehensive definition of student success, the first of which was "developing intellectual and academic competence." It then defines intellectual and academic competence in three ways: (1) successful completion of courses with an acceptable grade point average, (2) continued

enrollment into the second year, and (3) development of the higher-order intellectual skills necessary to become an educated person, such as critical thinking, problem solving, and reflective judgment.

Although all the other dimensions of student success are important to educating the whole student, most colleges and universities verify directly only two parts of this definition. That is, if students earn the required number of academic credits with a minimally acceptable grade point average, they are awarded a degree. With the exception of gross violations of accepted institutional codes of conduct, most institutions, with the possible exception of those that are church related, restrict their judgments about students' degree worthiness to the academic criteria described above. Furthermore, although most institutions would claim credit for the development of higher-order intellectual skills, these skills are seldom verified independent of course grades. It is assumed that if their students made it through all the course and curricular requirements, they have these skills.

Thus, it becomes important to understand and act on what the research tells us about first-year student persistence into the sophomore year and to graduation. In the ideal world, we would review the research on both grades and persistence. However, because higher education focuses so heavily on persistence (rightly or wrongly) and because earning acceptable grades highly correlates with persistence, we will restrict our research review to persistence only. For readers interested in academic achievement, higher-order intellectual skills, and other definitions of student success, we recommend research reviews such as Pascarella and Terenzini's *How College Affects Students* (1991), Braxton's *Reworking the Student Departure Puzzle* (2000), and *How College Affects Students: A Third Decade of Research* (2005) by Pascarella and Terenzini.

Institutional Motivations for Focusing on First-Year Student Persistence

First-year student persistence has long been a topic of interest and concern in American colleges and universities. Most often, this concern has focused exclusively on retention of first-year students and their persistence to graduation at the institution in which they initially enrolled. For example, Winston and Sandor (1994) noted that ". . . with college enrollment declining and college populations changing, recruitment and retention have become key issues that affect the success of the institutions" (p. 5). According to Bean (1996), this institutional concern with retention is motivated by economical, ethical, and institutional reasons. The economic reason is most straightforward. There is a direct relationship between enrollment and income. When institutions lose students, financial resources decline. However, Bean (1986) also argues that it is unethical to admit students for the "benefit of the institution and not for the good of the student" (p. 47).

Trends in First-Year Student Persistence

The research on student persistence reveals that the largest proportion of institutional leaving occurs during the first year and prior to the second year. According to American College Testing (2002) persistence is very much influenced by

institutional type. The 2001 freshman-to-sophomore persistence rate was 73.9 percent at four-year colleges and 54.1 percent at two-year colleges. Persistence rates increased with institutional selectivity. According to American College Testing (2000), which tracked annual data from 1983 through 1999, dropout rates ranged from 16.8 percent at private doctoral-level institutions to 47.7 percent at two-year public colleges, and 8.8 percent at highly selective colleges to 46 percent at open admissions institutions. Most educators would agree that these dropout rates are unacceptable (with the possible exception of highly selective institutions). Institutions cannot afford to admit students and hope that they sink or swim on their own. Many institutions have come to understand the need to both challenge and support the students they admit and make a commitment to help them succeed.

In fact, institutions have changed the ways in which they deal with first-year students. Gardner (1986) has stated numerous reasons that this change has occurred, including a decline of traditional-age students, increased competition for the pool of applicants, poor quality of high school graduates, federal mandates for recruiting and retaining certain types of students, the changing demographics of today's students, and sincere commitments to improve the quality of education that first-year students receive. Gardner also states that attention must be directed to students' needs as they adapt and adjust to their new environments. According to Wilkie and Kuckuck (1989), the first year of college requires a series of profound academic, social, and emotional adaptations. The inability to adapt to the new environment often causes students to withdraw from school during or after the first year or to perform at a lower academic level than expected (Tinto, 1982).

Furthermore, time to degree has increased. According to McCormick and Horn (1996), the typical pattern of entering directly from high school and earning a bachelor's degree four years later is no longer the experience of most undergraduates. Of those who earned degrees in 1993-1994, only 36 percent had completed college within four years of first enrolling. Another 28 percent finished in five years, for a 64 percent five-year graduation rate. These rates are very much influenced by the fact that 37 percent attended more than one institution and took breaks between institutions. When graduates stay at the institution at which they first enrolled, completion rates were 51 percent within four years and 80 percent within five years. Horn and Berktold (1998) found that other reasons for extended time-to-degree rates include students who study part time, including adult learners and others who attend two-year institutions. Students who enter less prepared for college work (as measured by the SAT or ACT scores) and struggle academically in college also take longer to graduate.

MODELS OF STUDENT PERSISTENCE

The reasons that students persist became a major area of inquiry for education scholars beginning in the 1980s. Of the many theories on this topic, we have chosen to focus on two that have become most recognized and used to explain

student persistence: Astin's Input-Environment-Output model and Tinto's Theory of Student Departure. (Other viable models of student persistence include Bean & Metzner, 1985; Pascarella & Terenzini, 1991; Stage & Hossler, 2000; and Tierney, 1992. For a more recent critical analysis of retention theory and research, see Braxton, 2000.)

