CHAPTER ONE

INTRODUCTION

Degree completion is an issue of concern for stakeholders and others concerned with higher education. Only 51% of four-year college students complete bachelor's degrees at the first institution they attend. The six-year graduation rate for college students completing bachelor's degrees at any institution is slightly higher at 58% (Berkner, He, & Forrest, 2002). Only 52% of students entering college earn bachelor's degrees within five years and 31% within four years (Selingo, 2001; Tinto, 1993a). Nationally, entering freshmen are taking, on average, five years to complete a bachelor's degree (Adelman, 1999).

These persistence rates have remained unchanged for almost 100 years and have been explored empirically by researchers for more than 70 years (Braxton, 2000). Some studies have examined persistence between years while other studies have looked at persistence in terms of four, five, and six-year graduation rates (Astin, 1997; Hu & St John, 2001; Tracey & Sedlacek, 1987).

Several studies have been conducted to understand the phenomena of student persistence and attrition. A study conducted by Horn, Peter, and Rooney (2002) identified the typical risk factors of students who leave postsecondary education.

Those who delay enrolling in college for a year or more after completing high school are more likely not to persist in college, as are those who enroll in college on a part-time basis. Likewise, financially independent students as well as those working full-time are also less likely to graduate from college. Students having children or with parenting responsibilities are also less likely finish college. Finally, students attending college as high school dropouts or with a General Equivalency Diploma (GED) are also faced with a higher chance of never finishing college (Horn et al., 2002). Almost 75% of undergraduates report having at least one of these risk factors (Horn et al., 2002; National Center for Education Statistics, 2000).

Other studies have been conducted to measure factors that influence student persistence. The more students are committed to their institution and the goal of college

graduation, the greater level of importance they attach to fulfilling their own expectations for college (Braxton, Vesper, & Hossler, 1995; Noel & Levitz, 1989).

Stage and Rushin (1993) examined students' pre-college characteristics and the relationship to persistence in college. Socio-demographic factors influential in high school completion also play an important role concerning degree attainment in college. For example, family income and parental educational background are used in degree completion studies to define socio-economic status (Anderson, 1988; Pritchard & Wilson, 2003; Whitaker & Pascarella, 1994).

Longitudinal studies on students' pre-college characteristics and persistence have also been conducted. Most of these studies use quantitative research methods and employ different types of samples including students at large and small public and private universities, state higher education systems, and large national databases. The majority have employed multiple regression (Astin, 1997; Lewallen, 1993; Tinto, 1997), structural equation (path) modeling (Anderson, 1988; Braxton et al., 1995; Pascarella et al., 1989; Stage & Rushin, 1993), and discriminant function analysis (Neely, 1977; Terenzini, 1982; Tracey & Sedlacek, 1987) procedures to explain persistence.

Some of these studies use Cooperative Institutional Research Program (CIRP) data to examine persistence (Bensur, Dickens, Eliot, & Hegde, 1999; Lewallen, 1993; Pascarella et al., 1989). Bensur et al. (1999) used CIRP data to examine motivational predictors influencing graduation from college. CIRP data were also used by Lewallen (1993) to study causal factors on the persistence of undecided students. Pascarella et al. (1989) tested Tinto's model of persistence using CIRP data in a nine-year, multi-institutional study.

Astin (1993) used the CIRP data in a somewhat different way. He developed a typology of undergraduate student groups based on student attitudes, behaviors, and what they expect to do in college. These seven typologies include: (a) the Scholar, (b) the Social Activist, (c) the Artist, (d) the Hedonist, (e) the Leader, (f) the Status Striver, and (g) the Uncommitted Student. Each of these types portrays a unique characteristic. Scholars are those with high prospects for achieving academic success in college. Social Activists are those who are concerned about social justice issues. The Artists are individuals possessing abilities and interests in various forms of art including performing

arts (e.g. drama, music, dance), painting, drawing, and creative writing. The Hedonists are portrayed as partiers and include those who consume alcohol, stay up all night, and advocate for the legalization of marijuana. Leaders are individuals who possess high leadership ability, including public speaking skills. Status Strivers are those who are goal-oriented, highly responsible, and committed to career success, including financial independence. Last, Uncommitted Students are individuals with tentative educational plans such as possibly leaving college or transferring to another institution (Astin, 1993).

