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**PREDICTORS OF PERSISTENCE AMONG
COMMUNITY COLLEGE
ADULT AND TRADITIONAL-AGED STUDENTS**

by

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B.S., May 1990, Virginia Tech
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A Dissertation Submitted to the Faculty of
Old Dominion University in Partial Fulfillment of the
Requirements for the Degree of

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August 2006

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ABSTRACT

PREDICTORS OF PERSISTENCE AMONG COMMUNITY COLLEGE ADULT AND TRADITIONAL-AGED STUDENTS

Kellie Crawford Sorey
Old Dominion University, 2006
Director: Dr. Jerry Young

Previous literature has documented the high attrition rates for community college students. Beyond raw data, research has demonstrated that predictors of higher education persistence may include a student's background characteristics, a student's external commitments, institutional influences, and a combination thereof. However, empirical research on the persistence of community college students is scarce, and even fewer studies address the differential predictors of persistence between adult and traditional-aged students. The present study examined the predictors of institutional persistence among adult and traditional-aged degree-seeking, first-time enrollees at a public, multi-campus two-year community college in southeast Virginia.

A random sample comprised of 350 traditional-aged and 350 adult students were encouraged to complete a survey questionnaire to measure the following major constructs under study: individual attributes; student enrollment characteristics; external commitments; goal support; intent and commitments; academic integration; and, social integration. The following semester, the previous semester's fall grade-

point average was extracted. The enrollment status of each participant was also extracted to determine who had persisted at the institution.

Using descriptive discriminant function analysis and Independent-Samples *t* Tests, the predictors of persistence were examined to determine if there are identifiable predictors of institutional persistence for first-time, degree-seeking community college students. These statistical tests were also used to assess if there are differential predictors of institutional persistence between traditional-aged and adult first-time, degree-seeking community college students.

This study found that there are identifiable predictors of institutional persistence for first-time, degree-seeking community college students. Encouragement and support from friends and family in attending the college discriminated most powerfully between persisters and withdrawers, although social integration, degree utility, academic integration, and institutional commitment also contributed significantly to differentiating the two groups. The current study also found differential predictors of institutional persistence between the traditional-aged and adult students. For traditional-aged students, encouragement and support, academic integration, fall grade-point average, and an expressed intent to leave were most predictive of institutional persistence or withdrawal. Chief among the predictors of persistence for adult students were social integration, institutional commitment, degree utility, encouragement and support, finances, an expressed intent to leave, and academic integration.

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This dissertation is dedicated to
David, Hannah, and Emma who have sacrificed so much
to make this achievement possible.

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CHAPTER I

INTRODUCTION

The attrition of community college students has long threatened the well-being of students and the institutions that have matriculated them. As students fail to persist through degree completion, ramifications are also felt by greater society. While not all individuals who arrive at the doors of higher education institutions are capable of or interested in completing a college degree, those who are should be supported in their endeavors. Institutional programs, practices, and policies may have an effect on a student's decision to remain at or to leave an institution. Through awareness of predictors of student attrition, institutional stakeholders gain not only a clearer understanding of the students most prone to leave or be retained at their institutions, but also what institutional factors may influence these decisions.

Accrediting authorities frequently scrutinize institutions for their retention and graduation rates. They are also being used as performance indicators in many states and have an impact on the amount of funding that institutions receive. Even institutions themselves are holding themselves accountable for their retention and graduation rates. For example, the State Board, college presidents, and the Chancellor of the Virginia Community College System (VCCS) created a strategic plan referred to as *Dateline 2009* whereby seven major goals were identified. Most relevant of the seven goals is that of the VCCS ranking in the top 10% of the nation with respect to its retention and graduation rates. To preserve institutional integrity and accreditation and to prevent funding cuts, institutional stakeholders are wise to learn more about their entering students and the risk factors that make their students more prone to withdraw.

The present study examines the predictors of institutional persistence among adult and traditional-aged degree seeking, first-time enrollees at a public, multi-campus two-year community college in southeast Virginia. Previous literature has documented the high attrition rates for community college students (American Council on Education, 2003; Kojaku & Nunez, 1998; Pascarella & Terenzini, 1991). Beyond raw data, research has demonstrated that predictors of higher education persistence may include a student's background characteristics, a student's external commitments, institutional influences, and a combination thereof. However, empirical research on the persistence of community college students is scarce, and even fewer studies address the differential predictors of persistence between adult and traditional-aged students (Bers & Smith, 1991; Kasworm & Pike, 1994; Metzner & Bean, 1987; Sandler, 1998, 2000; Stolar, 1991; Swift, 1987). The present study will be exploratory in nature and empirically-based. As a result of this study, the identification of variables that have an impact on student retention and the identification of variables that have a differential impact between adult and traditional-aged student persistence are expected.

Student persistence has been defined in a number of ways, and consensus on a definition is unlikely (Bonham & Luckie, 1993; Hagedorn, 2005; Kasworm, 2003a; Spady, 1970; Tinto, 1982). Recent research on community college student persistence has examined within-year persistence, an examination on a term-to-term basis (Bers & Smith, 1991; Napoli & Wortman, 1998; St. John & Starkey, 1994; Webb, 1988). Napoli and Wortman (1996) encourage the study of term-to-term persistence and argue that it has enhanced the predictive power of persistence models on community college students. Particularly for adult students, who according to Kasworm and Blowers (1994) consider

their enrollment each semester, the study of within-year persistence gains further justification.

For the purpose of this study, a student with continuous enrollment in the same institution of entry will be referred to as an *institutional persister*. Conversely, a student who fails to maintain continuous enrollment at the institution of entry will be considered an *institutional withdrawer*. A common label that will be used to describe the act of institutional persistence is *retention*. Conversely, *attrition*, *institutional departure*, and *dropout* will be used, as appropriate, to describe the act of a student withdrawing from an institution.

Adult students, often referred to as nontraditional students, are frequently defined as individuals 25 years of age or older at the time of entry (Bean & Metzner, 1985; Grosset, 1991; Kasworm & Pike, 1994; Metzner & Bean, 1987). For the purposes of this study, the term *older students* will be used interchangeably with *adult students* and this population will be comprised of students 25 years of age or older at the time of entry. *Traditional-aged students*, who will also be referred to as *younger students*, are individuals between the ages of 18 and 24 at the time of entry.

Background

The problem of student attrition in community colleges is an important issue of concern. As will be discussed, there are strong implications of student attrition not only for students, but for society and the colleges and universities that matriculate them. Despite the critical nature of this process and the bulk of research that has been conducted on this issue, attrition rates have remained fairly constant or even increased over the past two decades (Grubb, 1999; Napoli & Wortman, 1996; Nora, 2000).

Tinto (2004), citing Beginning Postsecondary Students (BPS) Longitudinal Study data, reveals that of 3 million undergraduates who enrolled during the 1995-1996 academic year for the first time, public two-year colleges enrolled the largest share with 46%. Twenty-five percent of students who entered a public two-year college in 1995-1996 with the goal of attaining a degree or certificate had actually achieved their goal by 2001 (American Council on Education, 2003). Even after partitioning out the 31% who started at public two-year colleges but transferred to other institutions, 39% of beginning students had completed a degree or certificate and about 17% were still enrolled six years later. Thus, public two-year institutions had an overall persistence and degree attainment rate of 56% (American Council on Education, 2003). Roughly half of the students who depart institutions do so within the first year (Bers & Smith, 1991; Brawer, 1996; Brooks-Leonard, 1991; McClenney, 2004; Tinto, 1993). Attrition rates during the first year are even higher for community college students. As reported by Kojaku and Nunez (1998), 16% of students who enrolled beginning in 1989-1990 at a four-year college or university departed the institution during their first year. Community college student attrition rates were much higher at 42%.

A report by the VCCS shows that the System recently enrolled 63% of all in-state undergraduate students (VCCS, 2003b). In 2001, Virginia's community colleges had an overall fall to spring persistence rate of 63.1% (McHewitt & Taylor, 2003). Of students with declared majors, the persistence rate from fall to spring was higher at 72%. Between-year persistence, defined by McHewitt and Taylor as students retained from fall 2001 to fall 2002, was expectedly lower with an overall persistence rate of 40.1% and a persistence rate of 51.8% for students with a declared major. Figures cited by the State

Council for Higher Education in Virginia (SCHEV) show that of first-time, full-time students who entered into a VCCS curriculum in 1997, 14.1% had graduated within three years of initial entry (SCHEV, 2004).

Significance

According to Carnevale and Desrochers (2004), America's economic competitiveness will increasingly require a college-educated workforce as it shifts from an industrial to an information economy. With almost 6 in 10 jobs held by workers with some postsecondary education or training in 2000, up from 2 in 10 in 1959, the value of postsecondary education has markedly increased (Carnevale & Desrochers). As projected by Silvestri (1993), employment in three major occupational groups will increase faster than average including (a) executive, administrative, and managerial; (b) professional specialty; and, (c) technicians and related support. The jobs included in these occupational groups will require education or training beyond high school, thereby increasing jobs for college-educated individuals and decreasing opportunities for individuals holding a high school diploma or less (Silvestri). Similarly, the U.S. Department of Education (2004) provides recent projection figures calculated by the Bureau of Labor Statistics that indicate 70% of the fastest-growing jobs will require education beyond high school. Forty percent of all new jobs will require at least an associate's degree (U.S. Department of Education).

Similar to Silvestri (1993), Grubb (1999) cites that 27% of the labor force had more than a high school diploma but less than a baccalaureate degree in 1996. This represented a substantial increase from 13% in 1967. This trend, according to Grubb, is likely to continue. In fact, jobs that require the skills that can be gained through study at a

community college are expected to grow the fastest to replace those positions now held by baby boomers who are predicted to retire over the next 20 years (Carnevale & Desrochers, 2004). Shortages of these workers, according to Carnevale and Desrochers, will increase the need for individuals with college-level skills to more than 14 million by 2020.

Beyond our country's critical need for a skilled workforce in today's competitive global economy, a college-educated society is also beneficial to our nation's health. McCabe (1995) stresses the need to curb the growing number of individuals who are dependent on society for federal entitlements such as welfare and supplemental security income, and purports that the solution to decreasing this dependency may be found in our nation's community colleges. As McCabe describes, "When we think in broader terms, of the debilitation of our social health through rising crime and increased independence on the system, it is clear that major changes must be made in our list of priorities" (p. 10).

Similarly, Tinto (2004) purports that college-educated individuals are more likely to participate in the governance of our nation, afford time and resources to community service, expend fewer public services, and commit fewer crimes. Boswell (2004) maintains that those most educated are less prone to addiction and illness and are less likely to be incarcerated. An additional spillover effect from an educated population is fewer people living in poverty (Carnevale & Desrochers, 2004). Referencing 2001 U.S. Census Bureau data, Carnevale and Desrochers highlight that the poverty rate is 10 times higher for households headed by a high school graduate than those headed by a college graduate. By investing in the college as a social service agency, society benefits through

increases in employment, a reduction in welfare dependence, and fewer failures of small businesses (Palmer, 1996).

As McClenney (2004) describes, “Opportunity in this country is more and more a function of education, and that reality is something that sets America apart” (p. 7).

Students who seize the educational opportunities afforded to them will reap the opportunities, particularly in terms of the economic benefits they are likely to attain, from a community college education. According to Grubb’s (1999) study, men with some college education earned 18% more than men with a high school degree after all other differences between the two groups had been considered. College-educated women earned 23% more than did women who were high school graduates (Grubb). A recent study of VCCS graduates found that males who graduated with an associate’s degree experienced an average annual increase in income of \$8,190 while females experienced an average annual increase of \$7,164 (VCCS, 2003b).

Nationally, the wage premium for experienced college-educated workers has increased from about 43% in 1979 to 73% in comparison with the wage premium of high school-educated individuals (Carnevale & Desrochers, 2004). While associate degree holders still earn less on average than those with a bachelor’s degree, Carnevale and Desrochers reveal that 83% of the associate degree holders have earnings similar to those possessing a bachelor’s degree. The U.S. Census Bureau (2002) published findings that the median household income for associate degree holders was \$62,373 in 2003. Individuals with some college but no degree had a median household income of \$56,763, while those with a high school degree or the equivalent had a median household income of \$47,365. In an analysis of six studies that examined the labor market effects of

community college education, Kane and Rouse (1999) conclude that the completion of community college credits is associated with higher wages. Moreover, the relationship is even stronger when students complete an associate's degree.

Beyond the American economy's growing reliance on a college-educated population, higher education's influence on societal welfare, and the individual economic gains that can be gained from a college education, higher education institutions also benefit from students who persist at their institutions. McClenney (2004) asserts that community colleges have the toughest job in higher education. Enrolling about half of all undergraduate students in the United States, community colleges serve a diverse population (McClenney, 2004; Tinto, 2004). In a 2003 study, the National Center for Education Statistics (NCES) identified the following factors as risks for affecting student persistence and degree attainment: delayed postsecondary enrollment; students who were high school dropouts or GED recipients; students enrolled part-time; financially independent students; students with dependents other than a spouse; being a single parent; and, those employed full-time. The NCES found that more than 70% of students who first enrolled in a community college during 1995-1996 had at least one of the risk factors, and more than 50% had two or more. In contrast, 72% of students who initially enrolled at a public four-year institution had none of the risk factors.

Compared with students at four-year institutions, community college students are often older, more likely to be members of racial or ethnic groups, and more likely to be the first in their families to attend college (Bragg, 2001). They are also more likely to come from low-income homes and to be academically underprepared (Bragg, 2001; Nora & Rendon, 2000; Price, 2004; Seidman, 1995). Pascarella and Terenzini (1998), referring

to the diverse and nontraditional population attending community colleges, characterize these institutions as serving “disproportionate numbers of non-resident, part-time, older, non-white, and working class students” (p. 155). Findings by the NCES, as reported by Phillippe and Patton (2000), show that more than 80% of community college students are employed. Furthermore, 30% of community college students who work full-time also attend school full-time. This rate climbs to 41% for students aged 30 to 39 (Phillippe & Patton). Kane and Rouse (1999) suggest that the enrollment growth community colleges have recently experienced is due to an increase in part-time students. For example, between 1970 and 1995, part-time enrollments in public two-year colleges increased 222%, compared with an increase of 63% in their full-time enrollments (Kane & Rouse). Given the reality of the diverse and risk-prone population served by U.S. community colleges, there is little wonder why community college students persist at much lower rates than do students who attend four-year institutions.

Despite these challenges, community colleges now more than ever have a self-preserving interest in seeing their students persist. Greater attention to policies and programs that promote student persistence is important for institutions considering the emphasis that accrediting agencies are placing on persistence (McMurtrie, 2000). Further, during the last decade, many states have enacted performance-based formulas that determine institutional funding. Among the most common indicators for these formulas are enrollment and graduation rates, transfer rates to four-year institutions, and persistence rates (Ewell, 1994). If institutions fare poorly on these measures, community colleges risk not only a loss of credibility but may also forfeit funding possibilities and accreditation opportunities.

Judged by these standards, community colleges have been scrutinized by others (e.g., Bailey, Jenkins, Leinbach, 2005; Clark, 1960; Henry, 1994; Karabel, 1972) who do not fully comprehend or appreciate the mission of our nation's community colleges. This scrutiny reflects poorly on the reputation of community colleges and further compounds the problems with which community colleges are faced. Bragg (2001) describes the challenges of community colleges by writing

Specific outcomes such as persistence, completion, and post-program employment rise to the level of greatest importance. It is on these terms that a growing body of evidence has accumulated, both lauding the openness and inclusivity of community colleges but condemning them for inadequate results.
(p. 109)

Fiscal constraints of community colleges further compound this dilemma. On average, community colleges charge only 37% of the tuition and fees charged at four-year institutions and they receive less in terms of per-student appropriations of state dollars (McClenney, 2004). Smith, Perie, and Alsalam, (as cited in Palmer, 1996, p. 207), reveal that between 1977 and 1992, tuition revenues per full-time-equivalent (FTE) student increased by 32%. At the same time, state and local appropriations per FTE student decreased by 12% and there was a decrease of 58% in federal appropriations per FTE student. During 2000-01, overall expenditures per full-time equivalent (FTE) at community colleges averaged \$8,623 compared with the \$19,124 spent per FTE at four-year public colleges (Bailey et al., 2005). Community colleges, in carrying out their missions, are serving a riskier population with fewer dollars. Yet, they are often held to

standards that are similar to those of four-year institutions, and criticized for falling short of them.

Recognizing the diverse nature of community college students and the risk factors that their enrollees present upon matriculation, the American Association of Community Colleges (AACC) published *Community Colleges: Core Indicators of Effectiveness* in 1994. Intended as a reference document for use by colleges that wish to analyze their effectiveness for accountability efforts, AACC specifically links student intentions to the measurement of student outcomes. Since not all students intend to earn a degree from a community college, and not all intend to transfer to a four-year college upon graduation, comparing a student's intent with the actual outcome is critical in determining the success with which outcomes are achieved (AACC, 1994).

Still, community colleges have been urged by advocates to improve their student outcomes (Bailey et al., 2005; Carnevale & Desrochers, 2004; Grosset, 1991; McClenney, 2004; Nora & Rendon, 2000). For example, Nora and Rendon (2000) advise

The future credibility and respectability of community colleges as viable members of the postsecondary enterprise ride on the extent to which these organizations can devise ways and means to preserve the principle of universal access and still provide demonstrable, high-quality outcomes related to...student retention. (p.

236)

McClenney (2004) similarly calls for institutions to embrace accountability. As she describes, public interest in the outcomes of higher education will intensify as the impact of an educated citizenry becomes stronger on the economy, and as fiscal support dwindles.

Community colleges are also wise to predict and maximize student persistence rates for it improves their planning abilities and maximizes their revenues (Strauss & Volkwein, 2004). Bean (1990), for example, argues that the impact of student attrition should be gauged in terms of the tuition dollars an institution loses when a student fails to persist. Using a formula created by the Noel-Levitz group, Sydow and Sandel (1998) cited the monetary costs of student attrition that had been computed for a community college in southwest Virginia. This computation showed that the total net revenue gained by retaining one student through graduation amounted to about \$4,000. By reducing the community college's first-to-second-year dropout rate by just 10%, Sydow and Sandel found that the College with approximately 1,700 full-time equivalents (FTES) would reap a total value savings worth \$94,588 (p. 636).

Improving persistence rates helps to strengthen the nation's economy, promotes societal welfare, facilitates student opportunities for employment and economic gains, and bolsters an institution's credibility, revenues, and effectiveness. Recognizing these benefits, the study of student persistence at the institutional level becomes justified or even imperative. Only when institutions can identify the reasons why students leave their institutions can they begin to develop, implement, and manage services and programs that facilitate student persistence (Bailey, Calcagno, Jenkins, Leinbach, & Kienzl, 2005; Brooks-Leonard, 1991; Nora & Rendon, 1990; Okun, Benin, & Brandt-Williams, 1996).

Limitations of Previous Research

Student persistence has been the focus of much research since the 1960s (Pantages & Creedon, 1978). Although the field has been advanced through models developed by Spady (1970), Tinto (1975), and Bean and Metzner (1985), Tinto (1982, p.

688) contends that the field still lacks a “grand theory” to explain student attrition.

Further, the majority of studies tend to lack a theoretical model or conceptual framework of the student attrition process (Bean, 1980; 1983; Braxton, Brier, & Hossler, 1988; Munro, 1981; Pantages & Creedon, 1978; Pascarella, Smart, & Ethington, 1986; Pascarella & Terenzini, 1983; Spady, 1970).

Also lacking are studies conducted on community college students, despite the high attrition rates of these students in comparison with students attending four-year colleges and universities (Astin, 1982; Brooks-Leonard, 1991). The existing body of research has largely focused on four-year institutions, particularly residential ones (Bers & Smith, 1991; Cohen & Brawer, 1996; Gates & Creamer, 1984; Nora, 1987; Pascarella & Chapman, 1983b; Pascarella et al., 1986; Strauss & Volkwein, 2004; Webb, 1988).

While it is plausible to use models developed by studies of students at four-year institutions, the models do not adequately capture the reasons for student attrition at community colleges (Bean & Metzner, 1985; Bragg, 2001; Cohen & Brawer, 1996; Kasworm & Pike, 1994; Metzner & Bean, 1987; Nora, 1987; Nora, Attinasi, & Matonak, 1990; Pascarella & Terenzini, 1998; Strauss & Volkwein, 2004; Voorhees, 1987). Even Tinto (1982; 1993), whose model has received an abundance of attention from researchers, admits that his model does not adequately explain attrition at two-year colleges. Previous models also fail to capture the changing student demographics of community colleges (Pineda & Bowes, 1995). Bean (1990, p. 148) posits that studying community college student attrition is difficult because of the heterogeneity of its student population and the variety of purposes for which students attend community colleges.

Pascarella and Terenzini (1998) assert that little is known about the educational impacts of community colleges and the students served by them for a few major reasons. First, many community college students are difficult to study, for they are often attending part-time, are employed, and commute to campus. This makes the population a difficult one to capture for research purposes. Secondly, many community colleges lack the resources needed to provide the necessary assessment and research efforts. Finally, and perhaps more revealing according to Pascarella and Terenzini, the majority of studies have ignored or disregarded the significance of the changing demographics in the design of their studies. By ignoring the changing demographics, Pascarella and Terenzini caution that

The serious danger, of course, is that in the absence of systematic research evidence, higher education policy makers will rely on beliefs, stereotypes, and even publicly accepted myths in making judgments about the educational effectiveness and funding priority of community colleges. (p. 156)

If this reasoning holds true, and there is good reason to believe that it will, community colleges will find themselves spiraling even further down on the higher education totem poll. Further, practitioners will continue to operate under the same presumptions largely based on research of a more traditional population.

Many of the studies on college persistence have been correlational or descriptive in nature (Bean, 1983; Bean & Metzner, 1985; Munro, 1981; Naretto, 1995; Pascarella et al., 1986; Sandler, 2000; Tinto, 1982). Exit or autopsy studies have also been commonly employed to study student attrition (Bean & Metzner, 1985; Braxton et al., 1988). As Braxton et al. urge, autopsy studies should be interpreted with caution since a student's

stated reasons for departing may not accurately reflect the primary reasons for their departure. Pantages and Creedon (1978) argue that when studies fail to compare persisters with withdrawers, as most autopsy studies do, the conclusions have limited validity. To address these methodological shortcomings, researchers have called for the use of more sophisticated, multivariate data analyses (Bean & Metzner, 1985; Feldman, 1993; Fischbach, 1990; Nora, 1987; Pascarella & Chapman, 1983b; Pascarella & Terenzini, 1983).