Astin's Input-Environment-Outcomes Model

One of the first attempts to explain student persistence was put forth by Alexander Astin, who created the Input-Environment-Outcome model to serve as a conceptual guide for studying college persistence. He started with the basic commonsense notion that student success is a function of who students were before they entered college and what happened to them after they enrolled. The purpose of his model is "to assess the impact of various environmental experiences by determining whether students grow or change differently under varying environmental conditions" (Astin, 1993, p. 7). Astin's model hypothesizes that students enter college with a preestablished set of characteristics (inputs) that influence their views about college. Astin (1991) identified 146 possible input (precollege) variables, including high school grades and admission test scores, race, ethnicity, age, gender, marital status, religious preference, income, parental level of education, and reasons for attending college. The consideration of input characteristics when assessing student retention helps to understand the influence of students' backgrounds and characteristics on their ability to persist.

Astin (1991) also identified 192 environmental variables that might influence student success, organized into eight classifications: institutional characteristics (such as type and size), students' peer group characteristics (such as socioeconomic status, academic preparation, values, and attitudes), faculty characteristics (such as methods of teaching and values), curriculum, financial aid (Pell grants, Stafford loans), major field of choice, place of residence (residence hall, living at home, apartment living, Greek housing), and student involvement (hours spent studying, number of classes, participation in extracurricular activities, and others).

The final component of Astin's model is outcomes. Outcomes are the effects of college and refer to the student's characteristics after exposure to the environment. He classified his eighty-two outcomes to include satisfaction with the collegiate environment, academic cognition, career development, academic achievement, and retention.

Tinto's Theory of Student Departure

While Astin's model was helpful in explaining the variables that influence student persistence, it was Tinto (1975), building on the work of Spady (1970), who delineated the nature of the interrelationships between and among these variables, ultimately resulting in direct, indirect, and total effects of each factor. Tinto was also the first to address the reasons for, magnitude of, and mediating aspects of persistence that Astin's model did not explore. If a first-year student has the ability to make the initial transition to college, then remaining in college entails the incorporation of the student into the intellectual and social com-

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munities of the institution. But Tinto also argues that the institution shares this responsibility for helping first-year students achieve academic and social integration. Although some departures are involuntary (for example, the institution may request that the student withdraw due to academic failure), most departures are initiated because the student perceives an insurmountable problem. Often this problem is the student's perception of not belonging to or not being involved with the institutional community. Tinto argues that both forms of integration, intellectual and social, are essential to student retention.

Consistent with Astin's notion of inputs, Tinto (1993) theorized that students enter a college or university with particular characteristics and skills that affect their initial commitment to their educational goals and their institution. This commitment is increased or decreased depending on the quality and quantity of academic and social experiences. If students experience positive and rewarding academic and social experiences, they will become integrated into the institution. Tinto states that greater integration leads to higher retention rates. Moreover, Pascarella and Terenzini (1991) state that "negative interactions and experiences tend to reduce integration, to distance the individual from the academic and social communities of the institution, promoting the individual's marginality and, ultimately, withdrawal" (p. 53). Tinto (1993) wrote, "The point of retention efforts is not merely that individuals be kept in college. Education, the social and intellectual development of individuals, rather than just their continued presence on campus should be the goal of retention efforts" (p. 145).

While these explanations of student persistence vary in many details, the basic notion is the same: if institutions are to challenge and support first-year students in their academic success, they must focus on both the characteristics and experiences of their students prior to college, as well as their experiences both inside and outside the classroom once they are enrolled and how these variables interrelate. That means more careful attention to who is admitted and to the creation of a collegiate environment that is conducive to student persistence once students are enrolled.

INTERPRETING THE PERSISTENCE RESEARCH: SOME IMPORTANT CAVEATS

The research reported in the remainder of this chapter must be interpreted in the light of the many limitations and contexts of the studies reviewed:

- Many are single-institution studies for which generalizability to other institutions may or may not be appropriate, and those studies will be noted.
- Only studies that controlled for input variables and other appropriate environmental variables will be presented unless otherwise noted.
- There is no such thing as a perfect study. All of the studies cited have limitations, and the reader is encouraged to refer to the original studies to evaluate these limitations.