There is minimal use of Astin's (1993) student typology framework in scholarly research. Moreover, this typology framework seems to be more focused on the retention of first-year students. For example, Atakpu (1990) used Astin's (1993) student typology framework to investigate students' involvement level and growth during the first year of college. This investigation, conducted at a single institution using a sample of 640 freshmen, reported statistically significant findings between Astin's (1993) student types and quality-of-effort measures (Pace, 1979). Gilmartin and Sax (2002) also used Astin's (1993) student types to examine how predictors of first-year persistence differed based on the goals, attitudes, and values of 3,106 students entering college in fall 2000. The results suggested differences in the predictors of first year retention among student types.

The use of other research-based student typologies for scholarly research is also limited in American higher education. These include, for example, published studies on typological frameworks related to specific student populations including adult learners (Morstain & Smart, 1977), community college students (Aquino, 1990), and college dropouts (Prather & et al., 1984).

In summary, persistence to degree is a key issue in American higher education (Astin, 1997; Braxton, 2000; Tinto, 1998). The rates at which students' complete degrees vary (Porter & National Institute of Independent Colleges and Universities (U.S.), 1990; Tinto, 1993b). Researchers have studied persistence to degree from a number of perspectives. Some have looked at causal factors that influence persistence (DesJardins et al., 2002; Neely, 1977; Pascarella et al., 1989; National Center for Education Statistics, 2000). A final group of studies examined the relationships between student characteristics and persistence (Horn et al., 2002; Lewallen, 1993; Tracey & Sedlacek, 1987).

Many of these studies rely on data from the CIRP study (Astin, 1997; Bensur et al., 1999; Lewallen, 1993). That data set has also been used in other ways, however. Astin (1993) employed CIRP data to identify types of students. Studies that use this typology have focused on student typology as a measure of student growth, retention (Gilmartin & Sax, 2002), and performance (Atakpu, 1990).

The research on persistence is voluminous. Investigators have examined persistence extensively (Cabrera, 1992; Hu & St John, 2001; Lewallen, 1993; Tinto, 1998; Tracey & Sedlacek, 1987) and have employed the Astin typology to study other issues (Atakpu, 1990; Gilmartin & Sax, 2002). However, research does not exist on degree completion among college students using Astin's model. This study addressed that gap in the literature on persistence to degree.

Purpose of the Study

The purpose of this study was to explore degree completion among college students. Specifically, it employed the Astin's (1993) student typology to explore differences between degree completers and dropouts. This study consisted of six components. The first component was to determine if there were significant differences within Astin types between degree completers and dropouts by demographic characteristics. The second was to determine if there were differences within Astin types between degree completers and dropouts by level of preparation for college according to high school academic performance. The third component was to determine if there were significant differences within Astin types between degree completers and dropouts by college academic performance. The fourth component was to determine if there were significant differences among Astin types by demographic categories (gender, race, socio-economic status). The fifth component was to determine if there were significant differences among Astin types by high school academic performance (GPA, SAT scores). The sixth component was to determine if there were significant differences among Astin types by college academic performance (GPA, total credit hours).

The data analyzed in the study were collected from entering freshmen, by cohort, from 1994 to 1997 at three different institutions. The first institution was a public Masters II institution in the northeast. The second institution was a private Liberal Arts institution in the northeast. The third was a public research-extensive institution in the mid-Atlantic.

There were two sets of data analyzed in this study. The first set of data included responses to the Annual Freshman Survey (AFS) of the Cooperative Institutional Research Program (CIRP) (Sax et al., 2002). The second set of data included institutional student data records consisting of demographic characteristics of participants and high school and college performance measures.