Many of the previous studies have also failed to attend to group-specific differences in student persistence (Hoyt & Winn, 2004; Nora, 1987; Tinto, 1982). Aggregating students who withdraw may lead to inadequate findings that do not account for how reasons for persistence vary among different groups of students. Through the aggregation of students, variables of importance to a certain group may be masked. Further, variables that may actually be insignificant to one group may inadvertently gain a level of significance. These results can be misleading and may lead to the implementation of inadequate services and practices (Hoyt & Winn, 2004; Tinto, 1982).

One population often ignored is that of adult learners. Studies have tended to focus almost exclusively on the persistence of traditional-aged students enrolled full-time and have largely ignored the part-time student (Bean & Metzner, 1985; Donaldson & Graham, 1999; Grosset, 1991; Kasworm & Marienau, 1997; Kasworm & Pike, 1994; Kasworm, et al., 2002; Metzner & Bean, 1987; Pascarella & Terenzini, 1998; Sandler, 1998; Sandler, 2000; Spanard, 1990; Swift, 1987; Voorhees, 1987). By aggregating these age groups and by relying on models developed for traditional-aged students, important differences in their patterns of persistence may be masked (Adelman, 2005; Bers &

Smith, 1991; Feldman, 1994; Kasworm & Blowers, 1994; Metzner & Bean, 1987; Sandler, 1998; Walleri & Peglow-Hoch, 1988). As Kasworm, et al. (2002) write, “Too often, institutions of higher education fail to meet the challenges posed by these adult learners....They’re blind to the adult learner as a very different type of student and participant in higher education” (p. vii).

According to the American Association of Community Colleges, 46% of the national student population is 25 or older, with an average age of 29 (Phillippe & Patton, 2002). Approximately 36% of the students enrolled in community colleges are aged 30 or above (Kane & Rouse, 1999). The average age of students enrolled in a Virginia community college is 28 and 48% of the population is 25 or older (VCCS, n.d.). While Hussar and Gerald (2002) cite projections that enrollment by traditional-aged students will increase as adult student enrollments decline, a sizeable portion of the community college population will continue to be comprised of older students. In addition, community colleges have significant part-time enrollment. Almost half (46%) of first-time entrants of two-year public colleges enroll part-time (Kojaku & Nunez, 1998). Neglecting the study of adult students and part-time enrollees may distort the realities of our community college population. This study intends to address many of these previous shortcomings.

Purpose of Study

While substantial literature guides the understanding of student persistence at four-year colleges and universities, literature that contributes to the understanding of student persistence in community colleges is scarce. When studies have been conducted on community college student populations, they have often neglected the study of part-

time students as a population. Further, very few studies have examined and documented the differences in student persistence between traditional-aged and adult students. The lack of empirical work on this growing segment of higher education is critical to furthering the knowledge of community colleges and the students served by them.

This study will contribute to the knowledge of community college student persistence. Specifically, it will offer insight as to how predictor variables may vary among traditional-aged and adult community college students. This study may also lead to improved models of student persistence built specifically for the heterogeneous population served by the nation's community colleges—older students and younger students and with the inclusion of full-time and part-time enrollees. By realizing persistence factors for these students, institutions are better equipped to design programs, practices and policies that serve to facilitate student persistence. These interventions, in turn, may help to strengthen the nation's economy, promote societal welfare, facilitate student opportunities, and bolster an institution's credibility, revenues, and effectiveness.

Research Questions

The purpose of this research is to determine the differential impact of predictor variables on persistence between traditional-aged and adult first-time, degree-seeking community college students. Specifically, the present study will address the following questions:

Question 1: Are there identifiable predictors of institutional persistence for first-time, degree-seeking community college students?

Question 2: Are there differential predictors of institutional persistence between traditional-aged and adult first-time, degree-seeking community college students?

Hypotheses

The present study will test the following hypotheses:

H1 There are identifiable predictors of institutional persistence for first-time, degree-seeking community college students.

H2 There are differential predictors of institutional persistence between traditional-aged and adult first-time, degree-seeking community college students.

Thus, this study examines whether there are identifiable predictors of persistence for first-time, degree-seeking community college students. It also compares the differential predictors of community college student persistence between traditional-aged and adult students who first enroll as degree-seeking students at a multi-campus public community college in southeast Virginia. Through this study, greater knowledge about traditional-aged and adult student persistence, and the differences between them, should be attained. As Metzner and Bean (1987) argue, separate but parallel analyses on sub-populations may be necessary for segments with a diverse student body where different models may apply.

Using key constructs from extant student persistence models for four-year institutions in conjunction with variables found to be significant predictors of community college and/or adult student persistence, this study hopes to lessen the substantial gap in community college persistence literature. The constructs that will guide this study include individual attributes (i.e., gender, racial group affiliation; prior academic achievement); student enrollment characteristics (i.e., degree type, enrollment status); external commitments (i.e., marital status, employment, finances, presence of dependents); goal support (i.e., encouragement and support from significant others; degree utility); intent

and commitments (i.e., intent to leave; goal commitment; institutional commitment); academic performance; academic integration; and, social integration. Additional variables include student age (traditional-aged students versus adult students) and the criterion variable, institutional persister versus institutional withdrawer.

Methodology

The population for this study was comprised of individuals who were first-time, degree-seeking students who entered a public, multi-campus two-year community college located in southeast Virginia during August 2005. During 2003-2004, the College enrolled more than 34,940 credit students with slightly more than 15,000 full-time equivalents (Tidewater Community College, 2004). The majority (66%) of the College's students attended on a part-time basis, and 68% were over the age of 21 (Tidewater Community College, 2003).

In late October 2005, a postcard was mailed to a random sample of first-time, degree-seeking students enrolled at the College. The postcard encouraged them to participate in a survey questionnaire designed to assess their experiences at the College. Of those sampled, 350 were comprised of individuals aged 25 or older (i.e., adult students), and 350 were individuals between the ages of 18 and 24 (traditional-aged students).

Approximately two weeks after the initial mailing, a follow-up postcard was mailed to this population reminding them of the survey. Two reminders were also sent to the student E-mail accounts of those randomly sampled. Students were urged to voluntarily complete an on-line questionnaire and were also informed that paper copies of the survey could be obtained in the Dean of Students office at each of the campuses.

Students were given approximately one month to participate and an incentive for their participation included a drawing whereby three students were selected to each receive a \$100.00 universal Visa gift card. Students were also notified that, through their voluntary participation, they were authorizing the researcher to examine their academic grade record at the end of their first semester (i.e., December grade report), their subsequent enrollment status at the community college in March 2006, and their demographic information.

The on-line questionnaire was submitted electronically whereas the paper version was completed and submitted to the respective Dean of Students within the published deadline. In completing the questionnaire, via on-line or paper, the students were required to submit their College identification number (i.e., SIS ID) for further data collection purposes.

The survey questionnaire was constructed by the author. A majority of the items included in the survey to measure the major constructs under study were borrowed from the works of several reputable retention researchers. Permission from each of the authors to use their instrument, or a modified version of it, was granted. As will be discussed more fully in Chapter IV, a reliability analysis was performed on each of the scales included in the questionnaire.

In March 2006, each participant's semester grade-point average for the previous fall semester was extracted from the College's Student Information System (SIS). The enrollment status of each of the participants was also extracted to see who had re-enrolled for a second term at the College. Note that a March 2006 date was necessary since the College offered a second 8-week session that began in March. Using one-way analyses of

variance and discriminant analysis, the predictors of institutional persistence for first-time, degree-seeking community colleges were identified. The differential predictors of institutional persistence between traditional-aged and adult first-time, degree-seeking community college students were also identified.

Definition of Terms

Terms referred to throughout this study are defined as follows:

Academic integration is a construct defined as a student's perceptions regarding intellectual and academic development and faculty concern for quality teaching and student development.

Academic performance is a measure of the student's performance during the first semester of study, as assessed by the student's final grade-point-average in December 2005 for the fall 2005 semester.

Adult student is defined operationally as a student who is 25 years of age or older at the point of entry at the College in August 2005. The term "older student" will be used interchangeably with "adult student."

Commitments is defined as a measure of a student's commitments to the College and to the goal of graduation.

Degree-seeking student is defined operationally as a student who has applied and been admitted into one of the following curricular degree programs: Associate in Arts (AA), Associate in Sciences (AS), Associate in Applied Arts (AAA), or, Associate in Applied Sciences (AAS).

Degree type is defined operationally as College Transfer Education (i.e., Associate in Arts, Associate in Sciences) or Occupational/Technical/Vocational Education (i.e., Associate in Applied Arts, Associate in Applied Sciences).

Degree utility is defined operationally as a measure of a student's perceptions regarding the usefulness of his or her education to future employment opportunities.

Encouragement and support from significant others is defined operationally as a student's perceived level of encouragement and support received from significant others in completing a college degree and completing a college degree from the present institution.

Enrollment status is defined operationally as a student enrolled full-time (12 or more credits) or part-time (fewer than 12 credits) during Fall semester 2005.

External commitments is defined operationally as a factor that includes variables related to a student's pressures, obligations, and commitments outside of college. Variables include marital status, hours of employment each week, finances, and presence of dependents.

Finances is defined operationally as a measure of one's attitudes about his or her finances and the perceived ability to afford a college education.

First-time student is defined operationally as a student who enrolls, for the first time, at one of the four campuses in August 2005.

Full-time student is defined operationally as a student enrolled for 12 or more credits during Fall semester 2005 at the College.

Goal support is a construct defined operationally as a measure of a student's perceived level of encouragement and support received from significant others in

completing a college degree and completing a college degree from the present institution. Degree utility is also included in this construct, and is a measure of a student's perceptions regarding the usefulness of his or her education to future employment opportunities.

Individual attributes is defined operationally as a defining factor that includes variables that characterize students upon entry to the College. These variables include a student's gender, racial group affiliation, and prior academic achievement.

Institutional persister is defined operationally as a first-time, degree-seeking student who enrolls at the College in August 2005 and is enrolled or has enrolled at the College during the subsequent spring term, as measured in March 2006. Note that a date of March 2006 is used as the time of measurement since the College offered a second 8-week session that began in March 2006.

Institutional withdrawer is defined operationally as a first-time, degree-seeking student who enrolls at the College in August 2005 and is not enrolled or has not enrolled at the College during the subsequent term, as measured in March 2006. Note that a date of March 2006 is used as the time of measurement since the College offered a second 8-week session that began in March 2006.

Intent and commitments is a construct defined operationally as a measure of a student's intent to return to the same institution in the subsequent semester, as well as his or her commitments to the respective institution and to the goal of graduation.

Intent to leave is defined operationally as a student's expressed intent to leave or stay at the same institution in the subsequent semester and year.

Part-time student is defined operationally as a student enrolled for fewer than 12 credits during Fall semester 2005 at the College.

Social integration is a construct defined operationally as a student's satisfaction with the formal and informal social systems of the community college, including the quality of informal interactions a student has with faculty.

Student enrollment characteristics is defined operationally as a factor that includes variables that define a student's status at the College during the 2005 Fall term. These variables include one's degree type (i.e., College Transfer Education or Occupational/Technical Education) and enrollment status (i.e., full-time student or part-time student).

Traditional-aged student is defined operationally as a student between 18 and 24 years of age at the point of entry at the College in August 2005. The term "younger student" will be used interchangeably with "traditional-aged student."

VCCS is an abbreviation for the Virginia Community College System, a state system of 23 two-year community colleges in Virginia.

Summary

Data show the high attrition rates for community college students. While student attrition has always been a concern, these numbers may now adversely affect institutional funding, accountability, and accreditation. Students who depart community colleges before degree completion may also be negatively impacted in economic and even personal terms. Greater society is not untouched. When individuals fail to persist in higher education, the financial and societal costs of dropouts continue to escalate. Fewer college-educated individuals translates into fewer skilled workers who are needed for a

workforce increasingly reliant on the knowledge and skills that individuals can attain at a community college. Fewer college-educated individuals also translates into more individuals and families reliant on public assistance programs and a weakening of social systems.

This chapter explained the limitations of previous research on college student attrition. Specifically, it addressed the lack of models to explain community college student attrition and the lack of attention afforded to the study of community college student attrition. Studies that have focused on community college students have largely been correlational or descriptive in nature and have typically excluded subpopulations of students who enroll at community colleges—adult students and part-time students.

Conclusion

The purpose of this study is to examine whether there are identifiable predictors of persistence for first-time, degree-seeking community college students. Its purpose is also to compare the predictors of community college student persistence in traditional-aged versus adult students who first enroll as degree-seeking students at a multi-campus public community college in southeast Virginia. Unlike many of the previous studies, this exploratory study is not an autopsy one. It will also differentially examine two important sub-populations of community colleges—traditional-aged and adult students. In contrast with many of the earlier studies, it will include the study of part-time students and students enrolled in occupational/technical programs—populations often excluded from study.

Through this study, greater knowledge of community college student persistence and the differences between adult and traditional-aged student persistence should be

attained. The more knowledge that community college leaders, faculty, and student support services have of the populations that attend their college, the better able they are to serve them. By realizing persistence factors for their students, institutions bolster their credibility, revenues, and effectiveness. Institutions also strengthen the nation's economy, promote societal welfare, and facilitate student opportunities.

A review of literature that relates to this study is presented in Chapter II. Major college student retention theories will be discussed as they provide the major conceptual guide of this present study. This discussion will be followed by a review of the research findings of key constructs from extant student persistence models with an emphasis on studies that have been conducted on community college student populations. The constructs that will be reviewed and used as measures for this study include individual attributes (i.e., gender, racial group affiliation; prior academic achievement); student enrollment characteristics (i.e., degree type, enrollment status); external commitments (marital status, employment, finances, presence of dependents); goal support (encouragement and support from significant others; degree utility); intent and commitments (i.e., intent to leave; goal commitment; institutional commitment); academic performance; academic integration; and, social integration. Additional variables include student age (traditional-aged students versus adult students) and the criterion variable, institutional persister versus institutional withdrawer.

CHAPTER II

REVIEW OF LITERATURE

As presented in Chapter I, there are strong implications of student attrition not only for students, but to society and the colleges and universities that matriculate them. A review of the literature finds several constructs that are seemingly related to community college persistence: individual attributes, student enrollment characteristics, external commitments, goal support, intent and commitments, academic performance, academic integration, and social integration. Acting alone, these constructs do not adequately capture the persistence decisions of community college students. In unison, however, greater predictive strength is likely. Before reviewing these constructs, an examination of the models that theoretically drive this study and serve as foundations to the constructs herein is provided.

Conceptual Framework

Spady's Sociological Model

Spady (1970) put forth an explanatory sociological model to explain the college dropout process by borrowing largely from Emile Durkheim's (1954) theory of suicide. As Durkheim posited, individuals lacking intellectual and social integration into society have a greater likelihood of committing suicide. Drawing an analogy between dropping out of college to committing suicide, Spady suggests that those less socially and intellectually integrated into higher education institutions are more likely to leave them prematurely.

In this model, four independent variables (i.e., grade performance, intellectual development, normative congruence, and friendship support) are thought to influence

social integration, a fifth independent variable (Spady, 1970). College grades, as Spady suggests, “represent the most conspicuous form of reward....basically extrinsic and used as tangible resources” (p. 77). Spady refers to intellectual development as a more intrinsic, personally-felt benefit. Normative congruence, or the compatibility of one’s attitudes and interests with others in the social system, and friendship support signify the establishment of close relationships with others in the college. Together with social integration, these independent variables interact with each other to influence attrition. While Spady views social integration as having an indirect effect on student attrition, he postulates that one’s satisfaction with college experiences and commitment to the college serve as intervening variables. Spady has admitted his model’s inadequacy to account for the importance of family and cultural background variables as well as academic potential variables. Yet, he argues that family and cultural background variables serve as the foundation to academic potential and normative congruence, and that academic potential in turn influences a student’s grade performance and intellectual development.

Tinto's Integration Model

Tinto (1975) advanced the next credible model of student attrition through a refinement of Spady’s (1970) model. Using Spady’s analogy of committing suicide and dropping out of college, Tinto developed a longitudinal model with the constructs of academic integration and social integration serving as its core. The Tinto model has been identified as the most mature and widely tested model of student attrition in higher education research (Bean, 1990; Peterson, 1985). By early 1995, Braxton, Sullivan, & Johnson’s (1997) search of the literature found that Tinto’s model had generated over 400 citations and was the focus of about 170 dissertations.

As initially developed by Tinto (1975), the causal model was designed to explain the persistence process for students attending four-year residential colleges (Cabrera, Nora, & Castandeda, 1993; Grosset, 1991; Tinto, 1982). The Tinto (1975) model assumes that student persistence is largely dependent upon an individual's successful integration into the academic and social systems of the institution. A student arrives at an institution with individual attributes, family background characteristics, and high school experiences that shape the student's initial commitments to the institution and the goal of graduation. The combination of these variables then influences a student's interactions with, and ability to integrate into, an institution's academic and social systems. The success with which the student is able to navigate these systems (i.e., academic integration and social integration) influences the student's subsequent commitments to the institution and the goal of graduation from that institution. These subsequent commitments combine with a student's level of social and academic integration and have a direct influence on institutional persistence.

Tinto (1982) recognized his own model's limitations and revised it in 1987 to address some shortcomings. Notably, the revised model was based on the work of Arnold van Gennep (as cited in Tinto, 1987). Van Gennep, Tinto (1987) describes, was a Dutch anthropologist who studied rites of membership in tribal societies. Of particular interest to van Gennep were the stages by which individuals transitioned as they moved from membership in one group to membership in another. These stages include separation, transition, and incorporation. When movement occurs, feelings of weakness and isolation are likely as the individual moves from a position of being known to that of a stranger (Tinto, 1988). Tinto (1988) likens this process to students entering college and writes

Like other persons in the wider society, they must separate themselves, to some degree, from past associations in order to make the transition to eventual incorporation in the life of the college....By extension, it can be argued that the process of institutional departure may be seen as being differentially shaped over time by the varying problems new students encounter in attempting to navigate successfully the states of separation and transition and to become incorporated into the life of the college. (p. 442)

Thus, Tinto (1987) views college persistence as a process whereby students must separate themselves from past associations (e.g., family, high school friends) to integrate within the new collegiate environment. The smoother the transition, the more likely that students will incorporate themselves into the new environment and subsequently persist.

Additional changes to Tinto's original model, largely a result of empirical testing of his model, were the inclusion of external commitments and student intent as variables (Tinto, 1987). His revised model also includes interactions with other college staff members, beyond the faculty, as being important determinants of student persistence. It is with this expanded model that more recent research has been conducted.

Within community college retention literature, Tinto's original and revised models have gained great attention (e.g., Grosset, 1991; Halpin, 1990; Napoli & Wortman, 1996; 1998; Nora et al., 1990; Pascarella et al., 1986; Voorhees, 1987). Braxton, et al. (1997) tested 15 propositions of Tinto's (1975, 1987/1993) by reviewing only peer-reviewed studies that have examined his model in studying college student attrition. In the multi-institutional studies where community college students were included, Braxton et al. found strong support for four of Tinto's propositions, and only

minimal support for two additional ones. In single-institutional studies conducted at community colleges, strong support was found for only one proposition, and indeterminate support was found for four (Braxton, et al.). Social and academic integration, as they related to community college student persistence, were the most controversial of the constructs.

Bean and Metzner's Nontraditional Student Model

Acknowledging the emphasis that previous research had placed on the study of traditional students (i.e., residential students under the age of 25 and enrolled full time), Bean and Metzner (1985) propose a conceptual model to explain the attrition process for nontraditional students. Although the Bean and Metzner model deviates largely from Bean's (1980, 1983, 1985) earlier attrition models, which were developed mostly from the study of traditional-aged students at four-year institutions, key findings from these earlier works had considerable influence on this later model.

Bean (1980) proposes an industrial model that likens employee turnover in work organizations to the student attrition process. Borrowing from sociological theory and research by Price (1977) on worker turnover, Bean tested his model on 980 unmarried, full-time freshmen who were under the age of 22 and enrolled at a major Midwestern university. Using multiple regression and path analysis, he found significant differences between males and females in explaining the dropout process. However, for both genders, institutional commitment (i.e., loyalty toward the college) was the most critical variable in explaining the process. A student's perceived *opportunity to transfer* to another college was a variable that gained distinction from this study, for it emphasized the role that environmental influences may have on the attrition process.

This notion received backing with Bean's (1983) study of female attrition whereby a revised model was tested with a more recent model of worker turnover presented by Price and Mueller (1981). Since the Price and Mueller model of employee turnover was devised from their research on female nurses, Bean tested his newer model on a sample of 876 unmarried, full-time freshmen females who were under 21 years of age and attending a major Midwestern University. In this study, two environmental variables (i.e., a student's perceived likelihood of marrying before the completion of college, opportunity to transfer) had significant, direct, positive effects on the attrition process. As the likelihood of getting married and opportunities to transfer increased, dropout behavior decreased (Bean). The influence of environmental variables, although not entirely dismissed by Tinto (1975), gained additional credence as an area worthy of further study as a result of this work. Bean (1983) also dropped institutional commitment as an intervening variable and replaced it with a student's intent to leave. A student's intent to leave was theorized to have the greatest influence on dropout, and his findings supported this notion. With all variables entered into the multiple regression equation, intent to leave explained 64.4% of the variance in dropout (Bean).

Before moving to Bean and Metzner's (1985) nontraditional model of student attrition, Bean's (1985) study on class-level differences and dropout syndrome will be highlighted for its contributions to the eventual model. Bean measured "dropout syndrome," the criterion variable, by combining two factors (i.e., intent to leave, discussing leaving) with actual attrition data from registration records. In this model, Bean posits that college grades are influenced by academic factors (i.e., high school percentile rank, SAT math scores, SAT verbal scores) and academic integration (i.e., a

student's level of perceived congruence with beliefs of faculty, satisfaction with academic programs, confidence in ability to succeed in elective courses, level of perceived motivation to study). He also presumes that a student's goals (i.e., importance student assigns to completing a degree), degree utility (i.e., student's belief that a college education is important in getting a job), alienation (i.e., level of frustration with college rules), faculty contact (i.e., contact with faculty outside of class), and social life (i.e., friendships within the collegiate environment) have an impact on a student's perceptions of institutional fit and commitment. Recognizing the strong influence of environmental variables on the attrition process, Bean included finances, opportunity to transfer, and outside friends as variables, and predicted that they would have a negative influence on institutional fit and commitment. Along with college grades, institutional fit and institutional commitment were presumed to directly affect dropout syndrome (Bean).