- Because in many instances the research is not completely in agreement, when conclusions are reached about a particular variable, they will be based on a preponderance of evidence.
- In some instances, it was not possible to draw a conclusion because the research findings were mixed.
- This literature review was not intended to be comprehensive, but the studies cited are generally representative of the genre of studies under review.
- Every effort was made to find more recent studies to support our conclusions, particularly when changes over time were evident.
- Unless otherwise noted, the studies reviewed focus on the influence of particular variables on persistence to graduation.
- Just because a variable has been shown to be related to persistence does not mean that an individual student will necessarily be affected in the same way. For example, although living in residence halls generally is positively related to persistence, there may be students for whom living in residence halls could be a factor in their dropping out.
- It is certainly quite possible that there are variables that affect first-year student persistence that we have overlooked.
- First-year student persistence is very much institution specific; thus, not all strategies will work at every institution. Institutions must develop initiatives consistent with their mission, resources, students, faculty, leadership, and other characteristics.
- Most of the findings reported in this chapter are based on persistence studies of individual institutions, or aggregates of individual institutions. The findings reported, unless otherwise noted, do not reflect those students who start at one institution and may finish at another. In this sense, most studies tend to underestimate overall student persistence because they assess institutional persistence rates, not actual student persistence rates.
- Any effort to generalize about multiple studies is by nature an art rather than a science, and other research reviewers might reach different conclusions based on the same studies.

THE LITERATURE REVIEW ON PERSISTENCE

This literature review is organized around Astin's Input-Environment-Output model, starting with two categories of input variables: student backgrounds and characteristics and institutional characteristics and environments. We then review relevant in-class and out-of-class variables that affect student persistence, both student centered and institutional centered.

Student Input Variables

Yogi Berra was once asked what made for a successful baseball team. He purportedly said, "good players." In that same vein, we might ask what makes for

a successful college or university. And the answer, in part, is, "good students." It is no accident that highly selective institutions have much higher persistence rates than other institutions, in part because they select students who are more likely to succeed than students attending other institutions. So the beginning point for looking at first-year student persistence is what the research and literature tell us about which precollege characteristics have been found to influence their success. They include prior academic achievement, socioeconomic status, gender, age, financial aid, race/ethnicity, parent and other family support, and student commitment to a degree. This information is important to first-year students to help them better understand what they must do to persist and to institutions as they consider how to help first-year students persist.

Prior Academic Achievement. There is substantial evidence that the most powerful predictor of persistence into the sophomore year is the first-year student's prior academic achievement, including high school grades (Stage & Hossler, 2000; Allen, 1999; Astin, 1993; Pascarella & Terenzini, 1991) and SAT scores (Astin, 1993; Pascarella & Terenzini, 1991). According to Astin (1993), "Hundreds of studies using various measurements and methodologies have yielded similar results: college grade point averages can be predicted with modest accuracy (multiple correlation around .55) from admissions information. The two most potent predictors are the student's high school grade point average and scores on college admissions tests" (p. 187).

The predictive validity of college admissions tests is less than for high school grades. In a review of this literature, Schwartz and Washington (1999) concluded that although these tests have become essential elements in college admissions, they add little to predictive equations beyond the use of high school grades or rank and do not predict success uniformly across gender and ethnic groups.

Socioeconomic Status. A second input variable that influences the retention puzzle is students' socioeconomic status. According to Astin (1993), those entering first-year students who are most likely to complete a bachelor's degree within four years are from high socioeconomic levels. Moreover, students from families with higher incomes tend to persist more than students from families with lower incomes (Cabrera, Stampen, & Hansen, 1990; St. John, 1989, 1990; St. John, Kirshstein, & Noell, 1991).

Gender. Women students make up more than half of today's college students (Chronicle of Higher Education, 2003) and tend to persist at higher rates than men. Christensen (1990) found that gender was strongly related to retention. Christensen's study identified a substantial difference based on gender, with 30 percent of the persisters being male and 70 percent being female. Astin (1993), Lewallen (1993), and York, Bollar, and Schoob (1993) also reported higher completion rates for women than men when other factors that affect persistence are taken into account. Astin, Tsui, and Avasolos (1996) found that women are more likely than men to attain the bachelor's degree, regardless of the time spent in college. This appears to be true at community colleges as well. In a study of

nearly twenty-three thousand students at a three-campus community college over a three-year period, first-to-second-semester persistence was higher for women than for men (Rajasekhara & Hirsch, 2000).

Age. Over the past several decades, the average age of the typical college student has risen. However, little research is available connecting age to persistence. Although numbers of older students have increased, most of the retention research continues to focus on the traditional students ages eighteen to twenty-one years old. Tinto (1987) wrote, "The situation with older students is, in many respects, not unlike that of minority students. In the youthful world of most colleges, they can be equally marginal to the mainstream of institutional life. Older students are much more likely to have significant work or family responsibilities which constrain their involvement in the life of college" (p. 73). Furthermore, according to a literature review conducted by Peltier, Laden, and Matranga (1999), adult learners are more likely to enroll part time, have less skillful study habits, have been out of school for several years, are more likely to have dependent children to care for, live at home, and have more commitments outside college, all factors that contribute to lower persistence rates. But many adult learners tend to have more focused career goals and a stronger motivation to complete their degrees.