For purposes of this study, degree completers were defined as students who earned a degree within six years from initial matriculation. Dropouts were defined as those who left and did not return to the same institution within six years.

Research Questions

Specifically, the study was designed to explore the following research questions:

1. Are there statistically significant differences between degree completers and dropouts within Astin types by demographic categories (gender, race, socio-economic status)?
2. Are there statistically significant differences between degree completers and dropouts within Astin types by high school academic performance (GPA, SAT scores)?
3. Are there statistically significant differences between degree completers and dropouts within Astin types by college academic performance (GPA, total credits hours)?
4. Are there statistically significant differences among Astin types by demographic categories (gender, race, socioeconomic status)?
5. Are there statistically significant differences among Astin types by high school academic performance (GPA, SAT scores)?
6. Are there statistically significant differences among Astin types by college academic performance (GPA, total credit hours)?

Significance of the Study

The present study was significant for future practice, research and policy. For further practice, this study was significant for campus enrollment managers, student affairs personnel, and high school counselors. The results provided enrollment management personnel with data to better understand the differences between degree

completers and dropouts. Enrollment planners might use the results to improve student recruitment and retention practices.

Student affairs personnel might also benefit from the findings of this study. The information might provide student affairs professionals with a different way of classifying their students in terms of degree completion or dropping out of college. This information might help them design new programs and services intended to promote degree completion.

High school counselors might benefit from the results of this study. The results might inform them about the relationship between high school and college academic performance and degree completion among Astin types. This knowledge might be useful in facilitating the college planning process with high school students and their parents.

This study was also significant for future research. Researchers might replicate this study at the same types of institutions but using transfer students in the sample. The participants in this study were entering freshmen. It is possible that by studying transfer students, researchers will achieve a better understanding of degree completion among students in general.

Second, researchers might conduct this study using multiple institutions of different types. The participants from this study were enrolled at one of three institutions each of which represented a single institutional type. It is possible that by studying multiple institutions of different types researchers will be able to better understand degree completion.

Third, this study could also be replicated using a different student typology framework to measure degree completion. The participants from this study were assigned to one of Astin's seven student types based on responses from the CIRP (AFS) survey. Researchers might add to the existing body of knowledge of degree completion using a different typological framework (e.g., adult learners, athletes).

Three policy groups also might use the findings. First, the study provided state level policy groups with data about degree completers and dropouts. They might use this information to review state policies designed to promote graduation rates among college students.

Second, institutional planning officers might use these findings. The study provided them with data about high school performance and degree completion. They might use this information to review institutional policies concerning graduation rates and institutional effectiveness.

Finally, enrollment management officers might use these findings. The study provided them with results concerning high school performance and degree completion. They might use these findings to further examine admissions policies.

Delimitations

The present study had some initial delimitations. The first related to the sample. A specific definition of degree completer was used in this study. There are other definitions of this term. Using another definition might have led to different results.

Another delimitation was related to the CIRP Annual Freshman Survey (AFS) instrument. This instrument was not originally intended for the purpose of classifying participants into student types. While the Astin model has been validated, there is always some risk using a data set for a purpose other than that for which it was intended.

A final delimitation was the method of collecting the survey data. Participants were asked to self-report data for the CIRP Annual Freshman Survey (AFS). If participants were less than candid, the results might have been biased.

Despite these delimitations, this study was important. It provided an initial examination of degree persistence through a new lens, the Astin typology. As such, it offered new insights into the issue of degree completion.

Organization of the Study

This study consists of five chapters. Chapter One provided an overview of the topic, the purpose of the study, the research questions, and the significance of the study. Chapter Two provides a review of the literature. This literature review includes scholarly literature and statistical reports describing the theoretical framework and nature of degree completion and dropout behavior. Chapter Three explains the method and technique used to conduct the study. This includes data collection and analysis procedures as well as instrumentation. Chapter Four reports the results of the study. Chapter Five presents a discussion of those results including recommendations and implications for future practice, research, and policy.