Pointing out the lack of research that had been conducted to examine the differential reasons for dropping out by class level, Bean (1985) surveyed 517 freshmen, 466 sophomores, and 423 juniors, all of whom were white, unmarried, U.S. citizens, 23 years of age or younger, and enrolled for 10 or more credit hours. After removing insignificant variables, Bean developed a reduced path models. As predicted, college grades, institutional fit, and institutional commitment were significantly related to dropout syndrome. Of the three, college grades had the smallest, albeit significant, net effect. Outside friends (i.e., likelihood of leaving college to be with someone outside the college) was the environmental variable with the largest influence on the criterion variable. Finances negatively influenced dropout syndrome, and opportunity to transfer had a positive influence. Similar to Bean's earlier study in 1983, he again omitted

background characteristics as variables of study largely because these variables were omitted from the Price and Mueller (1981) model of employee turnover (Bean, 1985).

Recognizing the importance of background variables in explaining nontraditional student attrition, Bean and Metzner (1985) include many defining and background characteristics in their nontraditional model of student attrition. In their study, Bean and Metzner defined a nontraditional student as one who is

Older than 24, or does not live in a campus residence (e.g., is a commuter), or is a part-time student, or some combination of these factors; is not greatly influenced by the social environment of the institution; and is chiefly concerned with the institution's academic offerings (especially courses, certification, and degrees). (p. 489)

The fundamental differences between this model and that of Tinto's (1975) original model are the de-emphasis on social integration, the inclusion of external factors (e.g., influence of family, employment, finances, employers) and psychological outcomes (e.g., utility, stress, goal commitment), and the role that a student's intent to stay or leave has on the attrition process. According to Bean and Metzner, nontraditional students have fewer interactions with faculty and peers, and greater interaction with those in the environment external to college than do traditional students. Similar to their traditional-aged counterparts, Bean and Metzner's model assumes that non-traditional students have similar classroom experiences and activities.

In contrast with Bean's earlier works (1983, 1985), the Bean and Metzner (1985) model regards background variables as important to a student's interactions with the institution. It also regards the dropout decision as a longitudinal process, and includes

academic variables that are expected to influence persistence. Bean and Metzner's model proposes four sets of variables that will primarily determine dropout decisions. First, high school performance has a direct impact on a student's collegiate academic performance. Students who perform well academically at their colleges will also persist at higher rates than those who do not. Secondly, a student's intent to leave is predictive of dropout and is influenced mostly by psychological outcomes and academic variables. Background variables such as age, high school performance, and enrollment status are also expected to affect persistence in indirect ways and through mediating variables. Finally, Bean and Metzner's model emphasizes the significant role that environmental variables play on dropout decisions for nontraditional populations. Environmental variables retained from the Bean (1985) model include finances and opportunity to transfer. Hours of employment, outside encouragement, and family responsibilities are environmental variables added to Bean and Metzner's nontraditional model.

Bean and Metzner (1985) acknowledge two compensatory interaction effects in their model. First, they theorize that when a student's academic and environmental experiences are both positive, students should persist. When these experiences are both negative, students will dropout. Presuming that environmental variables are more important than are academic variables, Bean and Metzner purport that students with negative environmental experiences will dropout—even when they are succeeding academically. Conversely, when environmental support is high and academic variables are weak, students will persist. The second compensatory interaction effect of their model involves the academic outcome (i.e., college grade-point average) and the psychological outcomes (i.e., utility, satisfaction, goal commitment, stress). Consistent with the first

effect described above, when both are high the student should persist. When both are low, the student should dropout. Because the psychological outcomes are thought to be more important to determining persistence decisions than the academic outcome, students with low levels of the psychological variables are likely to dropout even when they have a high college grade-point average. Students with a low grade-point average and high levels of the psychological variables are theorized to persist.

Metzner and Bean (1987) tested the validity of their 1985 conceptual model in their study of 624 nontraditional students attending a primarily commuter, four-year university located in a Midwestern city. Because path analysis was employed, the researchers were unable to test the compensatory effects discussed earlier. Overall, the 26 variables were able to account for 29% of the variance in student attrition. Metzner and Bean found that social integration did not have a significant impact on persistence as expected. Contrary to their prediction, environmental variables did not directly affect dropout but did have significant effects on intent to leave. Goal commitment and stress, both psychological outcome variables, did not directly influence intent to leave or dropout as predicted. Based on the results of their study, many of which will be highlighted in future sections, Metzner and Bean argue for the model's utility in analyzing the persistence of older, nontraditional students.

Donaldson and Graham's Model of College Outcomes

Donaldson and Graham (1999) present a model that addresses the experiences of adult undergraduate students in higher education. The Model of College Outcomes serves as a framework that both recognizes the differences between adult students and their traditional counterparts and also serves as a springboard for future research on the

growing adult student population. Drawing on the work of others, most notably Kasworm (1997) and Kasworm and Blowers (1994), Donaldson and Graham propose that the following components influence the outcomes of college for adult students: prior experience and personal biographies; psychosocial and value orientations; adult cognition; the connecting classroom; and life-world environment.

Prior experience and personal biographies refer to previous schooling and life experiences, the student's assessment of his or her own performance during these experiences, and the assessment of others. Together, these components serve as the foundation for how the student will make meaning of collegiate experiences. Psychosocial and value orientations influence the persistence and success that adult students achieve in college. Examples of this component include psychological distress that may be present, commitment to the student role, study skills, and competing life roles (Graham, Donaldson, Kasworm, & Dirkx, 2000). The connecting classroom serves as the central component in the Model of College Outcomes and refers to the powerful influence that the classroom has on the adult learner's experience. According to Donaldson and Graham (1999), unlike traditional students whose learning outcomes are heavily influenced by social involvements, the college classroom is a central and significant influence for adult students. The college classroom mediates the psychosocial and value orientations, the life-world environment, adult cognition, and the college outcomes. Further, it connects adult students with classroom faculty and their peers and enables adult students to socially construct their interpretation of what being a college student entails. Adult cognition focuses on the learning processes that adult students bring with them to college as well as those that they develop after enrolling in college.

Adult students make connections between the processes and world around them, and for them, the context of knowledge is important. The life-world environment includes the adult's environment outside of the college and encompasses their family, their job, and their communities. For adult students, this environment serves as an alternative to the traditional campus involvement (Graham & Donaldson). The adult learner's life-world environment component also emphasizes supportive or reinforcement agents which include family, coworkers, supervisors, and community members. Finally, the college outcomes of importance to adult students may be different than those of their traditional counterparts. Whereas conventional measures such as emotional and intellectual development have traditionally been used in outcomes studies, Graham and Donaldson (p. 34) highlight that adults often differentiate between learning that may be required to help them pass a test, learning that increases their understanding of the world, that which can be applied to their life situations, and learning that can be used to benefit the larger community and society. Thus, while the Model of College Outcomes views more conventional measures of outcomes as important, the model stresses that additional outcomes are important to adult students.

Graham and Donaldson's model does not assume that adults are homogenous. However, as intended, the model does help to explain the variations in adult learners and the outcomes of college for this group of students. Similar to Bean and Metzner's (1985) Nontraditional Student Model, the Model of College Outcomes highlights the critical need to further examine adult students in order to better understand them as a population distinct from the traditional-aged one.

Additional Theoretical Foundations

Cabrera, Castaneda, Nora, and Hengstler (1992) note the mixed results that have been found in empirical tests of Tinto's (1975, 1987) constructs of academic integration, social integration, and institutional and goal commitments. Minimal support, for example, has been found for the relationship between academic and social integration and persistence through studies conducted on community college students (e.g., Bers & Smith, 1991; Nora, 1987; Nora & Rendon, 1990; Voorhees, 1987). Secondly, Cabrera, Castaneda, et al. argue that Tinto's lack of attention to external factors threatens the validity of his theory. While Bean's (1982) model has been subjected to testing, it has been tested mostly by Bean and his associates (e.g., Bean, 1980; 1983; 1985, Metzner & Bean, 1987). Though Bean's models have been revised over the years, Bean and his associates have consistently found that organizational, personal, and environmental variables influence a student's intent to leave and actual departure behavior (Cabrera, Castaneda, et al.).

Cabrera, et al. (1993), citing the work of Hossler, highlight the commonalities of the two models. First, both models argue that attrition is a longitudinal process that results from various interactions over time. The models also concur that persistence is determined largely by the congruency between students and the institutions that serve them (Cabrera et al.). Finally, both models emphasize the importance of academic integration and institutional commitment to student persistence. Early on, Bean (1980; 1983) suggested that the two models should be viewed as complementary and not in contradiction to one another.

Cabrera, Castaneda, et al. (1992) recognized the strength of both theories and set out to develop an integrated model based on the works of Bean (1980, 1982, 1983, 1985), Bean and Metzner (1985), Metzner and Bean (1987), and Tinto (1975, 1987). This model, according to Cabrera et al. (1993), includes all the structural paths substantiated from Tinto's model, as well as the environmental variables put forth by Bean and Metzner (1985). In testing this model, Cabrera et al. (1993) conducted a study on freshmen at a large southwestern urban institution sampling only full-time, unmarried, freshmen under the age of 24. While a greater number of hypotheses underlying Tinto's model were supported in comparison with those of Bean and Bean and Metzner's (70 % and 40%, respectively), Cabrera et al. revealed that the Bean and Bean and Metzner models accounted for more variance in intent to persist and persistence—mainly attributable to the significant effects of environmental variables external to the institution. Similar to Bean's (1980; 1983) assertion, Cabrera et al. conclude that the two theories are not mutually exclusive and are actually complementary to one another.

Sandler (2000) later tested the Cabrera et al. (1993) integrated model on a population of part-time adult students enrolled in an associate's or bachelor's degree program at a private urban research university. Degree program, a variable that differentiated between students in the two-year and four-year programs, served as a control. In addition to the variables used in the Cabrera et al. model, Sandler put forth the study of three additional variables to measure student term-to-term persistence: career decision-making self-efficacy (CDMSE), perceived stress, and financial attitudes/difficulty.

A short form of the CDMSE, which was originally developed by Taylor and Betz (1983) and later refined by Betz, Klein, and Taylor (1996) “measures an individual’s degree of belief that he or she can successfully complete tasks necessary to making career decisions” (p. 48). Perceived stress, a construct largely derived from the work of Bean and Metzner (1985), was predicted to be a mediating variable of intent to persist and measured the amount of stress students perceived as resulting from college work (Sandler, 2000). Financial attitudes/difficulty was measured by a student’s perceived experience of financial difficulty while at the institution and the perceived difficulty of financing a college education (Sandler).

A surprising finding in Sandler’s (2000) study was that institutional commitment and academic integration had a moderately negative total effect on the intent of adult students to persist. Financial attitudes/difficulty and career decision-making self-efficacy had small but positive direct effects on intent to persist. Of the background and defining variables studied, household income had a strong, positive direct effect on intent to persist. Financial aid had a moderate positive effect on intent to persist. Degree program, relatives/dependents for whom a student was responsible, and gender each had a small, but positive direct effect on the intent of adult students to persist (Sandler).

Controlling for student background and defining variables, Sandler (2000) found that intent to persist had the strongest total effect on actual student persistence. In fact, this variable accounted for 66.6% of the variance in persistence. Institutional commitment had a significant, negative impact on intent to persist and actual persistence. Social integration and career decision-making self-efficacy also had moderate and positive effects on persistence. Encouragement from family and academic integration had

small, negative impacts on persistence. Of the exogenous variables, or variables largely influenced by factors external to the university, degree program had the largest total effect. Students working on an associate's degree were less likely to persist than those working on a bachelor's degree (Sandler).

The works of Cabrera et al. (1993) and Sandler (2000) show promise for furthering the understanding of the student attrition process. They also show the value of blending theory with substantiated research. Yet, similar to the models described herein, neither of these models fully captures the process of attrition for a community college student. While Sandler's research provides insight on adult student persistence, even those enrolled in two-year degree programs, the environment of a private four-year college is likely to differ from that of a community college.

The intent here is to allow the Tinto (1975, 1987/1993), Bean and Metzner (1985), and Donaldson and Graham (1999) models to serve as the conceptual frameworks for this study. Constructs of their models for which empirical support has been found or that warrant further inquiry as a result of conflicting findings or a lack of empirical research—particularly external commitments, goal support, intent and commitments, academic performance, academic integration, and social integration—are reviewed here. Research findings pertaining to individual attributes and student enrollment characteristics, also plausible predictors of institutional persistence, will be provided as well. Finally, research on the impact of a student's age as it relates to these constructs and to student persistence will be highlighted throughout the literature review where research has been conducted.

Constructs

What follows is a review of the literature as it relates to the constructs and variables under study. While research on community college student persistence and adult student persistence will be stressed, studies performed on four-year college and commuter students may be highlighted where literature gaps exist.

Individual Attributes

Researchers such as Gates and Creamer (1984), Webb (1988), and Williamson and Creamer (1988) have pointed out that background variables fail to explain a significant proportion of variance in persistence models for students at two-year colleges. However, studies conducted on two-year college students have shown background variables to have both direct and indirect influences on persistence behavior. For example, Pascarella et al. (1986) found that student entry characteristics have an effect on a student's initial institutional commitment and eventual commitment to the goal of graduation from the institution. Others have shown these variables to have a direct influence on dropout decisions (Grosset, 1991; Nora et al., 1990; Voorhees, 1987). Pascarella, Duby, and Iverson (1983) found that a student's attributes such as gender and race accounted for the largest increase in variance in explaining the persistence decisions of students. Although their study was conducted on 579 students at a large, urban commuter university, their findings underscore the need to include them as variables of study. Pascarella et al. write, "The actual experience of college by commuter students may simply not be powerful enough to totally mediate the influences of individual background characteristics on persistence" (p. 97). In light of these opposing views, the

present study will examine the following individual or background attributes: gender, racial group affiliation, and prior academic achievement.

Gender

The study of the relationship between gender and persistence has had mixed results. As will be discussed, some researchers have found it to have significant direct and indirect effects on student persistence while others have found no effect at all. Bean and Metzner (1985, p. 498) suggest that gender should be included as a variable for its likelihood of having indirect effects on attrition through other variables.

The Pascarella et al. (1986) study emphasizes the role that gender plays in the long-term persistence of students. Using a national sample of 825 students who initially enrolled in 85 two-year institutions during the fall of 1971, Pascarella et al. followed these students over a nine-year period using degree persistence as one of their dependent variables. In this study, degree persistence was defined as students who were working on a bachelor's degree at the end of the nine-year period under study. The factors associated with degree persistence were significantly different for males and females. The significant, positive, direct effects on degree persistence for males included academic integration, institutional commitment/satisfaction, and social integration. Academic integration, social integration, and socioeconomic status had significant, positive, direct effects on the degree persistence of females (Pascarella et al.).

Using logit log-linear modeling, Voorhees (1987) studied the re-enrollment patterns of 369 new and continuing students enrolled at a suburban community college. He found that gender had a significant main effect, with higher persistence associated with females. Comparing the withdrawal process of four-year and two-year institutions

using secondary data drawn from the National Longitudinal Study (NLS) of the High School Class of 1972, Peng and Feters (1978) found gender to be an important variable in explaining the withdrawal process for students in two-year but not four-year colleges. In this study, females at two-year institutions were less likely to persist than male students. Considered as persisters in this investigation were students still enrolled at the time of follow-up in any institution, regardless of whether they had transferred.

Contrary to these findings, Okun et al. (1996) did not find gender to be a significant predictor of institutional departure in a single-institution study undertaken at a community college located in Phoenix, Arizona. Brooks-Leonard (1991) and Fischbach (1990) also did not find a significant relationship between student gender and persistence. Mohammadi's (1996) longitudinal study of attrition at Patrick Henry Community College in Virginia used college records to analyze student demographic, academic achievement, and enrollment status variables as they related to the re-enrollment patterns of first-time students over a three-year period. Although initial gender differences were found, these differences were insignificant when other factors were considered. Feldman (1993) studied pre-enrollment variables of 1,140 first-time students at Niagara County Community College in New York to determine those that were predictive of persistence. Initial results from Feldman's chi-square analyses indicated that females were more likely to persist than were males. However, the strength of relationship significantly decreased when other variables were accounted for through the logistic regression equation.

Other studies have found an interaction effect between gender and other variables. Acting together, these variables were predictive of persistence. Webb (1988) and

Windham (1995) found that gender interacted with ethnicity. In an attempt to build a model for the early identification of students who are unlikely to be retained, Webb studied 31,363 students enrolled at three of the nine campuses of the Los Angeles Community College District. Through regression analysis, he found that being an African-American male had a significant negative effect on freshman year retention. Over a two-year period, Windham monitored institutional and state records retained on 1,425 first-time students who enrolled at Tallahassee Community College during the fall of 1990. By monitoring these records, she sought to identify salient factors of student attrition. Using only three categories for the “race” variable (i.e., white, black, other), Windham found that “other males” were one-fifth as likely to persist in college than “other females.”

Pascarella and Chapman’s (1983b) study of first-time freshmen students enrolled at 11 institutions tested the Tinto model to determine its predictive validity for four institutional types. Of the 11 institutions studied, three were classified as two-year community colleges. Results of a multiple regression analysis revealed a significant interaction effect for gender and the level of goal commitment, but only for community college students. The level of goal commitment had a significant, positive, and stronger association with persistence for women than for men. Napoli and Wortman (1998) came to similar conclusions as they tested the validity of Tinto’s (1993) model on 1,011 first-time, full-time, day students drawn from the three campuses of Suffolk Community College in New York. Attempting to further refine the model by examining the mediational influences of various psychosocial measures on the constructs within the Tinto model, Napoli and Wortman found significant, positive associations between

gender and initial educational goal commitments, social integration, and academic integration through structural equations modeling and discriminant function analysis. In their study, females reported greater initial goal commitment, social integration, and academic integration than males. Hagedorn, Maxwell, Rodriguez, Hocevar, and Fillpot's (2000) investigation of peer and student-faculty relationships at a community college on the West Coast found significant differences by gender. Using ANCOVA, men reported more frequent participation in college activities whereas women were more frequently involved in informal activities such as studying with other students. Women also reported less difficulty than men with meeting and making friends. It is plausible that these gender differences in student-faculty relationships have an impact on student persistence.

The study of gender as it relates to the persistence behaviors of students and in particular, community college students, has had mixed results. While some studies have found gender to have a significant main effect on persistence, others have found it to have no effect at all. Still, some findings indicate that the impact of gender occurs through its interaction with other variables. With such mixed results, the inclusion of gender as a variable is appropriate.

Racial group affiliation

As with gender, research on the effect of race on student persistence has been inconclusive. Yet, it is difficult to dismiss the relevance of raw data. For example, as Hagedorn, Maxwell, and Hampton (2002) point out, African-American men in community colleges have the lowest retention rates of all ethnicities nationally. Citing Chenoweth, the retention rate of African-Americans in community colleges is less than 10% (Hagedorn, et al. 2002). Nora's (1987) study similarly emphasized the importance

of considering ethnicity in studying community college retention. As she argues, considering that community colleges often serve disproportionate numbers of minorities and that these institutions also have the highest attrition rates of all other higher education institutions, an examination of retention by racial group affiliation is warranted.

Regardless of these accounts, many studies have not found a significant relationship between racial group affiliation and the persistence of community college students (Brooks-Leonard, 1991; Mohammadi, 1996; Okun et al., 1996; Peng & Feters, 1987; Romano, 1995; Voorhees, 1987). However, there are others that have found differences, although conflicting, by ethnicity (e.g., Gates & Creamer, 1984; St. John & Starkey, 1994; Webb, 1988).

To test a causal model of two-year college attrition, Gates and Creamer (1984) drew a sample of 4,854 student records from the National Longitudinal Survey (NLS) of the High School Class of 1972. Using path analysis, they found that African-American students were more likely to persist than were Caucasian students. In this study, a leaver was defined as a student who enrolled in a two-year college at some point between October 1, 1972, and October 1, 1975, but left without receiving a formal credential and also had not continued with studies as of October 1, 1976. St. John and Starkey (1994) came to similar conclusions, and found that being African-American was significantly and positively associated with persistence. Taking all other variables into account, being African-American increased the probability of persistence by 6%.

Webb (1988) also found a significant relationship between ethnicity and retention. But, contrary to Gates and Creamer, he found that being African-American had a significant negative effect on retention. Feldman's (1993) study revealed that black

students were 1.75 times more likely to withdraw from their institutions than were white students. In fact, with the exception of Asian students, all minority students (i.e., Black, Hispanic, Asian, Native American) were more likely to withdraw in comparison to their white counterparts.

Racial group affiliation has been found to have an interaction effect on other predictor variables of community college student persistence. Windham's (1995) study revealed interaction effects for racial group affiliation. Race by sex and race by full-time/part-time enrollment status were significantly related to student persistence, with students other than African-American or Caucasian less likely to persist when they were also male or enrolled part-time. Napoli and Wortman (1998) found that Caucasian students showed significantly greater initial goal commitment than minority students. Using data from multiple secondary sources, such as the 1997 Integrated Post-secondary Education Database System (IPEDS) and the Higher Education Directory, as well as primary data from a survey instrument developed by a team of researchers and administrators, Strauss and Volkwein (2004) examined the differential predictors of institutional commitment for first-year students at 28 two-year and 23 four-year public institutions. They found that Caucasian students had higher levels of institutional commitment than students of underrepresented groups (i.e., African-American, Hispanic American, Native American).

Similar to gender, results relating to ethnicity have been inconclusive and also contradictory. To gain additional insight into the relationship between ethnicity and persistence, especially as it relates to community college student persistence, this variable will be included in the present study.

Prior academic achievement

The impact of prior academic performance on college student persistence has been well-documented in the literature. However, measures of this variable have varied. High school grade-point average, high school percentile, achievement test scores, and whether a student graduated with a high school diploma or its equivalent are measures that have been commonly employed to study the effect of previous academic performance. Regardless of what measure is used, prior academic performance is generally predictive of persistence in both direct and indirect ways.