Race/Ethnicity. Perhaps no other persistence studies have been more prolific than those researching the relationship between the race/ethnicity of students and their persistence. Such studies are very complicated because variables other than race/ethnicity, such as socioeconomic status, lack of academic preparation, and campus climates that are hostile to minorities, often confound isolating race/ethnicity as a factor in persistence. Furthermore, there are differences within and among various ethnic minorities, which were largely ignored in the early research on minority student persistence, and there is virtually no research on mixed race minorities. Research on minority student persistence is complicated by the assertion of some researchers (Tierney, 1992) that traditional models of student persistence do not necessarily apply to nonwhite students.

Nonetheless, in general, persistence rates of racial/ethnic minorities, with the exception of Asians, are lower than those of majority students, even when these other variables are taken into account. For example, in a review of the relevant literature, Stage and Hossler (2000) concluded that minority students, particularly at predominantly white institutions, are less likely to persist, have differing experiences, and demonstrate more behaviors leading to attrition than their white peers.

Parents and Other Family. Parents appear to be another factor in student persistence, beginning even before their children enroll. For example, Lang and Nora (2001) found that precollege parental encouragement was positively related to persistence. Once students enrolled, parents continue to have a positive influence. For example, in reviewing relevant literature, Stage and Hossler (2000)

concluded that parents' higher educational levels and incomes are strongly related to involvement in college and indirectly to persistence. Bean and Vesper (1992) found that parental support and encouragement was a strong predictor of persistence at a small liberal arts college that enrolled high numbers of first-generation students. Although parents may not be a factor for adult learners, family support from significant others such as spouses and children is a critical factor in their persistence.

Student Commitment to a Degree. There is some evidence to support the commonsense notion that a first-year student who is committed to graduating will do so. First-year students who begin college with a commitment to completing a degree are more likely to persist than those with wavering or uncertain commitments. For example, in a study of persistence of students at two-year colleges, Cofer and Summers (2000) found that students who aspired to a college degree were more likely to persist than those not aspiring to any degree. Bell et al. (1999) found that commitment to remain in college predicted retention for first-year, full-time residential students.

Institutional Variables

Ample evidence supports the notion that the institution a first-year student chooses becomes an important factor in his or her persistence because some institutions are more conducive to persistence than others. These institutional variables include selectivity, type (two or four year), size, control (public or private), gender composition, and racial composition. However, Pascarella and Terenzini (2005) note that in general, these persistence variables are less influential than students' experiences once they enroll.

Selectivity. Selectivity appears to be a factor in persistence. Pascarella and Terenzini (1991, 2005) reviewed the literature on institutional selectivity and concluded that institutional selectivity tends to enhance persistence even after variations in the background characteristics (including academic abilities) of students enrolled at different institutions are taken into account.

Institutional Type: Two Year and Four Year. Institutional types (two year or four year) have different persistence rates. Pascarella and Terenzini (1991) reviewed this research and concluded that there was consistent evidence that initial attendance at a two-year rather than a four-year institution lowers the likelihood of a student's attaining a bachelor's degree by fifteen to twenty percentage points. A more recent analysis by Berkner, Cuccaro-Alamin, and McCormick (1996) revealed that the retention rate of students who started at four-year institutions was 56 percent after five years, with 44 percent dropping out entirely and others transferring. For students starting at two-year institutions, the picture is quite different. Of those students seeking a bachelor's degree who enrolled at two-year colleges, only 39 percent transferred to a four-year institution, and only about 8 percent had earned a bachelor's degree within five years.

Moreover, according to Tinto (1993), only a third of all beginning full-time students at community colleges earn associate degrees or certificates. However, according to Pascarella and Terenzini (2005), when students attending a two-year institution transfer to a four-year institution, their chances of earning a bachelor's degree are about the same as those who began at a four-year institution.

Size. According to Pascarella and Terenzini's review of the literature (1991) on the impact of institutional size on retention, the evidence is inconsistent and contradictory. One of the problems in this research is the definition of size. For example definitions of "small" institutions range from those with one thousand students or fewer (Bradford & Farris, 1991) to those with one thousand to five thousand (Kamens, 1971). Thus, the size of institutions may or may not have an impact on persistence, but these institutions may differ on other outcomes, such as social involvement and interpersonal participation (Pascarella & Terenzini, 1991).

Control: Public and Private. After reviewing the literature on institutional control and persistence, Pascarella and Terenzini (1991) concluded that although the evidence is not totally consistent, it does suggest that attending a private rather than a public institution has a positive influence on persistence and appears to be independent of the selectivity of the college attended and other relevant variables. For example, Astin and Oseguera (2002) found that the four-year graduation rates for private institutions were 67.1 percent for private universities, 56.3 percent for nonsectarian colleges, 46.4 percent for Roman Catholic colleges, and 51 percent for other Christian colleges. The four-year graduation rates for public institutions were 28.1 percent for public universities and 24.3 percent for public colleges. It should be noted, however, that the effects of institutional control are confounded by institutional size.