CHAPTER TWO

REVIEW OF THE LITERATURE

To explore the issue of degree completion and analyze differences in completion rates by Astin types, the literature on this topic was examined. A review of the research revealed two major bodies of work.

The first major section includes a discussion of the research on degree completion. This section focuses on three subgroups of studies. The first subgroup includes research on demographic variables explaining degree completion. The second subgroup looks at high school academic performance variables that influence persistence. The third group describes college academic performance variables that relate to degree completion.

The second major section describes the theoretical framework employed in the study and provides readers with an overview of student typology. To provide further context relevant to this study, Astin's (1993) seven student types are explained. This chapter is organized around these two groups of literature and their respective subtopics.

Research on Degree Completion

There is a vast array of work on degree completion among college students. The review examines those projects most relevant to the present study. Specifically, this includes research that examines the influence on degree completion of demographic characteristics, high school performance, and college performance.

Demographics

Research has been conducted on the relationship between degree completion and a number of demographic characteristics. Consider, for example, the issue of gender. There is recent literature examining gender and degree completion (Anderson, 1988; Berkner et al., 2002; Horn et al., 2002; Pritchard & Wilson, 2003). These studies have been conducted using large samples but with different research methodologies. Moreover, they have produced mixed results and revealed no consistent relationship between gender and degree completion.

The use of gender alone does not explain persistence and academic success. Pritchard and Wilson (2003) used a sample of 218 students at a small, private institution and found gender, when combined with other variables (age, high school GPA, SAT/ACT Scores, parents' educational background, and year in college), is not a significant predictor of persistence. Gender, when combined with these other variables, does have a significant impact on college GPA, however.

Men and women have higher probabilities of graduating from college based on high school achievement and goal commitment. Anderson (1988) examined the impact of colleges and degree of involvement among males and females. Goal commitment is the best single predictor of college choice. That is, high achieving students, regardless of gender, are likely attracted to colleges and universities that offer more opportunities for student involvement and have higher graduation rates.

Women seem to have higher six-year degree completion rates than men. Berkner et al. (2002) as part of a National Center for Education Statistics (NCES) study examined six-year completion rates of 9,100 randomly selected students entering college in 1995-1996. This longitudinal study generated the sample from a population of 3,000,000 students entering 830 institutions. Results showed females graduated from college within six years at a rate of 66% compared to males at 59%.

However, females, on average, might have a greater risk than males of not graduating from college at all. Horn et al. (2002) in a longitudinal study used a regression analysis procedure to develop seven risk factors found to be negatively associated with degree completion. This study involved a stratified random sample of 52,000 students representing 1,100 institutions. Results showed there are seven risk factors negatively associated with degree completion. One of these seven risk factors, parenting while enrolled in college, might affect females more than males. Findings imply this might explain the differences between male and female degree completion rates (Horn et al., 2002).

A second demographic characteristic explored in the work on degree completion is race. Race has led to longitudinal studies documenting degree completion rates by racial category. These studies vary according to the types of institutions sampled (single institution, multiple institution) and size. There are also differences in research

techniques employed to draw inferences from these data (Allen, 1999; DesJardins et al., 2002; Hu & St John, 2001; Porter & National Institute of Independent Colleges and Universities (U.S.), 1990; Tracey & Sedlacek, 1987).

The rate of degree completion is declining among Black, Hispanic, and White students. Hu and St John (2001) conducted a longitudinal study of degree completion rates from 1991-1997 in the Indiana state higher education system. A logistic regression model was used to analyze student background (age, ethnicity, dependency status, and income) and college experiences (college grades, institution type, housing status, and year in college). The key findings of this study revealed Blacks, Whites, and Hispanics experiencing declines in degree completion rates. The overall decline for Blacks was 1.3% (87.2% in 1990-1991, 85.9% in 1996-97). Hispanics' overall rate of decline was 6.2% (93.5% in 1990-1991 to 87.3% in 1996-1997). Whites experienced a 2.2% rate of decline (93.2% in 1990-1991 to 91% in 1996-1997). Differences in degree completion rates among Whites, Blacks, and Hispanics are explained more by grades and college experiences than by financial aid (Hu & St John, 2001).