For example, the Pascarella et al. (1986) nine-year study measured secondary-school academic achievement by summing secondary-school grades and secondary-school rank. Through a structural equation model, the researchers found this variable to have significant positive indirect effects on degree persistence for males and females, particularly through its significant, direct impact on academic integration. Interestingly, Napoli and Wortman's (1998) study of 1,011 first-time freshmen enrolled at a multi-campus community college in New York revealed that students with greater high school grade-point averages were more likely to obtain social support from people within and outside the institution. Students with greater grade-point averages were also more likely to be satisfied with college, have higher levels of academic integration, and have higher first-semester grade-point averages at the community college.

While investigating the predictive accuracy of Tinto's (1975) model of student attrition, Nora et al. (1990) monitored the persistence behaviors of first-time college freshmen who enrolled in developmental courses in fall of 1984 and followed them through spring of 1987. Using path analysis, they found that a student's self-reported

high school grades had a significant, positive direct effect on persistence. Romano (1995) had similar findings in his study of first to second semester attrition at a community college in upstate New York. Using multiple regression analysis to determine the factors associated with attrition, he found self-reported high school grade-point average to be one of the seven statistically significant variables related to attrition. Other studies that found high-school grades to be predictive of student persistence include Gates and Creamer (1984) and Hagedorn et al. (2002). Further, using high school percentile as a measure of prior academic achievement, Peng and Feters (1978) and Fischbach (1990) found this variable to be significantly related to the withdrawal of students at two-year colleges.

In a study of adult students, Solomon and Gordon (1981) found that when compared to younger students, fewer adult students had participated in a college preparatory program while in high school. Further, they had lower high school grade point averages than did the younger students. Kuh and Ardaiole (1979), Metzner (1986), and Kasworm and Pike (1994) had similar findings. Kasworm and Pike's study tested the validity of generalizing a traditional model of academic performance to older adult students at a large, four-year institution in Tennessee. While few studies have examined differences between younger, traditional-aged students and older, adult students, the Kasworm and Pike study did so and found a number of differences between students in the two age groups. One such difference was that the academic success of adult students, unlike traditional-aged students, could not be predicted by past high school grades, SAT scores, or ACT scores.

Of the three individual attributes reviewed here, the impact that prior academic achievement has on persistence has received the strongest support. This variable may also

prove an interesting one of study considering the differences that may be found between the two age groups under study here.

Student Enrollment Characteristics

Upon enrollment, students select a major and enroll on a part-time or full-time basis. These characteristics alone may impede or facilitate a student's success at the community college. As will be discussed, many studies have found these variables to be of importance in studying a student's institutional persistence.

Degree type

A review of the literature finds that studies have rarely taken into account a student's degree type (i.e., applied , transfer) and the differential impact that the degree type may have on community college student persistence (e.g., Grosset, 1991; Halpin, 1990; Napoli & Wortman, 1998; Nora et al., 1990). When studies have included this as a variable, the operational definitions used and/or the manner in which findings have been presented have made conclusions difficult to draw (e.g., Voorhees, 1987; Windham, 1995). Moreover, some studies have intentionally eliminated students from study who were enrolled in an applied degree program (e.g., Anderson, 1981; Peng & Feters, 1978).

Although degree type has been largely overlooked as a variable, some researchers have found differences between students by degree type that seem to impact college persistence. Gates and Creamer (1984) found such a difference in their study. That is, students enrolled in an applied program of study were more likely to persist than were those enrolled in a transfer curriculum. Webb (1988) also reported a difference, with students enrolled in technical programs being more likely to persist. In fact, of all variables studied, Webb found this variable to contribute the most in explaining his

model's overall variance. Adelman (2005) applied a logistics model with a cohort of 25,000 eight-graders in U.S. schools in 1988 and followed them through 2000. He found that traditional-age students were more likely to complete an associate degree at the community college when there was a higher ratio of credits in occupational fields to all credits earned. Contrary to these findings, Romano (1995) revealed that students in non-transfer degree programs were the least likely to persist in his investigation. Fischbach's (1990) longitudinal study, designed to investigate the predictability of pre- and post-enrollment variables on persistence, did not find significant differences in the persistence rates of students in the two degree types. Since this variable has rarely been studied, or has been researched in ways that make interpretation difficult, its impact seems worthy of further inquiry.

Enrollment status

Enrollment on a part-time or full-time basis, when used as a variable of study, has generally been predictive of community college student persistence (Bean & Metzner, 1985). Because some researchers have excluded part-time students from their populations of study (e.g., Fischbach, 1990; Halpin, 1990; Pascarella & Chapman, 1983b), their studies may not have adequately captured the experiences and outcomes of a significant and growing population of the community college. With the exception of studies conducted by St. John and Starkey (1994) and Voorhees (1987), researchers that have included it as a variable of study found that enrollment on a part-time basis was predictive of student attrition, with full-time students being more likely to persist than part-time students (e.g., Brooks-Leonard, 1991; Feldman, 1993; Gates & Creamer, 1984; Mohammadi, 1986; Okun et al., 1996; Swift, 1987; Webb, 1988). Drawing collectively

from studies that have included enrollment status as a variable, it appears that part-time or full-time status likely does have an effect on persistence and will be under investigation in this study.

External Commitments

The external commitments of students and their relationship to community college student persistence have rarely been examined. In a review of attrition studies on community college students, it was found that marital status was not included as a variable of study until the Pascarella et al. (1986) study, and the role of dependents on attrition was first examined by Grosset (1991). Bean (1983; 1985), Bean and Metzner (1985), and Metzner and Bean (1987) unarguably influenced the status that external commitment variables have attained in attrition research.

Prior to these studies, many researchers neglected external commitments as variables of study (e.g., Chapman & Pascarella, 1983; Feldman; 1993; Gates & Creamer, 1984; Mohammadi, 1996; Pascarella & Chapman, 1983b; Voorhees, 1987). Much of this neglect can be attributed to the study of raw data and secondary data analyses (e.g., Feldman, 1983; Gates and Creamer; 1984; Mohammadi, 1996; Peng & Feters, 1978; Romano, 1995) and the historical use of attrition models developed mostly for traditional-aged students at residential universities (e.g., Chapman & Pascarella, 1983; Pascarella & Chapman, 1983b). Finally, there has been and continues to be a number of researchers who have tested the validity of the Tinto (1975, 1987/1993) model, and whom until recently largely ignored external factors as attrition variables (e.g., Halpin, 1990; Pascarella et al., 1986).

Recent literature and research recognize that the external commitments of adult students, in comparison with traditional-aged students, serve as powerful influence agents on their collegiate experiences. Kasworm and Blowers (1994) and Graham et al. (2000) describe that the various life roles of adult students—their relationships and responsibilities to family members, their employers, and their communities—interact and shape adult student perceptions of and experiences with college. Whereas younger, traditional-aged students may have fewer external commitments and their collegiate experiences are more so shaped by their engagements and involvement with the campus community, adult students rely more heavily upon their experiences away from the college. Spanard (1990), describing the dilemma that adult students struggle with when deciding whether to attend or reenter college in comparison with traditional-aged students, writes

If an 18 year old high school graduate tells her family and friends that she plans to attend college in September, no one might think to ask why she would make such a decision. She would more likely be congratulated for acceptance into a college of her choice. But if a 43 year old tells his parents, wife, children, and co-workers that he plans to return to college in a few months, issues of timing and costs are often brought up and the decision may be questioned. (pp. 317-318)

Thus, external commitments may not only affect an adult student's decision to remain at a college, but likely impact the student's decision to begin or reenter college. With such a heterogeneous population served by our nation's community colleges, neglecting the impact that variables such as marriage, employment, finances, and dependents might have on institutional persistence would be a disservice.

Marital status

Marital status, studied by Brooks-Leonard (1991) and Okun et al. (1996), was not found to be a significant predictor of student persistence. However, in the Okun et al. study, only 17% of their sample was married and the modal age was 19. Further, like Brooks-Leonard, Okun et al. excluded marital status from further study once direct effects were unfounded. Its indirect effects may have been interesting to explore as was the case in the Pascarella et al. (1986) study where marital status was found to have a significant and negative effect on the social integration of males. That is, married males were less likely to be socially integrated than were unmarried males.

Napoli and Wortman (1998) extended and refined the Tinto (1975; 1987/1993) model to include the mediational influences of a number of psychosocial variables such as social support, life events, and external commitments. Citing the work of Carter, Brainard, and Hunter, Napoli and Wortman acknowledge the role that family pressures such as being married and having children have on college persistence. In their study, marital status, number of dependents, and number of weekly working hours were combined to measure a student's external commitments. Napoli and Wortman found that external commitments had a direct, significant, negative impact on student term-to-term persistence. Sydow and Sandel (1998) reached a similar conclusion in their study of first-to-second-year student attrition at Mountain Empire Community College, a college located in southwest Virginia. Citing a first-to-second-year dropout rate of 50% and a similar fall-to-spring rate, Sydow and Sandel assessed the reasons for student dropout through telephone interviews with students who left as well as a review of withdrawal forms whereby students had to indicate their reasons for leaving. Work and family were

the predominant reasons students gave for their departure. With more than 60% indicating that they had been employed while attending school, about 33% of the withdrawers cited work conflicts as their reason for dropping out on the campus withdrawal forms. A similar percentage surveyed by phone agreed. In Strauss and Volkwein's (2004) examination of the differential predictors of institutional commitment for first-year students at 28 two-year and 23 four-year public institutions, they found marital status to have a significant effect on institutional commitment. Married students had greater levels of institutional commitment than those not married.

From a review of the literature, it appears that marital status may have an impact on persistence—either directly or indirectly. This presumption seems more credible when adult students are included as a subpopulation under study.

Employment

While a handful of studies (e.g., Okun et al., 1996; Peng & Fетters, 1978) have not found a relationship between employment and persistence, the majority of studies have documented such a relationship. Bers and Smith's (1991) study at a suburban community college in the Midwest found that among the covariates, employment status contributed the greatest to the discriminant function. Students who worked full-time were less likely to persist than those who worked part-time or who were unemployed. However, students who were not employed were less likely to persist than those working full time. Windham's (1995) study produced similar findings.

Grosset (1991) found differential effects of employment by student age. In examining the differential persistence impact of the Tinto model for younger and older students at an urban two-year school located in the Northeast, she found through

discriminant function analysis that employment impacted the persistence of younger students but not older students. Younger students who worked more hours were less likely to persist than those working fewer hours or not at all (Grosset). Brooks-Leonard (1991), Napoli and Wortman (1998), and Naretto (1995) are among others who have found employment to have a significant, negative impact on student persistence. St. John and Starkey's (1994) study revealed surprising findings in that employment had a significant, positive impact on persistence. That is, students who worked were more likely to persist than those who did not work. In their study, over 73% of the students were working, and the population sampled was under 23 years of age.

Axelson and Torres (1995) proposed an expanded version of Tinto's Integration Model through their study on a stratified random sample of 742 first-time freshman students at Riverside Community College located in California. They found that the number of hours students worked at off-campus jobs was negatively related to term-to-term, or within-year, persistence. The number of hours worked also negatively correlated with student participation in orientation sessions and with their completion of an educational plan. Naretto (1995) explored the influence that internal and external college communities had on the persistence of adult undergraduates (i.e., 25 years of age or older) enrolled at several four-year colleges. Interestingly, she found that employers and friends at work provided a strong sense of support to persisters whereas those who did not persist were likely to indicate weak or ambivalent support from those in their work environment.

With the exception of Grosset's (1991) study, the differential impact of employment between younger and older students has not been examined. Yet, despite this

neglect, the number of hours students work does appear to impact student persistence in both direct and indirect ways and will be included as an external commitment for the purpose of this study.

Finances

Bean (1985) introduced finances as a variable and retained this variable in the Bean and Metzner (1985) model for nontraditional students. Research regarding this variable and its impact on student persistence has been mixed. Yet, these differences may be largely attributed to the varying manners in which this variable has been measured. There has been a tendency for researchers to utilize parental socioeconomic status as an indicator despite the heterogeneous characteristics of the community college student population—many of whom are older and are financially independent (Nora et al., 1990; Pascarella et al., 1986). Others have examined a student's reliance on financial aid as measurement (e.g., Grosset, 1991; Peng & Feters, 1978; Romano, 1995; Windham, 1995). Finally, some have measured a student's attitudes about his finances to capture this variable (Grosset, 1991; Halpin, 1990; Okun et al., 1996; Strauss & Volkwein, 2004; Webb, 1988).

Grosset (1991), Pascarella et al. (1986), Peng & Feters (1978), and Windham (1995) did not find finances to be significantly related to persistence. Okun et al. (1996) sought to test a number of hypotheses concerning moderators of the relation between intention and institutional departure at a community college located in Phoenix. They found that one's certainty of finances was a significant predictor of institutional departure. Similarly, Webb (1988) found that students without a need for help with financing their education were more likely to persist than those with a need. Those who

perceived the cost of college as being a burden were more likely to dropout in Halpin's (1990) study, and a student's financial aid status was significantly related to attrition in Romano's (1995) study. Strauss and Volkwein's (2004) comparative examination of predictors of institutional commitment among two-year and four-year college students revealed that institutional commitment was higher for students receiving greater levels of aid and students with worries about how they would finance their education.

The role of finances in student persistence decisions has gained significance in the past decade (Cabrera, Nora, & Castaneda, 1992). Following an extensive overview of recent literature on this variable and after arguing for its inclusion in persistence models, Cabrera, Nora, et al. hypothesized that a student's financial attitudes and receipt of financial aid would have direct and indirect effects on persistence decisions through their mediating effects with social and academic integration and institutional and goal commitments. Using constructs borrowed from the models of Tinto (1975, 1987), Bean and Metzner (1985), and Metzner and Bean (1987), they tested a college persistence model with the addition of several items related to student finances on a sample of students enrolled at a large, urban commuter institution (Cabrera, Nora, et al.). Although financial aid and attitudes did not have direct effects on institutional persistence, financial aid had a significant total effect on persistence through its positive effects on a student's academic and social integration and intent to persist. Finance attitudes had a significant, direct effect on academic integration (Cabrera, Nora, et al.). That is, the more satisfied students were in terms of their financial support, the better integrated they were in an academic sense.

St. John and Starkey (1994) used the NPS Aid Survey of 1986-87 to assess the impact of tuition charges and the amount of student aid awarded on the persistence of traditional-aged students (i.e., under 23 years of age) enrolled in public two-year colleges. Within-year persistence, or fall to spring semester enrollment, was examined for their sample of 1,827 students. Students who had transferred to another college or university and/or students who had indicated that they had met their educational goals were defined as persisters in this study. Through logistic analysis, these researchers found a significant, negative association between tuition charges and persistence. A significant, negative association was also found between grant awards and persistence. As St. John and Starkey suggest, these findings could possibly be attributed to the insufficiency of grant aid in meeting the financial needs of students.

Cofer and Somers (2000) used the 1996 National Postsecondary Student Aid Survey to research the fall to spring persistence of college students who were enrolled at two-year public and private colleges. Using logistic regression, they found that students were more likely to persist if they received subsidies. Moreover, students were almost 16% more likely to persist for every \$1,000 in student loan debt outstanding. Inconsistent with findings from their previous studies on four-year college students, debt was significant and negatively associated with persistence at the low and middle level of debt, but significant and positively associated with persistence for high levels of debt among two-year college students.

Citing the growing body of research that suggests the concerns that many students, particularly older students, have with their ability to finance education, Bean and Metzner (1985) argue this variable's relevance for inclusion. In looking at more

recent literature, a greater number of researchers have found student finances to be significantly linked with attrition than those who have not.

Presence of Dependents

A review of the community college attrition literature finds only a handful of studies that have examined the impact that having dependents has on persistence, yet it is an external commitment that may seemingly cause additional stressors to the lives of college students. As noted earlier, Napoli and Wortman's (1998) study combined one's marital status, number of dependents, and number of weekly working hours to measure the external commitments of students. External commitments were found to have a direct, significant, negative impact on student term-to-term persistence. Lacking in this study was the examination and/or presentation of how these factors individually affected persistence.

By conducting separate discriminant analyses on younger and older students, Grosset (1991) found that the number of dependents a student reported was a significant factor for both age groups. Unanticipated, however, was the finding that persisters reported more dependents than withdrawers. Grosset (p. 175), surprised by this finding, suggests that this variable "may be a proxy measure for student responsibility....resulting in a greater commitment to persist despite the added demand of family responsibility."

Strauss and Volkwein (2004) used the presence or absence of dependent children as a variable in their study. Choosing only the most salient variables for further study, they eliminated this variable from further analyses. Okun et al.'s (1996) study utilized responsibility for children as a control variable. Similar to Strauss and Volkwein, they did not find it to be a significant predictor of institutional departure and therefore excluded it

from additional analyses. However, the modal age of their sample was 19, and nearly 80% of the sample did not have children.

Bean and Metzner (1985) have noted the lack of empirical studies on this topic. However, they provide an excellent review of the autopsy studies that have found family responsibility to be a determinant in student attrition. For example, Carter (as cited in Bean and Metzner) reported that family responsibilities was provided as one of the top five 5 of 60 reasons for the attrition of older and part-time students. Staman's study (as cited by Bean and Metzner) produced similar results by finding a negative association between the number of children students had and the persistence of continuing students who were 22 years of age or older. In both of these studies, however, family responsibility was not a significant factor for younger students.

Metzner and Bean (1987) estimated their nontraditional model on 624 part-time, commuter freshmen at a Midwestern urban university. Family responsibility, defined as the number of children or relatives for whom students are responsible, was found to have a small, but insignificant total effect on dropout. In addition, indirect effects were not found. Kirk and Dorfman (1983) conducted a study to investigate the factors that have an impact on satisfaction and strain among reentry women 35 years of age and older who were enrolled as undergraduates in degree programs at the University of Iowa. They found that the age of the youngest child was negatively related to strain in the student role. That is, the younger their children, the greater the strain for these adult women. In a replication of the Kirk and Dorfman study conducted on women aged 35 and older who were returning to college at a university in a Midwestern Canadian city, Novak and Thacker (1991) found that the number of children a woman had and the age of her

youngest child correlated positively and significantly with satisfaction in the student role. The greater the number of children a woman had and the older the age of her youngest child, the greater her satisfaction of the student role. Because of the near void of empirical literature on this topic within the community college setting as well as mixed findings, greater attention should be given to the potential relevancy of family responsibilities to persistence.

Goal Support

Encouragement by significant others to attend college was first presented by Nora (1987). Degree utility, introduced by Bean (1985), is indicative of a student's perceptions that a college education is important in achieving career goals. Both variables represent a perceived level of support, in both tangible and intangible ways, in aiding a student to meet his or her goals.

Encouragement and support from significant others

Nora (2001) provides an insightful interpretation of Tinto's "rites of passage" as it relates to the importance of encouragement and support from significant others. She also offers an extensive overview of research that lends support to the impact that support and encouragement from significant others has on the adjustment and persistence of college students. Bean and Metzner (1985) acknowledged early on the significance of this variable, and included it in their model of nontraditional student attrition. Only recently, however, has this variable been included in community college student attrition studies.

Nora's (1987) study of Chicano students measured pre-college encouragement by significant others, with significant others defined as a student's high school teachers and counselors, relatives, and parents. Although encouragement did not directly affect student

retention, she found that students who had higher levels of encouragement also had higher initial institutional and goal commitments. Nora et al. (1990) found that encouragement by significant others had a statistically significant, positive effect on institutional commitment. Mediated through initial commitments, it also had an indirect effect on social integration. Here, encouragement by significant others was measured by the interest and encouragement that high school teachers, high school counselors, parents, other close relatives, and friends expressed about the student going to college (Nora et al., p. 343). Of the respondents, 74% were under 23 when they first enrolled.

The Okun et al. (1996) study produced interesting results regarding this variable. Operationalized by “Most people who are important to me think that I should enroll at GCC in the fall,” they found that for those who intended to stay, encouragement to stay had almost no effect on the probability of enrollment. But for those who intended to transfer, encouragement to stay had a strong impact on actual departure. As encouragement to stay decreased, students who expressed an intent to transfer were more likely to depart (Okun et al.). Strauss and Volkwein (2004) used two items to measure the effect of encouragement from significant others on the institutional commitment of students at two-year and four-year college students. Perceived support from family and peers to pursue and continue in college were indicators utilized. Although not retained as a variable in their final HLM model for institutional commitment, encouragement from significant others did add significantly to the explained variance in an earlier model (Strauss & Volkwein).

Napoli and Wortman (1998) captured the essentials of the encouragement from significant others variable, and termed this construct *social support*. Using a 10-item

scale, they measured perceived support from the family as well as the campus community. While social support did not have a direct effect on the persistence of the two-year community college sample, it had significant, positive effects on college satisfaction, social integration, academic integration, college grade-point average, and post-entry goal and institutional commitment. Of these, social support's largest impact was on social integration. Axelson and Torres (1995) interestingly found that the encouragement students received to attend Riverside Community College had a strong, positive effect on academic integration.

Although not a retention study and also not conducted on a community college population, Kirk and Dorfman (1983) investigated the satisfaction of women 35 years of age and older and found that support from children and support from friends were positively related to satisfaction in the student role. Contrary to that which was expected, support offered by the husband was not a significant predictor of satisfaction in the student role. A replication study found that psychological support from children, friends, and spouse all positively correlated significantly with satisfaction of the student role, with psychological support from children—generally older children—serving as the best predictor of an adult woman's satisfaction in college (Novak & Thacker, 1991). Naretto's (1995) study found support from internal and external communities to be a critical influence on the persistence of adult students. Persisters in this study reported support from internal and external communities, whereas nonpersisters were more likely to report that their external communities provided them with more support than did their colleges. Due to its evidenced influence on persistence, in both direct and indirect ways,

encouragement and support from significant others appears to be a worthwhile variable for further study.

Degree Utility

Degree utility, or the perceptions that college students have regarding the usefulness of their education to future employment opportunities, was a variable retained in the Bean and Metzner (1985) model for nontraditional student attrition. Perceived future employment opportunities exhibited a powerful effect on attrition in Bean's (1980, 1983) earlier studies, and its powerful influence on a student's intent to leave was documented in Metzner and Bean's (1987) study of nontraditional students. In fact, of all the variables, it had the strongest effect on intent to leave, which in turn had the second strongest effect among all the variables on actual persistence behavior. Spady (1970) and Tinto (1975) give consideration to degree utility. However, they consider a student's perceptions of the intellectual and personal development achieved, rather than the prospect of future employment opportunities, to be more important.