Gender Composition. According to Pascarella and Terenzini's review of the literature (1991) on gender composition and persistence, evidence suggests that attending a single-sex institution is associated with higher levels of persistence, particularly for women. They did, however, point out that the net positive effect is small—slightly less than 1 percent of the variance in persistence.

Racial Composition. According to a review of the literature on racial composition and persistence by Stage and Hossler (2000), persistence rates of minority students at predominantly white institutions are less than those of their white counterparts. For example, Pascarella and Terenzini (1991) concluded after a review of the relevant literature that black students were significantly less likely to drop out if they were enrolled in a predominantly black institution. Research on persistence at institutions that are dominated by other racial and ethnic groups is virtually nonexistent.

There is one caveat to these institutional input variables: although such evidence may be useful to prospective students and their families, it is very

unlikely that institutions can substantially change such things as their size and control. However, over some period of time, institutions may be able to affect selectivity, gender composition, racial composition, and other institutional input variables related to student persistence.

Environmental Variables

Many in-class and out-of-class variables influence first-year student persistence. They include first-year grade point average (GPA), major, enrollment status (full or part time), quality of student effort, interactions with faculty, interactions with students, participation in extracurricular activities, work, student satisfaction, alcohol abuse, Greek affiliation, campus climates, financial aid, and participation in intercollegiate athletics.

First-Year Grade Point Average. There is considerable evidence to support the old bromide that nothing succeeds like success. In fact, one of the best predictors of first-year student persistence is the grades students earn during the first year. In their review of relevant research, Pascarella and Terenzini (1991) concluded that undergraduate grades are perhaps the best predictor of obtaining a bachelor's degree. Xiao (1999) found that second-semester academic success was the strongest predictor of retention into the third, fourth, and fifth semesters, as well as persistence to graduation. Belcheir (1997) found that first-semester college GPA "is the most important predictor for retention" (p. 7). In contrast, when Ishitani and DesJardins (2002-2003) reviewed several studies on this issue, they reached the somewhat puzzling conclusion that college grades were negatively related to attrition but positively related to persistence to graduation.

Academic Major Field. The conventional wisdom is that students majoring in the hard or technical sciences are more likely to drop out, but Thomas and Gordon (1983) found the opposite was true, and Pascarella and Terenzini (2005) found that students majoring in the sciences, engineering, business, and health-related professions were more likely to graduate than similar students in other majors.

Enrollment Status: Full Time and Part Time. In general, full-time first-year students are more likely to persist than part-time students. For example, in a study of twenty-three thousand community college students, Rajasekhara and Hirsch (2000) found that the fall-to-spring retention rate was 75 percent for full-time students and 55 percent for part-time students. Somers (1995), in her study of twenty-one hundred university students, also found that full-time students had a first-to-second-semester persistence rate that was higher than part-time students.

Quality of Student Effort. A commonly accepted axiom of first-year student persistence is that the more students invest in their learning, the greater is their likelihood of staying in college. There is some evidence to support this notion.

For example, Tinto (1987) found that hours studied per week were positively associated with persistence. There is also substantial evidence that the quality of student effort affects the extent of student learning (Pace, 1984; Ory & Braskamp, 1988; Kaufman & Creamer, 1991) and thus may have an indirect as well as direct effect on persistence. (In Chapter Five of this book, Kuh presents powerful evidence that quality of first-year student effort is positively related to persistence.)

Interactions with Faculty. In their review of the research on the relationship of faculty-student interactions to student persistence, Pascarella and Terenzini (1991) concluded that "freshman to sophomore persistence was positively and significantly related to total amount of student-faculty nonclassroom contact with faculty and particularly to frequency of interactions with faculty to discuss intellectual matters" (p. 394). More specifically, Lundquist, Spalding, and Landrum (2002-2003) found that specific faculty behaviors contributed to student persistence: faculty members being supportive of student needs, being approachable, and returning telephone calls and e-mails in a timely fashion.

Interpersonal Interactions. One other area that affects first-year students' persistence is their interactions with others, including peers and family. According to Astin (1993), "The student's peer group is the single most potent source of influence on growth and development during the undergraduate years" (p. 398). Peer relations are critical for support, confirmation of one's identity, opportunities for socialization, and persistence (Astin, 1993; Hirsch, 1980). Pascarella and Terenzini (1991) reviewed the relevant evidence on students' interactions with peers and concluded that both the frequency and quality of students' interactions with peers were positively associated with persistence.

Not surprisingly, first-year college students find interpersonal relationships among their highest areas of concern (Paul & White, 1990). Interpersonal relationships between peers not only provide emotional and social support, but also influence one's identity and sense of self (Paul & Brier, 2001). "Much of the college success and retention literature has identified attaching to a significant other or peer group in the university as the factor most predictive of success and coping" (Paul et al., 1998, p. 76). Those who seek social support have shown better adjustment to stressors (Paul & Kelleher, 1995), and the more new friends a student has in his or her social network, the smoother is that person's adjustment to college (Paul & Brier, 2001).

If students do not develop a network of friends at college, they could suffer from "friendsickness," which Paul and Brier (2001) have defined as "the pressing relational challenge for new college students that is induced by moving away from an established network of friends" (p. 77). Friend-sick college students may have an "insecurity both in their ability to have close friends to share with and in their ability to make close, trustworthy friends" (Paul & Brier, 2001, p. 79). If students do not feel connected to a new peer group, their chances of departing from the institution are increased (Paul & Kelleher, 1995). While there

have been some studies conducted on "friendsickness" (Paul & Brier, 2001; Paul & Kelleher, 1995; Crissman Ishler & Schreiber, 2002), more research is needed.

In addition to other students, there are other sources of interpersonal support that are important to student persistence. In a comprehensive review of the persistence literature, Nora (2001-2002) concluded that the impact of support and encouragement from significant others is of primary importance to both adjustment of students to their social and academic environments and to persistence as well. Furthermore, the effects of this support and encouragement from significant others are consistent across minority and nonminority populations.

Participation in Extracurricular Activities. Contrary to some conventional wisdom that participation in extracurricular activities is detrimental to first-year student persistence, there is some evidence to support the notion that students' participation in extracurricular activities is positively associated with persistence (Pascarella and Terenzini, 1991).

Work. Many first-year students must work while enrolled in order to pay for their education. According to data from the U.S. Census Bureau (2001), 64 percent of two-year-college first-year students and 38 percent of four-year-college first-year students were employed in the year 2000. Furthermore, by enrollment status, 43 percent of full-time students and 78 percent of part-time students were employed. Thus, the impact of work on persistence is an important issue. Pascarella and Terenzini (1991) reviewed the relevant literature on the relationship of work to persistence and concluded that a part-time job on campus has a net positive impact on year-to-year persistence to bachelor's degree completion and timely graduation. They also concluded that persistence is inhibited by full-time and part-time employment off-campus.

Ishitani and DesJardins (2002-2003) reviewed research on the relationship between hours of employment and dropout behavior and found the persisters tended to engage in part-time employment instead of full-time employment and dropouts tended to work longer hours than persisters. Cuccaro-Alamin and Choy (1998) found that working more than fifteen hours per week reduced the likelihood of persisting, while working one to fifteen hours per week increased the likelihood of persisting. Wilkie and Jones (1994) found that working part-time on campus for an average of eight hours per week throughout the first-year was associated with significantly higher retention rates for traditional-age developmental students than either a lower frequency of employment or no on-campus employment.

Student Satisfaction. Often the notion of student satisfaction is underrated as an outcome of college. There are some who would argue that it does not matter whether first-year students are "satisfied" with their collegiate experience. What really matters is their achievement, what they learned, and if they graduated. However, the research shows that first-year students who are satisfied with their collegiate experience are more likely to persist than those who are

dissatisfied (Sanders & Burton, 1996). Thus, institutions that are committed to first-year student persistence must attend to first-year student satisfaction.

Alcohol Abuse. Given the extent to which alcohol is a substantial and detrimental aspect of the first-year experience (see Chapter Twenty-Six), the relationship of alcohol and persistence must be considered. There is substantial evidence that alcohol abuse has a negative impact on nonconsensual sexual experience (Himelein, Vogel, & Washowiak, 1994), dysfunctional interpersonal relationships (Knox, 1997), and campus violence (Barrett & Simmons, 1998). The evidence is also convincing that the consumption of alcohol is negatively related to GPA (Presley, Meilman, & Lyerla, 1993, 1995; Presley, Meilman, & Cashin, 1996). However, there is little evidence that first-year students who abuse alcohol are less likely to persist than those who do not, except for the possible indirect effect: alcohol abuse negatively affects grades, and good grades positively affect persistence. (For a more detailed discussion of the impact of alcohol on the first-year student experience, see Chapter Twenty-Six.)

Participation in Greek Life. Does participation in a fraternity or sorority during the first year of college affect persistence? Astin (1975) found that living in a sorority or fraternity during the first or second year had a statistically significant positive influence on degree completion or continued persistence in college. In a more recent review of the literature on persistence and Greek life, Moore, Lovell, McGann, and Wyrick (1998) concluded that persistence to degree was positively associated with membership in Greek organizations. Tripp (1997) reviewed the relevant literature on this issue and also concluded that Greek membership was associated with higher retention rates than non-Greeks. There may be negative outcomes associated with Greek membership (such as alcohol abuse, lower moral reasoning ability, and lower academic performance), but persistence is not one of them (Peltier, Laden, & Matranga, 1999).

Campus Climates. First-year students' perceptions of campus climate can have an effect on their persistence. For example, perceptions of prejudice and discrimination can account for differences in persistence rates between minorities and nonminorities (Cabrera et al., 1999; Hurtado, Carter, & Spuler, 1996; Smedley, Myers, & Harrell, 1993). First-year perceptions of the climate for women, sexual minorities, students with disabilities, adult learners, and others may also have an impact on persistence, but there is little evidence to support this assumption.