Grosset (1991), who examined the differential impact of variables and their relation to persistence among younger and older students, included items related to degree utility. For both age groups, the perceived benefits of college served as an important determinant to persistence behavior. Nora (1987) included a scale to measure student perceptions of career preparation as a result of their college education. Using structural equation modeling to test a modified version of Tinto's (1975) integration model on Chicano community college students, Nora used this variable as one of many to operationally define the academic integration construct. Because the degree utility scale was just one of the many scales combined to represent academic integration, the

independent effect of degree utility on persistence is difficult to distinguish. Strauss and Volkwein (2004) included an eight-item scale to measure student perceptions of the intellectual stimulation, enjoyment, and value gained from classroom experiences. Similar to Nora, this scale represented just one of many to measure academic integration. For both two-year and four-year students, intellectual development and classroom experiences were significant predictors of institutional commitment. However, the impact was greater for students enrolled in two-year colleges than for those enrolled in four-year colleges (Strauss & Volkwein).

Kiger and Johnson (1997) surveyed prospective adult students who had completed or partially completed the multi-step admissions process at a large suburban community college located in a Midwestern city. Students 25 years of age and older who expressed increasing their earning potential and preparing for a new occupation as top reasons for engaging the college were significantly more likely to matriculate than students who did not cite them as top reasons. Thus, as Kiger and Johnson concluded, adult students in this study who were not primarily motivated by career or economic factors were more likely to disengage from the college.

The impact of degree utility, with an emphasis on career and employment opportunities, has gained momentum in recent literature with populations similar to those found in community colleges. For example, Peterson and delMas (2001) examined the effects of degree utility and career decision-making self-efficacy (CDMSE) on the persistence of 398 underprepared students enrolled in a developmental education unit of a large Midwestern, urban land-grant research university. In this study, mean high school grade-point average and high school rank were used to determine the population from

which to draw the sample. Additional constructs examined included intent to persist, academic performance, academic integration, social integration, and goal commitment. Peterson and delMas found that degree utility had the second strongest effect on a student's intent to persist—only slightly less powerful than academic integration. Further, and to a lesser extent, degree utility had a positive, direct effect on academic integration and actual persistence behavior.

Particularly for adult students, degree utility may be an important variable in the study of college persistence. Degree utility is likely to have at least an indirect effect on persistence for younger students through its interaction with other variables that do have a direct impact. Finding what differences, if any, exist for the two age groups with regards to degree utility and its impact on persistence is deserving of further inquiry.

Intent and Commitments

A student's intentions and commitments to educational goals and the institution have been operationally defined in many ways. Yet, despite these variations, they have shown to be predictive of persistence behaviors for community college students.

Intent to leave

Bean's (1983) study of female attrition, based largely on the revised model of worker turnover developed by Price and Mueller (1981), found that a student's intent to leave or return to an institution explained 64.4% of the variance in dropout. Having retained this variable in the Bean and Metzner (1985) model of nontraditional student attrition, Metzner and Bean (1987) again noted its worth in retaining this as a variable of study in persistence studies. Their study on nontraditional students found intent to leave as being the second largest predictor of dropout. Degree utility, or the practical value one

assigns to a college education, in turn had the largest effect on intent to leave (Metzner and Bean).

Despite the power of this variable, it has not been frequently used in community college attrition research. Exceptions include the works of Bers and Smith (1991), Okun et al. (1996), and Voorhees (1987). Borglum and Kubala's (2000) test of Tinto's academic and social integration variables on student withdrawal rates at Valencia Community College in Orlando included this as a variable of study, but they did not specify how student intent was measured. Nevertheless, they did indicate that a student's goals and intentions are probably more predictive of student success and persistence for second-semester students in comparison with academic and social integration. Bers and Smith measured this variable by requesting that students indicate the number of additional terms they intended to remain at the Midwest community college under study. They concluded that educational objective, student intent, and employment status contributed more substantially to the differentiation between persisters and nonpersisters than did academic and social integration. Okun et al. (1996) studied the moderators of the relation between intention and institutional departure. Specifically, they looked at how the relation between student intention and persistence behavior varied with student grades, commitment, and encouragement from others to stay. Okun et al. found that intention to leave or stay at college interacted with commitment to doing well in college and encouragement to stay at college. That is, as student commitment to educational pursuits increased, the more powerful the effect that intention had on the probability of institutional departure. When encouragement to stay decreased, students who expressed an intent to leave were more likely to withdraw. (Okun et al.). Finally, Voorhees asked

students to indicate their intent to return by responding “yes,” “no,” or “uncertain.” In this study, a significant, positive association was found between intent to return and persistence.

In four-year institutions, intent to leave has also shown to be predictive of persistence. The Pascarella et al. (1983) study sought to test the predictive validity of Tinto’s (1975) model on a sample of freshmen in a large, urban commuter institution. It also extended the model by considering the additional construct of intent to leave as initially proposed by Bean (1982). Employing a longitudinal design, they found that a student’s intent had a strong, direct effect on the persistence/withdrawal behaviors of students. Fox (1986) had similar findings in his study of disadvantaged students at an urban, primarily non-residential, university. Through hierarchical regression analysis, he found that a student’s intent to leave was the second most powerful predictor of retention. Cabrera et al. (1993), in their study of freshmen at a large southwestern urban institution, found a student’s intent to have the largest total effect on persistence.

Used as a variable in studies conducted at both two-year and four-year institutions, a student’s intent to depart or remain at an institution appears to be a powerful predictor of a student’s actual persistence behavior. Therefore, inclusion of this variable is warranted.

Goal and institutional commitments

As Tinto (1975/1987/1993) theorizes, students arrive at institutions with individual attributes, family background characteristics, and high school experiences that shape their initial commitments to the institution and to the goal of graduation. The combination of these variables then influences a student’s interactions with, and ability to

integrate into, an institution's academic and social systems. According to Tinto, the establishment of these commitments is critical to a student's subsequent integration within an institution.

Student commitment to educational and career goals, *goal commitment*, and its indirect and direct effects on persistence has been well documented in the community college attrition literature. Many researchers have examined this variable as it relates to a student's assigned importance to obtaining a college degree and/or to completing a program of study (Bers & Smith, 1991, Chapman & Pascarella, 1983; Grosset, 1991; Halpin, 1990; Napoli & Wortman, 1998; Nora, 1987, Nora et al., 1990; Pascarella & Chapman, 1983b). Still others have examined it in terms of a student's educational aspirations. That is, the highest degree one expects or desires to earn (Borglum & Kubala, 2000; Cofer & Somers, 2000; Gates & Creamer, 1984; Williamson & Creamer, 1988). Regardless of the approach, most studies have provided ample evidence of its importance in studying community college attrition.

Defining goal commitment in terms of a student's aspirations, Cofer and Somers (2000), Gates and Creamer (1984), and Peng and Feters (1978) found goal commitment to be a significant predictor of student persistence. Moreover, Williamson and Creamer (1988) revealed that goal commitment had the strongest direct effect on persistence of all other variables they studied.

Institutional commitment, a student's loyalty to the school of entry, is another variable that has received attention in the attrition and persistence community college literature (Axelson & Torres, 1995; Bers & Smith, 1991; Chapman & Pascarella, 1983; Grosset, 1991; Halpin, 1990; Napoli & Wortman, 1998; Nora, 1987; Nora et al., 1990;

Pascarella & Chapman, 1983b; Strauss & Volkwein, 2004). Yet, there has been a tendency for researchers to aggregate institutional commitment and goal commitment into a single construct (Bers & Smith, 1991; Halpin, 19990; Nora, 1987; Nora et al., 1990). When used as a composite measure, this variable has generally been a reliable predictor of persistence (Bers and Smith, 1980; Halpin, 1990; Nora, 1987). The Nora et al. (1990) study, an exception, found institutional/goal commitment to have a non-significant, but negative direct effect on retention.

Beyond persistence behavior, institutional/goal commitment may have an influence on other variables. Nora (1987) and Nora et al. (1990) found this construct to have significant, positive, direct effects on academic and social integration. Another example is with Fox's (1986) study on disadvantaged students. While not directly related to persistence, institutional/goal commitment had indirect effects on persistence through its influence on student intent to leave. Bean and Metzner (1985) included goal commitment in their nontraditional model of student attrition, and allowed intent to leave to serve as a substitute for institutional commitment. When they tested this model of nontraditional student attrition, Metzner and Bean (1987) did not find it to be significantly related to dropout or student intent to leave as predicted. However, goal commitment did have significant positive effects on cumulative grade-point average, degree utility, and student satisfaction.

Initial institutional commitment in the Napoli and Wortman (1998) study was significantly related to within-year persistence, whereas subsequent goal commitment was significantly related to persistence. Similar to Napoli and Wortman, some researchers have examined student commitments at two intervals to study Tinto's initial

and subsequent commitments. However, precedence has been set for this data to be collected only once (Bers & Smith, 1991; Cabrera et al., 1993; Chapman & Pascarella, 1983; Halpin, 1990; Nora, 1987; Pascarella & Chapman, 1983b; Peterson & delMas, 2001).

Although studied in a variety of ways, institutional commitment and goal commitment have been well established in the literature as powerful predictors of persistence and other related variables. The impact of these constructs on the persistence of community college students—particularly the differential impact of these constructs between adult and traditional-aged student persistence—is of interest in this study.

Academic Performance

As described earlier, college grades “represent the most conspicuous form of reward....basically extrinsic and used as tangible resources” according to Spady (1970, p. 77). A student’s academic performance in college, particularly the student’s grade-point average during the first semester, has been well established as an important variable in the persistence literature. Whereas some have incorporated this variable within their academic integration scales and found it to be a predictor of student attrition for two-year college student attrition (Nora et al., 1990; Pascarella & Chapman, 1983b; Williamson & Creamer, 1988), Voorhees (1987) also included grade-point average as an indicator within his academic integration scale and found it to be independent of persistence. Many who have investigated the independent effects of grade-point average have found it to be a powerful predictor of student attrition and persistence (Cabrera et al., 1993; Cofer & Somers, 2000; Fox, 1986; Metzner & Bean, 1987; Mohammadi, 1996; Napoli &

Wortman, 1998; Naretto, 1995; Okun et al., 1996; Pascarella et al., 1983; Peng & Fetter, 1978; Romano, 1995; Webb, 1988; Windham, 1990).

Metzner and Bean (1987) found cumulative grade point average to have the largest effect on dropout. Napoli and Wortman (1998) found this to be the case in their study as well, and also found first-semester grade-point average to have a significant, positive effect on academic integration. An overview of research provided by Kasworm (1990) and Kasworm and Pike (1994) suggests that the academic performance of older students is comparable to or even better than that of younger students. In a comparative study between traditional aged (i.e., 18 to 22 years old) and adult (i.e., 27 years of age or older) students conducted on a national sample of 27,811 undergraduate students enrolled at a sample of colleges including private, public, technical, two-year, and four-year, Graham (1998) found that adult learners did as well or even better than traditional-aged learners across four measures of academic and intellectual outcomes. In light of these findings, the powerful effect of college grade-point average on persistence has been well established, even when examined independent of the academic integration construct. Moreover, the differential impact that grade point average may have on persistence by student age group seems worthy of further inquiry.

Academic Integration

As proposed by Tinto (1975), academic integration and social integration impact a student's goal and institutional commitments, and a student's subsequent decision to persist or depart from a higher education institution. Since its introduction, academic integration has been included as a construct of study on the attrition of community college students by a number of researchers (e.g., Axelson & Torres, 1995; Bers &

Smith, 1991; Borglum & Kubala, 2000; Grosset, 1991; Hagedorn, et al., 2002; Halpin, 1990; Munro, 1981; Napoli & Wortman, 1996; Napoli & Wortman, 1998; Nora, 1987; Nora et al., 1990; Pascarella & Chapman, 1983a; Williamson & Creamer, 1988). While more than half of the studies reviewed found academic integration to have a significant and positive, direct effect on community college student retention, a number of studies (i.e., Axelson & Torres; Borglum & Kubala; Hagedorn, et al.; Nora; Voorhees) did not find this construct to have a significant effect on retention. In their multi-institutional study, Pascarella and Chapman found that academic integration indirectly influenced the persistence of two-year commuter college students through its positive, direct effects on institutional commitment.

Differences in findings may largely be attributed to the differences in scales used in measuring academic integration. That is, the items used to estimate the construct have varied widely. Such variation makes the estimation of its impact difficult. Many of the studies that found academic integration to have a significant effect on retention used an instrument, or a variation thereof, developed by Pascarella and Terenzini (1980) to measure this construct. For example, Bers and Smith (1991), Grosset (1991), Halpin (1990), and Napoli and Wortman (1998) all used a modified version of the Pascarella and Terenzini instrument and found academic integration to have a significant and positive, direct effect on the retention of community college students. Pascarella, et al. (1983) also used this instrument on their study of attrition for a commuter student population and found academic integration to have a relatively strong direct effect on persistence. In Fox's (1986) study of retention among disadvantaged students at an urban, primarily non-residential university, he found academic integration to have the greatest influence on

persistence of all variables studied. Finally, Strauss and Volkwein's (2004) examination of the differential predictors of institutional commitment for first-year students at 28 two-year and 23 four-year public institutions revealed that classroom experiences, a measure used to assess academic integration, was a better predictor of institutional commitment for students at two-year institutions than for students at four-year schools. Classroom experiences was reflective of a number of items used to measure a student's perceptions of intellectual stimulation, enjoyment and value of classroom experiences, and student perceptions of faculty preparation for class and communication.

Napoli and Wortman (1996) performed an extensive literature search to conduct a meta-analysis of the impact of academic and social integration on persistence among two-year community college students. Their search produced nine published articles and two paper presentations which met their initial criteria. Five were later eliminated because, according to Napoli and Wortman, they either did not provide sufficient data to determine the zero order correlation between the integration measures and persistence (e.g., Chapman & Pascarella, 1983), they did not report results for community college samples separately (e.g., Munro, 1981), or the researcher used an unreliable scale to assess academic integration (e.g., Voorhees, 1987). With five studies retained, Napoli and Wortman added a sixth study that had not been published (i.e., Napoli, 1995). Interestingly, their use of two studies for this meta-analysis is questionable since both Fox's (1986) and Pascarella, et al.'s (1983) studies were conducted on samples of students enrolled at four-year urban commuter institutions. While commuter students may have more in common with community college students in comparison with residential students, these studies do not seem to meet the minimum criteria as

established by the researchers themselves. Napoli and Wortman's use of the Pascarella et al. (1986) study further threatens the validity of this meta-analysis since this study examined the long-term persistence of students who began their postsecondary education in two-year institutions, rather than their persistence at these institutions. Nonetheless, results from Napoli and Wortman's meta-analysis indicate that academic integration has a large and positive effect on community college student persistence.

Subscales that have included measures of a student's perceptions regarding intellectual and academic development, faculty concern for quality teaching and student development, and the quality of informal interactions a student has with faculty have consistently shown their value in measuring academic integration. Thus, a student's perceived cognitive growth as a result of the college experience, the student's perceptions of the classroom experience, and the student's views of the relationships established with faculty seem to be important for students to integrate successfully into the academic systems of the college.

For adult women, satisfaction with faculty members has been found to be strongly correlated with their satisfaction of the student role (Kirk & Dorfman, 1983; Novak & Thacker, 1991). In fact, Kirk and Dorfman reported that the strongest correlation coefficient in their study of .42 was found for satisfaction in the student role and the helpful attitude of professors. Although to a lesser extent, Novak and Thacker's (1991) regression analysis identified helpful attitudes of professors as a significant correlate with role satisfaction for middle-aged women at a Canadian university. The Kasworm and Blowers (1994) qualitative study on adult undergraduates aged 30 and older found that students at the two community colleges often voiced that faculty and staff who interacted

with them served as their key support, with most of the adults who were interviewed identifying their relationships with their classroom teachers as their primary support system for self as a student learner.

Having limited interactions with the campus environment, a number of researchers who have studied adult students, or studied differences between adult students and traditional-aged students, describe the strong exerting force that the college classroom has on adult learners (e.g., Donaldson & Graham, 1999; Donaldson, Graham, Martindill, & Bradley, 2000; Graham & Donaldson, 1999; Graham, et al., 2000; Kasworm, 2003b; Kasworm & Blowers, 1994). The classroom experiences of adult students—not strictly the academic content but interactions with faculty and students in the classroom—and the connections that adults make between these experiences and their lives outside the classroom influence how adult learners view their college experience and their outcomes (Graham et al., 2000; Naretto, 1995). Kasworm (2003b) interviewed 90 adult undergraduate students to learn about their learning engagement in the college classroom and its relation to their broader life involvement. Students enrolled at six institutions were interviewed: two private liberal arts colleges with an adult degree program, two public community colleges, and two public universities. From these interviews, she concluded that the college classroom served as the center stage for these students in defining their collegiate experience and its impact. Dill and Henley (1998) compared the perceived stress and stressors of nontraditional (24 to 54 years old) and traditional (18 to 23 years of age) students. As they hypothesized, social and peer events were of greater significance to traditional students than to nontraditional students.

From the works reviewed, it appears that academic integration may substantially impact the persistence of students. While the social context may play a larger role in the lives of younger students, classroom experiences and interactions that occur within the classroom may play a larger role for adult students. This study will address this presumption.

Social Integration

Social integration has been examined by numerous researchers interested in its impact on community college student attrition. Unlike academic integration, however, its relative impact on persistence has been scrutinized in the community college literature.

Lack of congruity in findings related to the research of social integration for community college students may partially be due to inconsistent indicators used to measure this construct. For example, whereas some researchers (e.g., Bers & Smith, 1991; Grosset, 1991) have included out-of-classroom or informal contacts with faculty as a measure of academic integration, others have included these contacts as a measure of social integration (e.g., Halpin, 1990; Nora, 1987; Nora, et al., 1990; Pascarella & Chapman, 1983). Furthermore, some researchers (e.g., Fox, 1986; Hagedorn, et al., 2000; Maxwell, 2000) have argued that community college students may have distinctive patterns of social integration that may not be adequately captured by the instruments that have historically been used. Pascarella and Chapman (1983), for example, measured social integration by using items such as “number of weekends spent on campus each month” and “number of dates each month” to assess social integration. Undoubtedly, items such as these seem inappropriate for a sizeable number of community college and adult student populations.

Similar to the academic integration construct, many researchers have utilized Pascarella and Terenzini's (1980) scale to measure social integration. Two subscales—Peer-Group Interactions and Interactions with Faculty—were used to measure social integration in the Pascarella and Terenzini model. However, as Pascarella and Terenzini have admitted, although the model assumes interactions with faculty as a measure of social integration, these interactions may also enhance academic integration as Tinto (1975, 1987) has asserted. As discussed earlier, some researchers have actually used the Interactions with Faculty scale or a similar version of it as a measure of the social integration construct. Differences in measurement alone, therefore, may account for the variation in differences when social integration is examined within community college populations.

Using Pascarella and Terenzini's (1980) subscales, Bers and Smith's (1991) findings suggested that social integration is a significant predictor of community college student persistence. However, while Halpin found nonclassroom interactions with faculty to be a significant predictor of persistence, peer group relations did not even enter into the discriminant function. Napoli and Wortman (1998) used the Pascarella and Terenzini subscales to measure social integration in addition to the Student Involvement Questionnaire Social Integration scale (SIQ-SI). Consistent with the findings of Bers and Smith, they found social integration to be significantly and positively linked to persistence. Napoli and Wortman's (1996) meta-analysis, described earlier, also found support for the importance of social integration in explaining community college student persistence. Four of the six studies selected found that social integration had a significant and positive effect on persistence. Strauss and Volkwein (2004) concluded in their

comparative study of institutional commitment among two-year and four-year students that social growth and social interaction are strong predictors of institutional commitment for both student groups, but more so for students attending four-year institutions. Interestingly, classroom experiences were more influential for students attending two-year schools in comparison with those at four-year schools.

From recent literature and research, one may theorize that the predictability of social integration on retention may be influenced by student age. For example, Donaldson and Graham (1996; 1999) indicate that traditional-aged student perceptions of the college environment are impacted from activities and interactions that students have with their peers outside of class. In contrast, the perceptions of adult learners are derived largely from the interactions they have within the college classroom. Corrado and Mangano (1980) conducted a study at six New York State two-year colleges where they examined the differential importance of selected educational needs and services between traditional (i.e., 18 to 24 years of age) and reentering adult (i.e., 25 and older) students. Among their findings, they concluded that traditional students reported a higher need for extracurricular and social programming than did the reentering adult students.

Since most adult students have limited exposure to and time for activities outside the classroom, the classroom itself may provide a social context for them according to Graham et al. (2000). Findings from studies comparing the differences between older and younger students reveal that social involvement is less important to older students than younger students, and that older students tend to be less involved in social engagements than are their younger peers (Bean & Metzner, 1985; Kasworm, 1995; Metzner, 1986). Further, peer interaction has a substantial and significant impact on the satisfaction of

traditional-age students when compared with adult students (Kasworm, 1995; Kasworm & Blowers, 1994; Kasworm & Pike, 1994; Graham & Donaldson, 1999).

In sum, while some researchers (e.g., Nora, 1987; Nora, et al., 1990) have not found social integration to be a predictor of persistence or have found it to have a significant, negative effect on persistence, the use of Pascarella and Terenzini's (1980) subscales shows promise for studying community college student persistence.

Summary

A number of theories related to college student attrition and retention were reviewed. Theories reviewed dated as far back as 1970 with Spady's Sociological Model and as recently as 1999 with Donaldson and Graham's Model of College Outcomes. As was discussed, the models of Tinto (1975, 1987/1993), Bean and Metzner (1985), and Donaldson and Graham (1999) serve as the conceptual frameworks of the present study.

Following an overview of theories, a review of the literature as it relates to the constructs and variables under study was offered. While emphasis was given to research that had been conducted on community college and adult student persistence, studies performed on four-year college and commuter students were highlighted where research deficiencies exist.

Conclusion

The present study is theoretically-based, with major college student retention theories serving as its foundation and conceptual guide. As was highlighted, many of the theories have been developed through the research and study of traditional-aged students attending four-year colleges and universities. Perhaps more pronounced than for any other institutional type, community colleges still lack a grand theory of student retention.