Financial Aid. In a review of research on the relationship between financial aid and persistence, St. John, Cabrera, Nora, and Asker (2000) concluded that finance-related factors (student aid, tuition, and other costs, including living) explained about half of the variance in the persistence process. Furthermore, the type of student aid mattered: students who received a financial aid package made up of grants or with a higher ratio of grants to loans displayed a

higher level of persistence (St. John, 1989, 1990; Somers, 1996). There were some single-institution studies, however, that found no relationship between student aid and persistence (Braunstein, McGrath, & Pescatrice, 2000-2001; Somers, 1995).

Participation in Intercollegiate Athletics. Some people believe that students who participate in intercollegiate athletics are more likely to drop out than other students. Contrary to this conventional wisdom, Pascarella and Terenzini (2005) found that such participation had a positive and significant effect on persistence to graduation. This conclusion was true not only for revenue-producing sports such as men's football and baseball, but for all other sports as well, even when controlling for other potentially confounding factors.

Intentional Institutional Interventions. There is substantial evidence that when first-year students participate in the services and programs designed to enhance their success, they are more likely to persist (Kulik, Kulik, & Schwab, 1983). These activities include the classroom, first-year seminars, orientation, residence halls, learning communities, academic advising, service-learning, Supplemental Instruction, developmental education, other support services, and selected combinations of these.

The Classroom. For many first-year students, especially nonresidential students such as commuters and adult learners, the classroom is virtually the only focus of their educational experience. There is some evidence that first-year students' classroom experiences are related to their persistence. For example, Tinto (1987) found that first-year students who were enrolled together in several courses that were tied together by a unifying theme and taught using cooperative learning activities had higher persistence rates than those enrolled in traditional courses. However, most of the research on the classroom focuses on relationships of selected classroom techniques and behaviors to student learning, which may have an indirect relationship to persistence. It is well beyond the scope of this review to cite all of these factors, but they include small classes (Light, 2001), problem-based learning (Polanco, Calderon, & Delgado, 2001), cooperative learning (Johnson, Johnson, & Smith, 1998), study groups (Light, 2001), focused writing assignments (Erickson & Strommer, 1991), and student study groups (Cooper & Mueck, 1990).

First-Year Seminars. One of the most widely researched environmental influences on first-year student persistence is the first-year seminar, which has been in existence for over a hundred years in American higher education. While seminars may vary in structure, content, grading, and credits, they are designed to foster better understanding of the institution, enhance academic interest and integration, and provide opportunities for social integration.

The first-year seminar is one of the most powerful predictors of first-year student persistence into the sophomore year. In general, first-year students who

take these first-year seminars are more likely to persist into the third semester than those who do not, even when controlling for other precollege and during-college variables that may influence that outcome (Murtaugh, Burns, & Schuster, 1999; Anselmo, 1997; Barefoot et al., 1999; Ellis & Gardner, 1997; Fidler & Moore, 1996; Hyers & Joslin, 1998; Williford, Cross Chapman, & Kahrig, 2000-2001).

Furthermore, there is some evidence that the grade earned in a first-year seminar is a predictor of first-year student persistence. For example, Raymond and Napoli (1998) found that community college students who completed a first-year seminar with a grade of C or better had higher persistence rates and graduation rates than students who received lower than a C in the course. (For a more extensive discussion of first-year seminars, see Chapter Sixteen.)

Orientation. Virtually every college and university has some kind of orientation program designed to help first-year students make a successful transition to college. There is some limited evidence that these programs are related to persistence. For example, in a review of relevant research, Rode (2000) found an indirect positive effect between orientation and student persistence. Forrest (1985) found that a group of nine institutions with the most comprehensive set of orientation and advising programs for first-year students had a graduation rate 9 percent higher than that of a group of nine institutions with the least comprehensive programs. Pascarella and Terenzini (1991), in a review of relevant literature, concluded that the weight of evidence suggested a statistically significant positive link between exposure to various orientation experiences and persistence, from freshman to sophomore year and through attainment of a bachelor's degree. (For a more extensive discussion of orientation, see Chapter Twenty-Three.)

Living Environments. There is evidence that first-year students who live in residence halls are more likely to persist into the sophomore year than students who live elsewhere. Two landmark studies in the 1970s demonstrated this powerful influence. Astin (1977) conducted a highly controlled study involving more than 225,000 students from 1961 to 1974. He concluded that the most important environmental characteristic associated with finishing college was living in a residence hall during the first year. In fact, residence hall living added 12 percent to a first-year student's chance of finishing college. In a study of nearly 170,000 students, Chickering (1974) reached many of those same conclusions. Since those landmark studies, many other studies have demonstrated the same results (Fidler & Moore, 1996; Herndon, 1984; Kanoy & Bruhn, 1996; Pascarella, 1993; Thompson, 1993; Astin, 1993). (For a more detailed discussion of residence halls, see Chapter Twenty-Four.)