Considering the diversity of the community college population, it may be impossible to adequately explain the persistence of this student population as an aggregate. Instead, several different theories may be needed through the study of community college sub-populations. This study's intent is to better understand the persistence factors of two distinct populations—traditional-aged and adult community college students.

The following chapter will describe the methods and procedures of this study. Limitations will also be discussed.

CHAPTER III

METHODS AND PROCEDURES

Introduction

The present study will test the following hypotheses:

- H1 There are identifiable predictors of institutional persistence for first-time, degree-seeking community college students.
- H2 There are differential predictors of institutional persistence between traditional-aged and adult first-time, degree-seeking community college students.

Thus, this study examines whether there are identifiable predictors of persistence for first-time, degree-seeking community college students. It also compares the differential predictors of community college student persistence between traditional-aged and adult students who first enroll as degree-seeking students at a multi-campus public community college in southeast Virginia. Through this study, greater knowledge about traditional-aged and adult student persistence, and the differences between them, should be attained.

Using key constructs from extant student persistence models for four-year institutions in conjunction with variables found to be significant predictors of community college and/or adult student persistence, this study hopes to lessen the substantial gap in community college persistence literature. The constructs that will guide this study include individual attributes (i.e., gender, racial group affiliation; prior academic achievement); student enrollment characteristics (i.e., degree type, enrollment status); external commitments (i.e., marital status, employment, finances, presence of dependents); goal support (i.e., encouragement and support from significant others; degree utility); intent

and commitments (i.e., intent to leave; goal commitment; institutional commitment); academic performance; academic integration; and, social integration. Additional variables include student age (traditional-aged students versus adult students) and the criterion variable, institutional persister versus institutional withdrawer.

This chapter details how the study was conducted. Accordingly, it describes the following: (a) the subjects; (b) the setting; (c) the research design; (d) instrumentation; and, (e) limitations of the study.

Subjects

Two random samples were drawn for this study. The first sample consisted of 350 randomly selected degree-seeking adult students (25 years of age or older) who entered Tidewater Community College (TCC) for the first time in August 2005. The second sample included 350 randomly selected degree-seeking traditional-aged students (18 to 24 years of age) who also entered TCC for the first time in August 2005. The samples were stratified, non-proportional, and randomly selected. Table 1 presents demographic characteristics for the two samples.

The traditional-aged sample was drawn from a sampling population of 2350 degree-seeking students who were between the ages of 18 and 24 on the first day of the fall 2005 semester and who also entered TCC for the first time in August 2005. The adult student sample was randomly selected from a sampling population of 455 degree-seeking students aged 25 or older on the first day of the fall 2005 semester and who also entered TCC for the first time in August 2005. Simple random sampling was performed by TCC's Office of Institutional Effectiveness using Surveyselect, a SAS procedure that by default uses Floyd's ordered hash table algorithm.

Table 1

Demographic Comparison of Traditional-Aged and Adult Student Sample Populations

Demographic Item	Traditional-Aged (n=350)	Adult (n=350)
<i>Mean age (in years)</i>	18.9	32.8
<i>Sex (percentage)</i>		
Male	43.7	34.9
Female	56.3	65.1
<i>Ethnicity (percentage)</i>		
White	57.7	40.0
Black/African American	26.6	45.4
American Indian/Alaskan	5.7	6.9
Asian/Pacific Islander	5.7	3.7
Hispanic	0.0	1.1
Other	2.9	2.9
Unknown	1.4	0.0
<i>Degree Type (percentage)</i>		
College Transfer	76.0	60.6
Occupational/Technical/Vocational	24.0	39.4
<i>Enrollment Status (percentage)</i>		
Part-time	44.6	70.3
Full-time	55.4	29.7

An institutional persister is one who re-enrolled in classes by March 2006 of the subsequent spring semester. An institutional withdrawer was recorded when a student failed to re-enroll in classes at the College by March 2006 during the subsequent spring semester. Note that a March 2006 date was selected since the College offered a second 8-week session that began during the month of March.

Setting

Tidewater Community College is a large, multi-campus public community college located in southeast Virginia. Consisting of four campuses, the College served 34,940 credit students with 15,001 annual full-time equivalents realized during 2003-2004. Each of TCC's four campuses is unique. Two of the campuses may be classified as suburban, one as urban, and one rural. Combined enrollments make TCC the second largest community college in the Commonwealth of Virginia and the 37th largest in the United States (TCC, n.d.). Further, 66% of TCC's students enroll on a part-time basis and the average age of its students is 29 years (TCC, n.d.). In Fall 2005, a majority (i.e., 61%) of the College's students were female and figures cited for its ethnicity breakdown show that 58% of the students were Caucasian, 30% were African American, and 12% were listed as "Other." (TCC, 2006). According to the Virginia Community College System (n.d.), TCC's fall 2004 to spring 2005 retention rate for curricular students was 73.1%.

Research Design

Data were collected over the 2005-2006 academic year at two time intervals. In October 2005, Time-1 (Part A) data were obtained from a survey questionnaire administered to a random selection of 350 traditional-aged and 350 adult degree-seeking students who first entered TCC in August 2005. Self-reported measures include the

following predictor variables under investigation: prior academic achievement; external commitments (i.e., marital status, employment, finances, presence of dependents); goal support (i.e., encouragement and support from significant others, degree utility); intent and commitments (i.e., intent to leave, goal commitment, institutional commitment); academic integration; and, social integration. Time-1 (Part B) data consist of information extracted from TCC's Office of Institutional Effectiveness and includes gender, racial group affiliation, and student enrollment characteristics (i.e., degree type, enrollment status). Student age, an additional variable under study, was extracted and is defined as a student's age upon entry to the College in August 2005. Time-2 data includes information provided by TCC's Office for Information Systems from the Student Information System (SIS) in March 2006. Academic performance at the College (i.e., grade point average during the fall 2005 term) was extracted as was the criterion variable, institutional persister versus institutional withdrawer.

These variables were used to examine if there are identifiable predictors of institutional persistence for first-time, degree-seeking community college students. They were also investigated to determine if there are differential predictors of institutional persistence between traditional-aged and adult first-time, degree-seeking community college students.

For Time-1 data, the two samples were mailed a postcard during October 2005. The postcard encouraged students to participate in a survey questionnaire designed to assess their experiences at the College. Approximately one week after the initial mailing, a follow-up postcard was mailed reminding them of the survey and approaching deadline. Two reminders were also sent by E-mail communication to their student E-mail accounts.

Students were urged to voluntarily complete an on-line questionnaire but were informed that paper copies of the survey could be obtained in the Dean of Students office at each of the campuses. Students were given approximately four weeks to complete the questionnaire and incentives for their participation included a drawing whereby three students were selected to each receive a \$100.00 universal Visa gift card. Students were also notified that, through their voluntary participation, they would be authorizing the researcher to examine their academic grade record at the end of their first semester (i.e., December grade report), their subsequent enrollment status at the community college in March 2006, and their demographic information. Demographic data were extracted in October 2005 and Time-2 data were provided in March 2006 by the College's Office for Information Systems.

Authorization to conduct this study was provided by Tidewater Community College and the Institutional Review Board of the author's school of record. Further, a grant in support of this study, funded jointly by the Virginia Community College System and Tidewater Community College, helped to make this study possible.

Instrumentation

The survey questionnaire (see Appendix A) was constructed by borrowing from the works of several reputable retention researchers. The items or scales included in the survey to measure the major constructs under study (i.e., finances, encouragement and support from significant others, degree utility, intent to leave, institutional commitment, goal commitment, academic integration, and social integration) were selected for their previously documented reliability and validity in previous studies. Permission from each of the authors to use their instrument, or a slightly modified version of it, was sought and

granted. A cover letter with informed consent information, also included in Appendix A, accompanied the survey questionnaire and explained the purpose of the research and the data collection procedures. TCC's Office of Institutional Effectiveness extracted information from the College's Student Information System (SIS) for the Time-1 (Part B) data collected in October 2005. Time-2 data were provided by the Office for Information Systems in March 2006. Both sets of data and the coding utilized are included in Appendix B. All variables and the measures employed are detailed in this section.

Individual Attributes

Gender and racial group affiliation were extracted from the College's SIS at Time-1 (Part B). Items include gender (coded: 1 = male; 2 = female) and racial group affiliation (coded: 1=White; 2=Black/African American; 3=American Indian/Alaskan; 4=Asian/Pacific Islander; 5=Hispanic; 6=Other; 7=Unknown/?). Prior academic achievement was self-reported by the student at Time-1 via the survey questionnaire (coded: 5 = "A" average; 4 = "B" average; 3 = "C" average; 2 = "D" average; 1 = General Educational Development, GED).

Student Enrollment Characteristics

Degree type and enrollment status for the fall term were extracted from the SIS by the College's Office of Institutional Effectiveness at Time-1 (Part B Data). Degree type is coded as 1 = College Transfer Education (i.e., Associate in Arts, Associate in Sciences) or 2 = Occupational/Technical/Vocational Education (i.e., Associate in Applied Arts, Associate in Applied Sciences). Enrollment status for the fall term is coded as 2 = part-time enrollment (fewer than 12 credit hours) and 1 = full-time enrollment (12 or more credit hours).

External Commitments

A student's external commitments were measured from the student's responses to the survey questionnaire. Marital status (coded: 1 = single; 2 = married; 3 = divorced; 4 = separated; 5 = widowed), employment outside the home (coded: 1 = not employed; 2 = part-time—fewer than 20 hours per week; 3 = part-time—20 or more hours per week; 4 = full-time), and presence of dependents living with student for whom the student is responsible (coded: 1 = none; 2 = one; 3 = two; 4 = more than two) were measured at Time-1. The latter item is borrowed from Metzner and Bean (1987).

To measure finances, an item borrowed from Cabrera, Castenada, et al. (1992) was used. Using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), this construct was measured by a student's response to his or her satisfaction with the amount of financial support (through grants, loans, family, jobs) received while attending the College. Through a series of confirmatory factor analysis, Cabrera, et al. (1993) found this item to be the most representative and valid indicator of this construct.

Goal Support

Through its conceptual origination with Bean and Metzner (1985), goal support is operationally defined as a measure of the perceived level of encouragement and support a student receives from significant others in completing a college degree and in completing a college degree from the present institution. Degree utility, also introduced by Bean and Metzner, is included in this construct. Both were measured at Time-1 via the survey questionnaire.

Degree utility is defined as a student's perceptions regarding the usefulness of his education to future employment opportunities and was measured by the average score of

three items borrowed from Metzner and Bean (1987): usefulness of education for gaining future employment, work the student would really enjoy, and for finding a well-paying job.

A composite score, averaged across three items, was employed to measure encouragement and support from significant others. These items were borrowed from Cabrera, et al. (1993), and represented Bean's (1980) definition of Family Approval and Encouragement of Friends. Two items explore the student's perceived level of approval and encouragement from family in attending college, and one explores the student's perceptions of encouragement he or she receives from friends in attending. Students were prompted to respond to a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Intent and Commitments

To measure intent and commitments, a student's intent to leave, commitment to the College (i.e., institutional commitment) and commitment to the goal of graduation (i.e., goal commitment) were assessed at Time-1.

A composite score averaged across two items and developed by Metzner and Bean (1987) was used to assess intent to leave: expectation of returning to the College next semester and expectation of returning next year. A five-item Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) served as the response code.

Borrowing from Cabrera, et al. (1993), two indicators were used to measure institutional commitment. Confidence in having made the right decision in choosing to attend Tidewater Community College is the first indicator. The second indicator represents a composite score average of three items that Cabrera, et al. constructed from

the works of Tinto: importance the student assigns to graduating from [TCC] as opposed to another college; the feeling of belongingness of the College; and, the perception that close friends rate the College as a quality institution.

Measuring the student's goal commitment relies on a scale designed by Pascarella and Terenzini (1980) which has been used by many researchers (e.g., Bers & Smith, 1991; Chapman & Pascarella, 1983; Napoli & Wortman, 1998). The average of two items measured this construct and assessed the importance that a student assigns to obtaining a college degree and to finishing a program of study. Students were prompted to respond to a five-item Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Cabrera, Nora, et al. (1992) performed exploratory and confirmatory factor analyses where the two items loaded on a single factor.

Academic Performance

Academic performance is a measure of the student's performance during the first semester of study at TCC. This variable was extracted at Time-2 by the College's Office for Information Systems and was assessed by the student's final grade-point-average for the fall 2005 semester.

Academic Integration

A modified version of an instrument developed by Pascarella and Terenzini (1980) was used to assess academic integration at Time-1. Reliability ranges from .77 to .85, according to Fox (1986). Bers and Smith (1991), Grosset (1991), Halpin (1990), and Napoli and Wortman (1998) have used the modified version of the Pascarella and Terenzini instrument and found academic integration to have a significant and positive, direct effect on the retention of community college students. Bers and Smith performed a

principal components factor analysis on the academic and social integration scale items of Pasarella and Terenzini's research to determine if the same factors would emerge with a community college student population. Only items with a loading of .35 or above were included in their final analysis. This study included only these items. Thus, nine items representing two subscales of the Pasarella and Terenzini instrument were used to measure academic integration: Academic and Intellectual Development and Faculty Concern for Student Development and Teaching. These subscales were summed and averaged to create the measure for Academic Integration. Items were scored 5 = strongly agree to 1 = strong disagree. However, items with negative loadings were recoded 1 = strongly agree to 5 = strongly disagree.

Social Integration

Similar to academic integration, measurement of the social integration construct at Time-1 also relies on the work of Pasarella and Terenzini (1980) and the Bers and Smith (1991) revision of their scale. The revised subscales—Peer-Group Interactions and Interactions with Faculty—total 12 items and assess student friendships and interpersonal relationships and the nonclassroom interactions students have with faculty. These subscales were summed and averaged to create the measure for Social Integration. Established by Bers and Smith, the Peer-Group Interactions subscale has a Cronbach alpha reliability of .88, and the Interactions with Faculty subscale has a reliability of .84. Items were scored 5 = strongly agree to 1 = strong disagree. Items with negative loadings were recoded 1 = strongly agree to 5 = strongly disagree.

Student Age

The student's age at entry, the first day of the fall 2005 semester, was extracted by the College's Office of Institutional Effectiveness at Time-1. Dummy coding is used whereas 1 = 18-24 years of age and 2 = 25 years of age or older.

Institutional Persister versus Institutional Withdrawer

Institutional persister and institutional withdrawer were dummy coded, respectively, as 1 and 2. These data were extracted from the Student Information System during Time-2 by TCC's Office for Information Systems.

Data Analysis Procedures

One-way analyses of variance were conducted on the dummy-coded predictor variables (i.e., gender, race/ethnicity, degree type, enrollment status, marital status) to assess the relationship between these variables to the persistence of first-time, degree-seeking community college students. Discriminant function analysis was performed on the continuous variables under study to assess the instrument's ability to distinguish between institutional persisters and institutional withdrawers. Discriminant analysis was selected for its ability to combine weights and variables in a linear fashion so that persisters and nonpersisters are as statistically distinct as possible. Separate discriminant analyses were then used in testing hypothesis two in order to examine the differential predictors of persistence between traditional-aged and adult students.

Limitations

This study is limited in several respects. The chief methodological shortcoming of this study may be the definition of institutional persistence that guides this study. While the study is longitudinal in nature, it only measures term-to-term persistence and may not

adequately capture the sporadic attendance patterns that commonly characterize community college student populations (Borden, 2004; Hoyt & Winn, 2004).

Generalizability of findings may be a problem since the results are based on students at a single, albeit large and multi-campus, community college in southeast Virginia. Further, the response rate may be a threat in this study since the response rates for on-line or web-based surveys are generally lower than they are for the traditional paper-and-pencil and mail surveys as discussed by James, Chen, and Sheu (2005). In their study, James, Chen, and Sheu compared three survey methods (i.e., postal mail survey, web-based survey, and random in-class administration) to determine their efficiency and effectiveness in assessing the attitudes and behaviors among college students regarding tobacco. These researchers also sought to compare the response rate and procedures of the three aforementioned survey methods. James, Chen, and Sheu achieved the lowest response rate from their web-based survey with only a 10% response rate. Similar response rates have been reported by others who have used web-based surveys (e.g., Leslie, 1996; Wu, 1997).

Even though these limitations may weaken the study's generalizability, this study addresses several items cited as shortcomings in previous research. Unlike many of the previous studies, this exploratory study is not an autopsy one. It also provides for a differential examination of two important sub-populations of community colleges—traditional-aged and adult students. In contrast with many of the earlier studies, it includes the study of part-time students and students enrolled in occupational/technical programs—populations often excluded from study.

As a result of this study, greater knowledge of community college student persistence and the differences between adult and traditional-aged student persistence should be attained. The more knowledge that community college leaders, faculty, and student support services have of the populations that attend their college, the better able they are to serve them. By realizing persistence factors for their students, institutions bolster their credibility, revenues, and effectiveness. Institutions also strengthen the nation's economy, promote societal welfare, and facilitate student opportunities.

CHAPTER IV

FINDINGS

This study examined whether there are identifiable predictors of persistence for first-time, degree-seeking community college students. It also compared the differential predictors of community college student persistence between traditional-aged and adult students who first enroll as degree-seeking students at a multi-campus public community college in southeast Virginia.

In doing so, the present study tested the following hypotheses:

H1 There are identifiable predictors of institutional persistence for first-time, degree-seeking community college students.

H2 There are differential predictors of institutional persistence between traditional-aged and adult first-time, degree-seeking community college students.

Data for this study were collected over the 2005-2006 academic year at two time intervals. In October 2005, Time-1 (Part A) data were obtained from a survey questionnaire administered to a random selection of 350 traditional-aged and 350 adult degree-seeking students who first entered TCC in August 2005. Self-reported measures included the following predictor variables under investigation: prior academic achievement; external commitments (i.e., marital status, employment, finances, presence of dependents); goal support (i.e., encouragement and support from significant others, degree utility); intent and commitments (i.e., intent to leave, goal commitment, institutional commitment); academic integration; and, social integration. Time-1 (Part B) data consist of information extracted from TCC's Office of Institutional Effectiveness and included gender, racial group affiliation, and student enrollment characteristics (i.e.,

degree type, enrollment status). Student age, an additional variable under study, was extracted and is defined as a student's age upon entry to the College in August 2005. Time-2 data included information provided by TCC's Office for Information Systems from the Student Information System (SIS) in March 2006. Academic performance at the College (i.e., grade point average during the fall 2005 term) was extracted as was the criterion variable, institutional persister versus institutional withdrawer.

For Time-1 data, the two samples were mailed a postcard during October 2005. The postcard encouraged students to participate in a survey questionnaire designed to assess their experiences at the College. Follow-up E-mails were sent to the students reminding them of the deadline for survey completion. Students were given approximately four weeks to complete the questionnaire and incentives for their participation were provided. Demographic data on all participants were extracted in October 2005 and Time-2 data were provided in March 2006 by the College's Office for Information Systems.

An overall response rate of 17.6% was achieved in this study. Of the 350 traditional-aged sample population, 68 participated in the study providing for a response rate of 19%. A response rate of almost 16% was obtained from the sample population of 350 adult students with 55 completing the questionnaire.

Since the response rate was low for both groups, comparisons of the demographics of the study participants and nonparticipants were conducted to assess representation and generalization. The comparisons for traditional-aged students are shown in Table 2 and those for adult students are provided in Table 3.

Table 2

Demographic Comparison of Traditional-Aged Participants and Nonparticipants

Demographic Item	Nonparticipants (n=282)	Participants (n=68)	χ^2 (1)
<i>Mean age (in years)</i>	18.8	19.1	--
<i>Sex (percentage)</i>			12.51***
Male	47.9	26.5	
Female	52.1	73.5	
<i>Ethnicity (percentage)</i>			4.74
White	57.1	60.3	
Black/African American	25.9	29.4	
American Indian/Alaskan	6.7	1.5	
Asian/Pacific Islander	5.0	8.8	
Hispanic			
Other	3.5	0.0	
Unknown	1.8	0.0	
<i>Degree Type (percentage)</i>			.05
College Transfer	76.2	75.0	
Occupational/Tech./Vocational	23.8	25.0	
<i>Enrollment Status (percentage)</i>			7.89***
Part-time	47.9	30.9	
Full-time	52.1	69.1	

***p < .01

Table 3

Demographic Comparison of Adult Student Participants and Nonparticipants

Demographic Item	Nonparticipants (n=295)	Participants (n=55)	χ^2 (1)
<i>Mean age (in years)</i>	33.1	31.1	--
<i>Sex (percentage)</i>			2.94
Male	36.6	25.5	
Female	63.4	74.5	
<i>Ethnicity (percentage)</i>			20.09**
White	39.3	43.6	
Black/African American	46.8	38.2	
American Indian/Alaskan	7.1	5.5	
Asian/Pacific Islander	4.1	1.8	
Hispanic	1.0	1.8	
Other	1.7	9.1	
Unknown			
<i>Degree Type (percentage)</i>			1.87
College Transfer	61.7	52.7	
Occupational/Tech./Vocational	38.3	47.3	
<i>Enrollment Status (percentage)</i>			1.67
Part-time	71.5	63.6	
Full-time	28.5	36.4	

***p < .01

Chi-square analyses indicated that the traditional-aged participants and nonparticipants were statistically similar in racial group affiliation and degree type. In addition, a One-Sample t Test showed they were statistically similar in mean age. Chi-square analyses indicated significant deviations in gender, $\chi^2(1, N = 68) = 12.51, p = .000$ with the proportion of females ($n=50$) being excessive; however, the effect size d of .18 shows a small effect. The results of the test were also significant for enrollment status, $\chi^2(1, N = 68) = 7.89, p = .005$, with a greater number of full-time students ($n=47$) participating than expected. Again, the effect size d of .12 indicates a small deviation from the expected frequencies.

Using chi-square analyses, significant differences were not found in the demographic comparison of the adult student participants and nonparticipants except for racial group affiliation. However, the effects of the difference in racial group affiliation, $\chi^2(5, N = 55) = 20.09, p = .001$, were only slight with an effect size d of .07. A One-Sample t Test was conducted on the mean age of these comparison groups. Although the sample mean of 33.1 ($SD = 7.48$) was significantly different from the participant mean age of 31.1, $t(54) = -2.72, p = .009$, the effect size d of -.37 indicates a moderate effect.

Given that there were only a few significant differences found between the participants and nonparticipants, and that the effects of the differences were slight or moderate, representation does not appear to be a strong, limiting factor in this study. Further, the ability to generalize from this study is possible.

To assess the internal consistency of the survey questionnaire, coefficient alphas were computed for the scales that measured the major constructs under study. Values for the coefficient alphas (Cronbach's alpha) were as follows: degree utility (.78);

encouragement and support from significant others (.84); intent to leave (.80); institutional commitment (.85); goal commitment (.66); academic integration (.64); and social integration (.71). This reliability analysis indicated that the scales used to measure the major constructs under study had acceptable reliability.

In March 2006, TCC's Office for Information Systems extracted data from SIS on the 123 participants to include their grade point average for the fall 2005 semester and their enrollment during the subsequent spring semester (i.e., institutional persister versus institutional withdrawer). This completed the dataset needed to perform the analyses.

Hypothesis 1

There are identifiable predictors of institutional persistence for first-time, degree-seeking community college students.

Two-way contingency table analyses were conducted to evaluate the significance of the relationships between the dichotomous outcome (persisted or withdrew) and each of the following categorical variables: gender, racial group affiliation, degree type, enrollment status, and marital status. Of these variables, only degree type and persistence were found to be significantly related, Pearson $\chi^2(1, N = 123) = 4.76, p = .029$, Cramér's $V = .20$. Students enrolled in the occupational/technical/vocation degree programs were more likely to persist than students enrolled in a transfer degree program.

Next, the means and standard deviations of the continuous predictor variables were computed for persisters and withdrawers. These results are presented in Table 4. Also presented in Table 4 are the results of the Independent-Samples t Tests. These tests were conducted to evaluate whether the institutional persisters and withdrawers

Table 4

Differences Between Persisters and Withdrawers on Variables in Discriminant Function

	Persisters		Withdrawers		
	<u>n</u> = 102		<u>n</u> = 21		
Predictor Variable	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>t</u> (121)
Finances	3.81	1.08	3.48	1.33	1.25
Degree Utility	4.49	.51	4.24	.62	1.98
Encouragement & Support	4.43	.71	4.06	.79	2.11*
Intent to Leave	4.44	.83	4.12	1.04	1.52
Institutional Commitment	4.10	.76	3.80	.84	1.59
Goal Commitment	4.80	.39	4.69	.46	1.17
Academic Integration	3.40	.53	3.18	.47	1.76
Social Integration	3.39	.45	3.18	.34	2.00*
Fall GPA	2.83	1.25	2.39	1.71	1.39
High School Performance	3.44	.94	3.33	1.02	0.47
Employment	2.57	1.16	2.76	1.30	-0.68
Number of Dependents	1.84	1.10	2.10	1.30	-0.93

*p < .05.

significantly differed on the measures for the continuous variables. On the measure for encouragement and support, the test was significant, $t(121) = 2.11, p = .037$. Institutional persisters ($M = 4.43, SD = .71$) on the average perceived significantly greater levels of encouragement and support from friends and family than the withdrawers ($M = 4.06, SD = .79$). Means also significantly differed between persisters and withdrawers on the measure for social integration, $t(121) = 2.00, p = .047$, indicating that persisters were more satisfied with the formal and informal social systems of the community college than were the students who withdrew.

Since the Independent-Samples t Tests were univariate in approach and evaluated each factor's unique contribution, descriptive discriminant analysis was performed on the twelve continuous variables to identify the variables with the most salient influence taken together on the institutional persistence of first-time, degree-seeking community college students. Descriptive discriminant analysis was selected for its ability to identify variables that best discriminate between two or more naturally occurring groups.

There were not significant differences within the covariance matrices among the persisters and withdrawers (p value of .67 for the Box's M test). The overall Wilks's lambda was not significant, $\Lambda = .89, \chi^2(12, N = 123) = 13.74, p = .318$, indicating that overall the predictors did not differentiate among the persisters and withdrawers. The canonical correlation associated with the function is .336. In Table 5, the standardized coefficient discriminant function coefficients are provided.

Table 5

Standardized Discriminant Function Coefficients

Variable	Coefficient	Correlation
Encouragement and Support	.616	.538
Social Integration	.550	.512
Degree Utility	.069	.505
Academic Integration	.511	.450
Institutional Commitment	-.587	.406
Intent to Leave	.156	.388
Fall GPA	.314	.354
Finances	.325	.320
Goal Commitment	-.019	.299
Number of Dependents	-.246	-.237
Employment	-.104	-.174
High School Performance	.118	.121

Eight of the pooled within-group correlations between the discriminating variables and the canonical discriminant function were greater than or equal to the predetermined significance level of .30 or greater. In descending order, these variables include encouragement and support (.538), social integration (.512), degree utility (.505), academic integration (.450), institutional commitment (.406), intent to leave (.388), fall grade-point average (.354), and finances (.320).

The means on the discriminant function for encouragement and support are consistent with the structure coefficient, with encouragement and support contributing the most to the discriminant function and also having the greatest independent contribution. Students who perceived higher levels of encouragement and support from significant others in completing a college degree and completing a degree from the present institution were more likely to persist than students who perceived lower levels of encouragement and support. Social integration was also an important variable in this discriminant function with an associated structure coefficient of .512. Whereas degree utility and intent to leave did not offer a unique and significant contribution to persistence at the .30 level, they were strongly correlated with persistence in combination with other variables. Students who perceived their education as being useful to future employment and students who expressed an intent to stay for the subsequent spring 2006 semester were more likely to persist than students with lower scores on these measures. Although

meeting the minimum criteria of .30, the greater the number of dependents and the greater the number of hours that students were employed, the less likely that students were to persist.

When trying to predict if a student will persist using the twelve continuous variables under study, the overall number of cases correctly classified was 85% of the individuals in this sample as shown in Table 6. To assess how well the classification procedure would predict in a new sample, the percent of students correctly classified using the leave-out-one technique correctly classified 79% of the cases.

In conclusion, the data support the first hypothesis. There were identifiable predictors of institutional persistence for the first-time, degree-seeking community college students in this study. While none of the individual attributes differentiated between the persisters and withdrawers, degree type did differentiate between the two groups in the Independent-Samples *t* Tests. Students who were enrolled in an occupational/technical/vocational degree program were more likely to persist than students who were enrolled in a transfer degree program. In the discriminant analysis, 8 of the 12 variables were significant at the level of .30. Encouragement and support from significant others and social integration discriminated the most between the persisters and withdrawers in this study. Both variables did so independently and in combination with the other variables included in the analysis. Other variables identified as predictors of institutional persistence in this study include degree utility, academic integration, institutional commitment, intent to leave, fall 2005 GPA, and finances.

Table 6

Classification Analysis for Persistence

Actual group membership		Predicted group membership			
		Persisters		Withdrawers	
	<u>n</u>	<u>n</u>	%	<u>n</u>	%
Persisters	102	101	99.0	1	1.0
Withdrawers	21	17	81.0	4	19.0

Note: Overall percentage of correctly classified cases = 85.4%.

Hypothesis 2

There are differential predictors of institutional persistence between traditional-aged and adult first-time, degree-seeking community college students.

The second hypothesis was examined by conducting separate discriminant analyses for the traditional-aged and adult first-time, degree-seeking community college students to study the differential predictors of institutional persistence for these two groups. To reduce the number of variables to accommodate for the smaller sample sizes, only those continuous variables with correlations greater than .30 in the testing of hypothesis one were included in the analyses.

Traditional-Aged Students

Of the 68 traditional-aged students, 58 (85%) persisted to the spring 2006 semester and 10 (15%) did not. Displayed in Table 7, univariate statistics on the variables under study among the traditional-aged persisters and withdrawers are provided.

Examination of the means and standard deviations finds that the younger traditional-aged persisters expected to return to the College, were more satisfied with their finances, and had higher grade-point averages in the fall 2005 term in comparison with their counterpart withdrawers. Traditional-aged persisters also had higher mean scores than the withdrawers on degree utility, encouragement and support, institutional commitment, academic integration, and social integration. Independent-Samples *t* Tests were performed on the eight continuous variables, however, significant differences were not found between the traditional-aged persisters and withdrawers.

Table 7

Differences Between Traditional-Aged Persisters and Withdrawers on Variables in Discriminant Function

	Traditional-Aged				
	<u>Persisters</u>		<u>Withdrawers</u>		
	<u>n</u> = 58		<u>n</u> = 10		
Predictor Variable	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>t</u> (66)
Finances	3.59	1.12	3.40	1.51	0.46
Degree Utility	4.39	.52	4.23	.52	0.89
Encouragement/Support	4.25	.78	3.73	.98	1.88
Intent to Leave	4.22	.92	3.80	1.25	1.28
Institutional Commitment	3.79	.76	3.60	.97	0.69
Academic Integration	3.36	.49	3.14	.33	1.38
Social Integration	3.34	.44	3.32	.38	0.15
Fall GPA	2.84	1.18	2.27	1.90	1.29

Discriminant analysis was conducted next. The function associated with the traditional-aged students was not significant with an overall Wilks's lambda, $\Lambda = .87$, $\chi^2(8, N = 68) = 8.34, p = .40$, indicating that overall the variables did not differentiate among the two groups. There were not significant differences within the covariance matrices among the traditional-aged persisters and withdrawers (p value of .21 for the Box's M test). The canonical correlation associated with the function is .355. In Table 8, the pooled within-groups correlations between the predictor variables and the discriminant function and the canonical discriminant function coefficients are provided for the traditional-aged students.

Four of the pooled within-groups correlations between the variables under study and the canonical discriminant function associated with the traditional-aged sample were greater than .30. The variables that contributed most to the discriminant function for traditional-aged students were encouragement and support (.609), academic integration (.446), fall grade-point average (.417), and intent to leave (.414). Students who reported higher levels of encouragement and support and academic integration were more likely to persist than the traditional students with lower levels. The fall semester grade-point average and the intent to leave variable were also influential in combination with other variables, although their unique contribution was weak. The coefficient for intent to leave was .248 and the coefficient for fall semester grade-point average was .207. While institutional commitment and finances had a strong coefficient (i.e., -.938 and .363, respectively), there was a weak correlation between these variables and persistence in relation to the other variables under study. Variables with the weakest relationship to the

Table 8

Standardized Discriminant Function Coefficients for Traditional-Aged Students

Variable	Coefficient	Correlation
Encouragement and Support	1.079	.609
Academic Integration	.653	.446
Fall GPA	.207	.417
Intent to Leave	.248	.414
Degree Utility	.032	.289
Institutional Commitment	-.938	.223
Finances	.363	.149
Social Integration	.184	.050

persistence of traditional-aged students, in descending order, were degree utility (.289), institutional commitment (.223), finances (.149), and social integration (.050).

The overall number of cases correctly classified using these variables under study was 87% as reflected in Table 9. To assess how well these variables would predict in a new sample, the percent of students correctly classified using the leave-one-out technique correctly classified 79%.

Since degree type had a significant relationship to persistence when examining all students regardless of age, a two-way contingency table analysis was performed to determine the relationship of degree type to the persistence of traditional-aged, first-time, degree-seeking students. Again, degree type and persistence were found to be significantly related, Pearson $\chi^2(1, N = 68) = 3.91, p = .048$, Cramér's $V = .24$. Students enrolled in an occupational/technical/vocational degree program were more likely to persist than students enrolled in a transfer degree program. Moreover, all traditional-aged students enrolled in an occupational/technical/vocational degree program ($n = 17$) persisted to the spring 2006 semester.

Table 9

Classification Analysis for Traditional-Aged Student Persistence

Actual group membership		Predicted group membership			
		Persisters		Withdrawers	
	<u>n</u>	<u>n</u>	%	<u>n</u>	%
Persisters	58	57	98.3	1	1.7
Withdrawers	10	8	80.0	2	20.0

Note: Overall percentage of correctly classified cases = 86.8%.

Adult Students

Of the 55 adult students, 44 (80%) persisted to the spring 2006 semester and 11 (20%) did not. Univariate statistics, presented in Table 10, indicate significant differences in means on several of the variables among the adult persisters and withdrawers.

Independent-Samples *t* Tests were conducted to evaluate whether the adult persisters and withdrawers significantly differed on the measures for the continuous variables. On the measure for social integration, the test was significant, $t(53) = 2.72, p = .009$. Adult persisters ($M = 3.45, SD = .46$) on the average reported greater satisfaction with the formal and informal social systems of the college than the adult students who withdrew ($M = 3.05, SD = .25$). Means also significantly differed between the adult student persisters and withdrawers on the measures for degree utility, $t(53) = 2.09, p = .041$ and institutional commitment, $t(53) = 2.67, p = .010$. Adult students most committed to the college were more likely to persist than students who reported lower levels of institutional commitment. Similarly, adult students who perceived their education as useful to future employment opportunities at higher levels were more likely to persist than students with lower levels.

Descriptive discriminant analysis was performed on the continuous variables to identify those most salient to the institutional persistence of the adult students. There were not significant differences within the covariance matrices among the persisters and withdrawers (p value of .18 for the Box's M test). The overall Wilks's lambda was not significant, $\Lambda = .83, \chi^2(8, N = 55) = 9.24, p = .32$, indicating that overall the predictors did not differentiate among the adult students. The canonical correlation associated with the function is .414. The pooled within-groups correlations between the predictor

Table 10

Differences Between Adult Student Persisters and Withdrawers on Variables in Discriminant Function

Predictor Variable	Adult Students				
	<u>Persisters</u>		<u>Withdrawers</u>		<u>t</u> (53)
	<u>n</u> = 44		<u>n</u> = 11		
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	
Finances	4.11	.95	3.55	1.21	1.68
Degree Utility	4.62	.49	4.24	.72	2.09*
Encouragement/Support	4.66	.53	4.36	.43	1.72
Intent to Leave	4.72	.61	4.41	.74	1.43
Institutional Commitment	4.50	.55	3.98	.70	2.67*
Academic Integration	3.46	.59	3.23	.59	1.21
Social Integration	3.45	.46	3.05	.25	2.72**
Fall GPA	2.81	1.36	2.49	1.60	0.68

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

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

variables and the discriminant function and the standardized coefficients are presented in Table 11.

The means on the discriminant function for social integration are consistent with the structure coefficient, with social integration having the strongest relationship with adult student persistence in comparison (.614) and in relation (.821) to the other variables under study. Adult students more satisfied with student friendships, interpersonal relationships, and the nonclassroom interactions with faculty at the College were more likely to persist than adult students who assessed these items at lower levels. The strength of relationship was strong for most all variables as follows in descending order: institutional commitment (.804), degree utility (.632), encouragement and support (.519), finances (.508), intent to leave (.430), and academic integration (.365).

While the Independent-Samples *t* Test was not significant for academic integration, $F(1,53) = .72, p = .69$, it had the second highest coefficient of .354. The means on the discriminant function for institutional commitment and degree utility were consistent with the structure coefficient and had a strong relationship with adult student persistence. While significant differences were not found for the means on the discriminant function for the intent to leave variable, the structure coefficient was .430 indicating that in combination with the other variables included, intent to leave was influential to the persistence of adult students in this sample.

Table 11

Standardized Discriminant Function Coefficients for Adult Students

Variable	Coefficient	Correlation
Social Integration	.614	.821
Institutional Commitment	.292	.804
Degree Utility	.005	.632
Encouragement and Support	.079	.519
Finances	.258	.508
Intent to Leave	-.193	.430
Academic Integration	.354	.365
Fall GPA	.193	.206

Results of the classification analysis (see Table 12) reveal that classification was above chance with 78% of the overall number of cases correctly classified for the individuals in this sample. Using the leave-one-out technique, the classification procedure would correctly classify 62% of the cases.

As with the traditional-aged students, a two-way contingency table analysis was conducted to evaluate the significance of the relationship between degree type and the persistence of adult students. Degree type and persistence were not found to be significantly related, Pearson $\chi^2(1, N = 55) = 2.21, p = .137$, Cramér's $V = .20$. Thus, degree type did not significantly differentiate adult student persisters and withdrawers.

Considering all of the findings, hypothesis two is also supported by the data. There were differential predictors of institutional persistence between the traditional-aged and adult first-time, degree-seeking community college students in this study. For the traditional-aged students, encouragement and support from significant others, academic integration, fall grade-point-average, and intent to leave provided the greatest contribution in discriminating between the persisters and withdrawers. Encouragement and support provided the greatest contribution of these variables. Degree type exerted a significant influence as well where the traditional-aged students enrolled in an occupational/technical/vocational program were more likely to persist than were their counterparts enrolled in a transfer degree program. Variables that had the least influence on the persistence of the traditional-aged students include degree utility, institutional commitment, finances, and social integration.

Table 12

Classification Analysis for Adult Student Persistence

Actual group membership		Predicted group membership			
		Persisters		Withdrawers	
	<u>n</u>	<u>n</u>	%	<u>n</u>	%
Persisters	44	33	75.0	11	25.0
Withdrawers	11	2	18.2	9	81.8

Note: Overall percentage of correctly classified cases = 78.2%.

Unlike traditional-aged students, the persistence of adult students in this study was most influenced by social integration. This variable had the strongest relationship with adult student persistence in comparison with and in relation to the other variables studied. Moreover, almost all variables included in the discriminant analysis contributed significantly to the discrimination of the adult student persisters and withdrawers. Behind social integration, institutional commitment, degree utility, encouragement and support, finances, intent to leave, and academic integration exhibited a strong relationship to adult student persistence.

Conclusion

Through univariate and multivariate analyses, both hypotheses of this study were supported by the data. There were identifiable predictors of persistence among the first-time, degree-seeking community college students. Additionally, the predictors of institutional persistence varied for the two student age groups upon further analysis.

When examining the identifiable predictors of persistence among the first-time, degree-seeking community college students, degree type significantly differentiated between persisters and withdrawers. Students who were enrolled in an occupational/technical/vocational degree program were more likely to persist than students who were enrolled in a transfer degree program. In the discriminant analysis, many of the variables were significant in discriminating between the persisters and withdrawers. Chief among these variables were encouragement and support from significant others and social integration. When trying to predict if a student will persist using the twelve continuous variables under study, the overall number of cases correctly classified was 85%.

The study also found several variables that significantly contributed to the discrimination of traditional-aged persisters and nonpersisters. These variables included encouragement and support from significant others, academic integration, fall grade-point average, intent to leave, and degree type. The variable of least significance to the traditional-aged persisters and withdrawers was social integration.

In contrast with the traditional-aged students, social integration discriminated the most between the adult student persisters and nonpersisters. Additional variables that had a significant influence on the persistence of adult students included institutional commitment, degree utility, encouragement and support, finances, intent to leave, and academic integration.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Summary of Findings

The present study tested two hypotheses. These hypotheses are as follows:

H1 There are identifiable predictors of institutional persistence for first-time, degree-seeking community college students.

H2 There are differential predictors of institutional persistence between traditional-aged and adult first-time, degree-seeking community college students.

Thus, this study examined whether there are identifiable predictors of persistence for first-time, degree-seeking community college students. It also compared the differential predictors of community college student persistence between first-time, degree-seeking traditional-aged and adult students who enrolled at a multi-campus public community college in southeast Virginia.

Through univariate and multivariate statistics, both hypotheses were supported. In this final chapter, the findings of this study will be summarized and discussed. Based on these finding, recommendations will be provided to community college institutional stakeholders—namely community college administrators, faculty, and counselors. Recommendations for future research will also be offered.

Hypothesis 1

The results of this study support the first hypothesis and suggest that there are identifiable predictors of persistence for first-time, degree-seeking community college students. While the predictors did not, as a whole, distinguish between persisters and

withdrawers, differences were found between the two groups on many of the variables selected for study.

Of the dummy-coded predictor variables, which included gender, race/ethnicity, enrollment status, marital status, and degree type, only degree type significantly differentiated between persisters and withdrawers. Students who were enrolled in an occupational/technical degree program were more likely to persist than students enrolled in a transfer degree program. This finding was most pronounced for the traditional-aged students where all students enrolled in an occupational/technical program persisted to the following semester. Degree type has generally been overlooked as a variable in many of the studies. Moreover, many of the studies have even excluded the participation of students enrolled in an occupational/technical program. The findings of this current study support the research of Creamer (1994), Webb (1988), and Adelman (2005), and suggest that degree type is an important variable that should gain additional consideration in future research on community college student persistence.

Under examination, perceived encouragement and support from significant others was the most important variable in discriminating between these community college persisters and withdrawers. It discriminated between the two groups on its own accord and was also the most predictive of persistence in combination with the other variables studied. Students who reported greater levels of encouragement and support from significant others in completing a college degree and completing one from their present institution were more likely to persist than students who assessed their encouragement and support less favorably. This finding lends credence to Bean and Metzner's (1985) theory about the importance of encouragement and support and also Tinto's "rites of

passage” construct. While Nora (1987) and Napoli and Wortman (1998) did not find this variable to have a direct influence on persistence in their studies, this study found it to have a strong and direct influence. The differences in findings here may be attributed to the different ways in which this variable has been operationalized.

Similar to the encouragement and support construct, social integration made a large contribution to the discrimination of persisters and withdrawers. In comparison with the other continuous variables under study, it had the second largest influence in the discriminant analysis. Students who reported greater satisfaction with the student friendships and interpersonal relationships that they had developed and the nonclassroom interactions that they had with faculty were more likely to persist to the next semester than students with less satisfaction. This finding runs counter to many of the previous studies conducted on community college students. It is important to note that some researchers have included the informal interactions that students have with faculty as a measure of academic integration rather than social integration. Regardless, the findings here underscore the importance of social systems to community college student persistence.

Degree utility did not have a significant, independent influence on the persistence of these full-time, degree-seeking community college students, but it did have a strong influence in combination with the other variables examined in this study. Students who perceived their education as being useful to gaining future employment were more likely to persist than students with expressed lower levels. This finding backs Bean’s (1980; 1983) earlier findings as well as those of Grosset (1991) and Peterson and delMas (2001).

Additional variables that discriminated between persisters and withdrawers,

although to a lesser extent, include academic integration, institutional commitment, intent to leave, fall grade-point average, and finances. Interestingly, while students who reported the greater number of dependents and students who reportedly worked more hours were less likely to persist than students with fewer dependents and employed for fewer hours, these family responsibilities did not significantly differentiate between the two groups. Of all the continuous variables, high school performance had the least impact in the Independent-Samples *t* Test and the discriminant analysis.