Learning Communities. Learning communities, also known as clusters, linked courses, and freshman interest groups, are another factor that can help improve

first-year student persistence rates (Crissman, 2001; Shapiro & Levine, 1999; Tinto & Goodsell Love, 1995; Schroeder, 1994; Tinto & Goodsell, 1993; Gabelnick, MacGregor, Matthews, & Smith, 1990). Learning communities can range from simply scheduling groups of students so that they share two or more courses, to arranging special seminars, study skills workshops, and social events for blocks of students, to housing them together in residences. Tinto and Goodsell Love (1995) note that clustering "groups of students, taking two or more classes together, will provide both social and academic support for each other and in doing so, enhance the classroom experience for all" (p. 15). Tinto and Goodsell (1993) found that cluster benefits for students include retention, decreased withdrawals, better grades, and more positive perceptions about college.

Early attempts at clustering have been effective at improving the retention of students. Gabelnick et al. (1990) found that nationwide for students in clusters, "beginning to end-of-quarter retention rates averaged ten to twenty percentage points higher than typical institution averages" (p. 63). Tinto and Goodsell Love's study (1995) found nearly a 90 percent end-of-quarter retention rate for first-year students in learning communities. And Belcheir (1997) reported that clustered students were more likely to reenroll the following spring semester and again the following fall semester compared to the control group. (For a more extensive discussion of learning communities, see Chapter Twenty-Two.)

Academic Advising. Academic advising is another important environmental component of first-year student persistence, although the evidence of this influence is somewhat mixed. Beal and Noel's research (1980) found that first-year students who use academic advising services persist at higher rates than students who do not use the services. Thomas (1990) also found that the quality of academic advising is a primary retention factor. But in their review of relevant literature on the impact of academic advising on persistence, Pascarella and Terenzini (1991) concluded that the research results have been mixed; they cited a study by Metzner (1989) that showed "that the quality of advising received had only a small and statistically nonsignificant direct effect on persistence. High-quality advising, however, did have a statistically significant positive effect on persistence transmitted through its positive impact on such variables as grades and satisfaction and its negative effect on intent to leave the institution" (pp. 404-405). (For a more extensive discussion of academic advising, see Chapter Nineteen.)

Service-Learning. There is substantial evidence that students who participate in service-learning achieve many desirable outcomes, such as current or expected involvement in civic affairs and improved life skills (Gray, Ondaatje, Fricher, & Geschwind, 2000), enhanced perspectives on service and responsibility to the community (Malone, Jones, & Stallings, 2001), increased performance in selected courses (Strage, 2000), and increased levels of civic responsibility

and critical thinking skills (Checkoway, 1997). However, there appears to be little evidence to date that participation in service-learning has a direct impact on persistence. (For a more detailed discussion of service learning, see Chapter Twenty-One.)

Supplemental Instruction. Supplemental Instruction (SI) is a peer-assisted academic support program implemented to reduce high rates of attrition, increase the level of student performance in difficult courses, and increase graduation rates. Many studies have shown the positive influence of Supplemental Instruction on retention (Hills, Gay, & Topping, 1998; Ramirez, 1997; Collins, 1982). Ten percent more students who attend SI sessions persist until graduation when compared to nonparticipants with similar incoming characteristics (Arendale & Martin, 1997; Center for Supplemental Instruction, 1998). According to Congos (2002), "SI is proactive in that students begin attending during the first week of classes and problems in content understanding can be identified early and addressed in SI sessions" (p. 308). (For a more detailed discussion of Supplemental Instruction, see Chapter Eighteen.)

Developmental Education. Developmental education programs that are designed to help first-year students succeed academically appear to have a mixed impact on persistence. For example, in a study of twenty-one public community colleges, Schoenecker, Bollman, and Evens (1998) found that students who completed developmental courses significantly outperformed the course nontakers in persistence rates. But Grunder and Hellmich (1996) found no relationship between persistence and participation in a developmental education program. (For a more detailed discussion of developmental education, see Chapter Seventeen.)

Other Student Support Services. Some evidence suggests that use of selected student support services is related to student persistence. These include counseling services (Wilson, Mason, & Ewing, 1997) and campus recreation programs (Belch, Gebel, & Maas, 2001). (For a more detailed discussion of other student support services, see Chapter Twenty-Five.)

Intervention Combinations. It is not unusual for institutions to combine some intentional interventions in ways that positively affect persistence. Such integrated interventions include learning communities and block scheduling (Soldner, Lee, & Duby, 1999); academic advising, first-year seminar, student mentoring, academic skills, and social support activities (Colton, Connor, Schultz, & Easter, 1999); block registration and mentoring (Mangold, Bean, Adams, Schwab, & Lynch, 2002-2003); first-year seminar, developmental education, and academic advising (Johnson, 2000-2001); first-year seminars and campus residence (Fidler & Moore, 1996); Supplemental Instruction (Yockey & George, 1998); and many others.