Hypothesis 2

In support of hypothesis two, the present study found differential predictors of institutional persistence between traditional-aged and adult first-time, degree-seeking community college students. As discussed earlier, despite the greater age diversity of students in the nation's community colleges, few studies have examined the issue of persistence as it relates to student age. In the present study, when the students were divided into two sub-groups by age, distinctions in the influential variables emerged. This finding may help to explain the lack of congruity in the persistence literature for community college students.

For younger students, none of the variables significantly differentiated between the persisters and withdrawers at the .05 level when analyzed using the Independent-Samples *t* Test. However, when studied in combination with other variables through discriminant analysis, several variables contributed to the differentiation of traditional-aged persisters and withdrawers. In descending order, encouragement and support, academic integration, fall grade-point average, and intent to leave made a substantial

contribution. Degree utility, institutional commitment, finances, and social integration had a weak relationship, with social integration providing the weakest contribution.

In contrast, the Independent-Samples *t* Tests performed on the older students showed a significant difference between the adult student persisters and withdrawers on the measure for institutional commitment. Further, social integration had the strongest relationship with adult student persistence in relation to the other variables under study in the discriminant function. Unlike their traditional-aged counterparts, the strength of relationship was strong for almost all variables included in the discriminant analysis. In descending order and excluding social integration, those of significance included institutional commitment, degree utility, encouragement and support, finances, intent to leave, and academic integration.

Of importance, persisters differed more profoundly from withdrawers in the adult students. Further, many more variables were of relevance to the persistence of adult students in comparison with traditional-aged students. Considering that social integration had the least significance for the traditional-aged students and the greatest significance for the adult students in the discriminant analyses, it is plausible to infer that adult students may arrive at colleges with a greater need for social support than do traditional students. This logic, however, runs counter to Donaldson and Graham's (1999) Model of College Outcomes that purports that traditional student outcomes are heavily influenced by social involvements and that the college classroom is centric to adult students. This finding also contradicts the Bean and Metzner (1985) model where social integration was purported to be of little value to adult students. It is plausible that, as Naretto (1995)

suggests, a supportive campus community outweighs the significance of encouragement and support from significant others in adult students.

In the present study, academic integration was the most predictive of persistence in traditional-aged students. It played a less significant role in the persistence of adult students included in this study. In addition, whereas encouragement and support was the most salient variable for traditional-aged students, its impact on adult student persistence was not as significant. It is possible that traditional-aged students are more heavily influenced by their families and that encouragement from friends is of vital importance to their persistence. For adult students, the support of their college peers and instructors is a greater influence on their persistence.

Upon examination of the prediction of group membership analyses, it is clear that the survey questionnaire may be more useful in predicting institutional persisters than it is at predicting institutional withdrawers. Thus, there are additional variables of relevance to persistence behavior. Future exploratory studies may need to include additional variables to more adequately capture influences of institutional withdrawal.

While this study did not capture all of the variables predictive of persistence for this sample or the two sub-samples, it did present some interesting findings. Most importantly, this study emphasizes the diverse population of the community college population and provides support for how persistence behavior may not only vary by institutional type but more specifically by the groups inherent within an institution. By aggregating distinct and unique groups for study, substantive gaps and distortions in information are probable. Hence, different theories and models may be needed to address persistence behavior in distinct student groups such as the ones studied here.

Recommendations to Institutional Stakeholders

Given these findings, several recommendations can be posited for institutional stakeholders to improve the persistence rates of community college students. As the findings suggest, institutional persistence varies by student age. Thus, the more that can be discovered about persistence by age, the greater the ability of institutional stakeholders to provide preventive and remedial assistance to curb student withdrawal. In the present study, unlike the college factors, background factors such as gender, race/ethnicity, and marital status did not significantly differentiate between the persisters and nonpersisters. This finding alone underscores the powerful influence that the collegiate experience may have on the persistence of community college students. Administrators, faculty, and counselors have a responsibility in making the collegiate experience one that promotes student persistence.

Administrators

Administrators are in a pivotal position to promote student persistence at their community colleges. They have not only a moral obligation to helping students to succeed, but are wise to learn more about student persistence behaviors on their campuses for funding and accreditation purposes. As discussed more fully in Chapter I, community colleges are increasingly being scrutinized for their graduation and retention rates. Therefore, accountability for student outcomes resides chiefly among community college administrators.

Building a strong research and planning unit that deliberately and consistently studies persistence behavior is important. Insuring that sub-populations are given ample study is also important. Beyond a strong research and planning unit, administrators

should encourage faculty and other staff to become involved in the study of students through the availability of research and grant opportunities. Incentives and rewards for participating in research should also be provided. Through awareness of predictors of student attrition, institutional stakeholders gain not only a clearer understanding of the students most prone to leave or be retained at their institutions, but also what institutional factors may influence these decisions. Often criticized for their anecdotal reports on student success, administrators need to build and promote a culture of evidence and should cast a wide net in involving campus constituents.

As data are attained on their students, administrators need to insure that the numbers translate into specialized programs and services aimed to promote student persistence. Promoting a friendly and flexible campus is not enough. As reflected in this study, there are multiple and often complex attributes that make students more or less prone to persist. Programs crafted with deliberate and measurable goals and outcomes are necessary, and these programs must be a priority to administrators.

Development of a campus Retention Committee charged with the study of persistence and the creation of programs and services aimed to reduce attrition is one method that administrators may wish to utilize. Faculty also need more attention. Since faculty are central to the persistence decisions of community college students—traditional-aged and adult alike—administrators should require new faculty training. The focus of this training should be pedagogy and teaching skills that not only enhance student learning but have a direct and positive impact on persistence.

On a more macro-level, administrators should educate their government and policymakers on the different definitions of achievement for community college students.

Given the sporadic attendance patterns of community college students, the predominance of part-time students, and the varying goals of community college students, the figures collected in fulfillment of the Student Right-to-Know and Campus Security Act (1990) may not be an appropriate measure for community college student outcomes. The reporting of graduation rates using cohorts of first-time, full-time students certainly does not capture a significant proportion of the students served by America's community colleges. Most importantly, these reports do not adequately capture the successes of community colleges and the students served by them.

Faculty

As reflected in this study, faculty play a remarkable role in the persistence decisions of community college students. For example, as a result of this study, it is clear that adult students must be better integrated socially within the community college environment. Faculty should support and encourage adult students to engage with their classroom peers both inside and outside the classroom through collaborative group projects and peer mentoring or tutoring activities. It is also important for faculty members to be available to their students and to encourage contact with adult students outside of class. These activities may be particularly challenging for faculty teaching Internet classes, but literature and research exist that point to strategies that may be used in an on-line environment to facilitate these processes.

Helping students to connect and making student learning a collective responsibility are important to student persistence—regardless of age. Teaching strategies that take into account and accommodate the needs of the diverse community college population are also important to master. Perhaps most importantly, as Tinto (2006)

asserts, faculty need to have high expectations for their students and should provide a challenging, albeit supportive, learning classroom. Through these proactive initiatives, faculty can and do exert a powerful influence on the persistence of students.

Counselors

Community college counselors are often the first contact for prospective community college students. They also show promise for sustained relationships with students. While relationships with counselors were not included as part of the current study, they likely have an impact on the persistence decisions of students.

For traditional-aged students, where encouragement and support from family and friends is seemingly most relevant, building and encouraging opportunities for interacting with their friends and family may be appropriate. An opportune time for this may be prior to the student's attendance—perhaps at a required college orientation session. Similar to orientations at four-year schools where parental attendance is required or optional, parents and/or family members could be invited to participate. If the college is regarded positively by the traditional-aged student's friends and family members, the student may be more prone to persist.

Mandatory orientation programs that span the entire first semester or first year should also be developed by counselors. The more frequent and consistent the sessions, the more likely that students will form a peer support group and become more socially integrated within the college environment. These orientation programs should be required during the student's first semester or year at the college and should be intermixed with sessions specific to sub-populations so that unique needs can be adequately and appropriately addressed. While developed and coordinated by counselors, faculty should

be involved in the orientation process. Collaborative efforts by community college personnel promote a sense of unity among colleagues and help to bridge the social and academic lives of the community college.

In light of its impact on adult student persistence in this study, the utility of a community college degree should be included as part of orientation. The focus here should be on educating students on the benefits—personally and monetary—of a community college education. There may also be sessions geared to certain populations such as occupational/vocational degree students and transfer degree students since this study found transfer students to be more likely to withdraw.

Finally, counselors should encourage student persistence through effective advising sessions that provide clear and consistent information about curriculum and institutional requirements and institutional policies and procedures. Regular advising sessions should be encouraged by counselors for their facilitation of student-faculty relationships.

Recommendations for Future Research

As a result of this study, several recommendations may be made for future research on the persistence of community college students. Foremost, it is clear that future research should attend to group-specific differences by disaggregating naturally occurring groups by age groups and enrollment in degree programs. As the findings of this study suggests, predictors of persistence are very different for traditional-aged and adult students. When examined as a whole, important distinctions between the two age groups were masked. It was only upon further analysis that these distinctions were revealed. Thus, it is imperative to continue the examination of these age groups, or

perhaps even further divide them into age groups, in order to obtain a complete and accurate understanding of persistence factors by student age group.

Secondly, the researcher advises that this study be conducted again on a larger sample. A limitation of this study was the low response rate. Although chi square analyses and One-Sample *t* Tests revealed only a few significant differences between the study participants and non-participants, the reliability of the present study is questionable. Mailing the survey questionnaire may increase the participation rate in future studies. Administering the survey to community college students during a first-year orientation program would certainly increase the participation rate. With a greater response rate, the ability of the survey questionnaire to identify institutional persisters and withdrawers may be adequately scrutinized.

Next, it is important to examine community college student persistence longitudinally. Much of what is known about community college student persistence, or much of what we think we know, is based on the findings of autopsy studies that may not accurately identify the reasons for student attrition. Whereas the present study took place over a period of seven months, the definition of persisters and withdrawers may have been flawed. It is possible that students considered as withdrawers in this study have since returned to the college. Conversely, it is possible that students considered as persisters have since left the institution without any intention of returning. Considering the sporadic attendance patterns of community college students, the need for longitudinal tracking is more pronounced.

Finally, future research on community college student persistence should combine quantitative and qualitative approaches. While quantitative studies such as the present

one often produce interesting and significant findings, greater knowledge can be gained through structured interviews and focus groups that offer insights on the quantitative data generated.

Summary

In this chapter, a review of the findings of the present study was provided. Both hypotheses were supported, suggesting that there are identifiable predictors of persistence for first-time, degree-seeking community college students. There are also differential predictors of institutional persistence between traditional-aged and adult first-time, degree-seeking community college students.

Based on these findings, recommendations for institutional stakeholders—administrators, faculty, and counselors—were offered to promote the persistence of community college students. Though the present study provided additional insight about community college student persistence, additional research in this area is warranted. Accordingly, recommendations for future research were provided.

Conclusion

Previous literature has documented the high attrition rates for community college students. Beyond raw data, research has demonstrated that predictors of higher education persistence may include a student's background characteristics, a student's external commitments, institutional influences, and a combination thereof. However, empirical research on the persistence of community college students is scarce, and even fewer studies address the differential predictors of persistence between adult and traditional-aged students. The present study examined the predictors of institutional persistence

among adult and traditional-aged degree-seeking, first-time enrollees at a public, multi-campus two-year community college in southeast Virginia.

A random sample comprised of 350 traditional-aged and 350 adult students were encouraged to complete a survey questionnaire to measure the following major constructs under study: individual attributes; student enrollment characteristics; external commitments; goal support; intent and commitments; academic integration; and, social integration. The following semester, the previous semester's fall grade-point average was extracted. The enrollment status of each participant was also extracted to determine who had persisted at the institution.

Using descriptive discriminant function analysis and One-Sample *t* Tests, the predictors of persistence were examined to determine if there are identifiable predictors of institutional persistence for first-time, degree-seeking community college students. These statistical tests were also used to assess if there are differential predictors of institutional persistence between traditional-aged and adult first-time, degree-seeking community college students.

This study found that there are identifiable predictors of institutional persistence for first-time, degree-seeking community college students. Encouragement and support from friends and family in attending the college discriminated most powerfully between persisters and withdrawers, although social integration, degree utility, academic integration, and institutional commitment also contributed significantly to differentiating the two groups. The current study also found differential predictors of institutional persistence between the traditional-aged and adult students. For traditional-aged students, encouragement and support, academic integration, fall grade-point average, an

expressed intent to leave, and degree type were most predictive of institutional persistence or withdrawal. Chief among the predictors of persistence for adult students were social integration, institutional commitment, degree utility, encouragement and support, finances, an expressed intent to leave, and academic integration.

These findings suggest that persistence can largely be controlled by institutional factors. In this study, none of the student background factors had a significant influence on persistence. Institutions that take student persistence seriously must gain an understanding of their students and the factors that put their students at risk for withdrawal. Through early identification and early intervention, institutions can curb student withdrawal. Policies, practices, and the college environment should be studied and modified as necessary to promote a more welcoming and satisfying environment for all students—regardless of age.

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APPENDICES

Survey Questionnaire and Cover Letter

Cover Letter

Dear Student,

Thank you for responding to the postcard recently mailed to you. The questionnaire that follows is comprised of 41 short-answer questions, and should take you approximately 10 to 15 minutes to complete. Once completed, you will be entered into a random drawing for a chance to win one of three \$100 universal gift cards that can be used at any place that accepts Visa. When prompted, be sure to enter your Student Information System (SIS) Identification Number accurately so that we can contact you in the event that your name is drawn. (If you do not know your SIS ID number, you may locate it online at <https://my.vccs.edu/jsp/ssnLookup.jsp>, or by contacting the Enrollment Services Office at any of TCC's campuses.) Note that only students selected for participation in this study may respond to this questionnaire.

You must respond to all items in order to successfully submit this questionnaire and to be eligible for the drawing. To participate in this questionnaire, please read and agree to the Informed Consent Affidavit on the next page, and return this questionnaire to the Dean of Students Office at any of the four main campuses. Note that the deadline for participation is **November 1, 2005**. After that date, questionnaires will not be accepted.

Sincerely,

Kellie Sorey
PhD Candidate, Old Dominion University

Informed Consent

I hereby agree to serve as a subject in this study. I understand that the purpose of this study is to determine student perceptions of Tidewater Community College and that the results of this research will be used for assessment and planning purposes. Although I may not directly benefit from participating in this study, my participation will help the College to assess the effectiveness of current programs and services and to plan the future direction of the College.

By submitting this form, I understand that my participation is voluntary and that information from the study will be kept in strictest confidence. I also understand that, following participation in this survey, information regarding my academic records and

demographics may be extracted from the Student Information System but that this data will only be used as aggregate or summary data and my identity will not be revealed. Further, I realize that my responses to this questionnaire will not become part of my official College records and in no way will participation in this study affect my status or standing at the College.

Kellie Sorey will respond to questions I may have about the study. In the event that I need to contact her, she can be reached by E-mail at ksore001@odu.edu.

I hereby agree to participate as a subject in the above-described research project. I understand that my participation in this project is voluntary, and that I am free to withdraw from participation at any time. By submitting this questionnaire, I hereby acknowledge that I have read, understood, and agreed to the foregoing.

Survey Questionnaire

1) In the space provided, please enter your 7-digit Student Information System (SIS) Identification number:

(NOTE: If you do not know your SIS ID number, you may locate it online at <https://my.vccs.edu/jsp/ssnLookup.jsp>, or by contacting the Enrollment Services Office at any of TCC's campuses.)

2) Overall, how well did you perform in high school?

- ☐ I did not graduate from high school, but earned a General Educational Development (GED) diploma.
- ☐ I earned a "D" average
- ☐ I earned a "C" average
- ☐ I earned a "B" average
- ☐ I earned an "A" average

3) What is your marital status?

- ☐ Single
- ☐ Married
- ☐ Divorced
- ☐ Separated
- ☐ Widowed

4) On average, how many hours do you work outside the home?

- ☐ Not employed
- ☐ Part-time and fewer than 20 hours per week
- ☐ Part-time and 20 or more hours per week
- ☐ Full-time

5) Indicate the number of dependents living with you for which you are responsible.

- ☐ No dependents
- ☐ One dependent
- ☐ Two dependents
- ☐ Three or more dependents

Please indicate the degree to which you agree with the following statements by choosing the response that best describes your thoughts.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
6) I am satisfied with the amount of financial support (through grants, loans, family, job) I have received while attending Tidewater Community College.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(6) <input type="checkbox"/>
7) My education here will be useful for gaining future employment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(7) <input type="checkbox"/>
8) My education here will be useful for work I would really like.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(8) <input type="checkbox"/>
9) My education here will be useful for gaining a well-paying job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(9) <input type="checkbox"/>
10) My family approves of my attending Tidewater Community College.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(10) <input type="checkbox"/>
11) My family encourages me to continue attending Tidewater Community College.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(11) <input type="checkbox"/>
12) My close friends encourage me to continue attending Tidewater Community College.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(12) <input type="checkbox"/>
13) I expect to return to Tidewater Community College next semester.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(13) <input type="checkbox"/>
14) I expect to return to Tidewater Community College next year.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(14) <input type="checkbox"/>
15) I am confident that I have made the right decision in choosing to attend Tidewater Community College.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(15) <input type="checkbox"/>
16) It is very important for me to graduate from Tidewater Community College as opposed to some other college.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(16) <input type="checkbox"/>
17) I feel I belong at Tidewater Community College.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(17) <input type="checkbox"/>
18) My close friends rate Tidewater Community College as a quality institution.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(18) <input type="checkbox"/>
19) It is important for me to get a college degree.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(19) <input type="checkbox"/>
20) It is important for me to finish my program of study.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(20) <input type="checkbox"/>
21) I am satisfied with the extent of my intellectual development since enrolling in this college.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(21) <input type="checkbox"/>

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
22) My academic experience has had a positive influence on my intellectual growth and interest in ideas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(22) <input type="checkbox"/>
23) I am satisfied with my academic experience at this college.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(23) <input type="checkbox"/>
24) My interest in ideas and intellectual matters has increased since coming to this college.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(24) <input type="checkbox"/>
25) I have performed academically as well as I anticipated I would.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(25) <input type="checkbox"/>
26) Few of the faculty I have had contact with are generally interested in students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(26) <input type="checkbox"/>
27) Few of the faculty members I have had contact with are willing to spend time outside of class to discuss issues of interest and importance to students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(27) <input type="checkbox"/>
28) Few of the faculty members I have had contact with are generally outstanding or superior teachers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(28) <input type="checkbox"/>
29) Few of my courses this year have been intellectually stimulating.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(29) <input type="checkbox"/>
30) My nonclassroom interactions with faculty have had a positive influence on my personal growth, values, and attitudes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(30) <input type="checkbox"/>
31) My nonclassroom interactions with faculty have had a positive influence on my intellectual growth and interest in ideas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(31) <input type="checkbox"/>
32) My nonclassroom interactions with faculty have had a positive influence on my career goals and aspirations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(32) <input type="checkbox"/>
33) Since coming to this college, I have developed a close, personal relationship with at least one faculty member.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(33) <input type="checkbox"/>
34) I am satisfied with the opportunities to meet and interact informally with faculty members.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(34) <input type="checkbox"/>
35) Most of the faculty I have had contact with are interested in helping students grow in more than just academic areas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(35) <input type="checkbox"/>

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
36) Most faculty members I have had contact with are generally interested in teaching.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(36) <input type="checkbox"/>
37) The student friendships I have developed at this College have been personally satisfying.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(37) <input type="checkbox"/>
38) Since coming to this college, I have developed close personal relationships with other students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(38) <input type="checkbox"/>
39) My interpersonal relationships with other students have had a positive influence on my personal growth, attitudes, and values.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(39) <input type="checkbox"/>
40) My interpersonal relationships with other students have had a positive influence on my intellectual growth and interest in ideas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(40) <input type="checkbox"/>
41) It has been difficult for me to meet and make friends with other students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(41) <input type="checkbox"/>

Data Provided by the College

Time-1 (Part B) Data

1) Gender

1. Male (coded 1)
2. Female (coded 2)

2) Racial Group Affiliation

1. White (coded 1)
2. Black/African American (coded 2)
3. American Indian/Alaskan (coded 3)
4. Asian/Pacific Islander (coded 4)
5. Hispanic (coded 5)
6. Other (coded 6)
7. Unknown (coded 7)

3) Degree Type

1. College Transfer (i.e., Association in Arts, Associate in Sciences) (coded 1)
2. Occupational/Technical/Vocational (i.e., Associate in Applied Arts, Associate in Applied Sciences) (coded 2)

4) Enrollment Status during fall term

1. Part-time (fewer than 12 credit hours) (coded 2)
2. Full-time (12 or more credit hours) (coded 1)

5) Student Age at Entry

1. 18 to 24 years of age (coded 1)
2. 25 or older (coded 2)

Time-2 Data

1) First Semester Academic Performance

1. 0.00-0.69 ("F" average)
2. 0.70-1.69 ("D" average)
3. 1.70-2.69 ("C" average)
4. 2.70-3.69 ("B" average)
5. 3.70-4.00 ("A" average)

2) Institutional Persister versus Institutional Withdrawer

1. Institutional Persister
2. Institutional Withdrawer

VITA

KELLIE CRAWFORD SOREY

Old Dominion University
Darden College of Education, Room 110
Department of Educational Leadership and Counseling
Norfolk, VA 23529

EDUCATION

Ph.D., Community College Leadership, Old Dominion University, in progress

M.A. Ed., Student Personnel Administration, Virginia Tech, 1992

B.S., Psychology, Virginia Tech, 1990

PROFESSIONAL WORK EXPERIENCE

Registrar, August 2005-Present, Tidewater Community College, Norfolk, VA

Coordinator, Enrollment Services, November 2004-July 2005, Tidewater Community College, Virginia Beach, VA

Director, Training and Faculty Support for Distance Learning, October 2002-November 2004, Old Dominion University, Norfolk, VA

Coordinator, Training and Operations for Distance Learning, September 2000-October 2002, Old Dominion University, Norfolk, VA

TELETECHNET Regional Director, July 1999-September 2000, Old Dominion University, Lynchburg, VA

TELETECHNET Site Director, Central Virginia Community College, July 1995-July 1999, Old Dominion University, Lynchburg, VA

TELETECHNET Site Director, Wytheville Community College, July 1994-July 1995, Old Dominion University, Wytheville, VA