Black students may take longer to graduate from college than White students. Tracey and Sedlacek (1987) studied college graduation rates of 1,800 students at a large eastern state university. They used a discriminant analysis statistical procedure to examine the validity of non-cognitive variables for predicting five- and six-year graduation rates. The sample included White and Black students entering in 1979 and 1980. The results indicated that the six-year graduation rate for Whites (68%) is higher compared to Blacks (55%). Findings for five-year graduation rates showed a 62% graduation rate for Whites and 23% rate for Blacks. These differences are a function of the different types of college experiences and varying levels of adaptation among racial/ethnic groups (Tracey & Sedlacek, 1987).

Hispanic/Latino students graduate from college at a rate comparable to Blacks but lower than Asian Americans and Whites. Porter (1990) employed the national High School and Beyond (National Center for Education Statistics, 1986) database to examine six-year degree completion rates among all students attending four-year institutions by ethnicity. Findings indicated the overall completion rate was 20.4% for Hispanics/Latinos compared to 23.9% for Blacks, 41.5% for Asian Americans, and 43.9% for Whites.

The issue of socio-economic status also is a reliable predictor used to explain degree completion (DesJardins et al., 2002; Lewallen, 1993; Sewell & Shah, 1967; Stage & Rushin, 1993; Whitaker & Pascarella, 1994). Lewallen (1993) conducted a national longitudinal study of entering college freshmen using CIRP data. He used a regression procedure to analyze 18,000 CIRP records of entering students who graduated within four years. Results showed that socio-economic status is one statistically significant predictor of persistence. Based on these findings Lewallen recommended that, due to the complex nature of persistence, future studies should explain persistence by using multiple variables including socio-economic status.

Socio-economic status is an influential factor of persistence through high school and college. Stage and Rushin (1993) employed the High School and Beyond (HSB) database to measure the socio-economic characteristics of a conceptual student persistence model. The sample of 1,111 was generated from a nationally representative sample of 28,000 high school seniors entering four-year public institutions in 1980 as the base year. Follow-up analysis was conducted after six years using a structural equations analysis technique to estimate relationships between causal factors and persistence. Results demonstrated that socio-economic status is an influential factor of high school and college persistence due to its statistically significant association with high school and college grades.

Socio-economic status and intelligence have direct effects on college attendance patterns and college graduation rates. For those who choose to attend college, intelligence is a stronger predictor of degree completion. In exploring the influences of socio-economic status and intelligence on degree completion, Sewell and Shah (1967) conducted a seven-year, longitudinal study of 10,321 randomly selected Wisconsin high school seniors and found that both socio-economic status and intelligence directly affect college graduation.

Socio-economic status is not a single determinant of degree completion between students initially enrolling at two-year colleges compared to their peers at four-year colleges. Further, socio-economic differences do not significantly impact students' decisions to attend two-year or four-year colleges. Whitaker and Pascarella (1994) examined a national sample of 3,171 high school graduates and reported students initially

enrolling in two-year colleges experienced significantly lower educational attainment compared to those choosing to attend four-year institutions. This research also found the level of socio-economic impact was similar for students attending two-year colleges compared to those attending four-year-colleges when controlling for differences in gender, ethnicity, and age.

Socio-economic status, when defined as parents' educational background, is significantly associated with college GPA and retention. Pritchard and Wilson (2003) reported there is no single factor or group of factors to explain student success but that educational background played a significant role in explaining college GPA and retention.

These studies examined the demographic variables associated with degree completion. Researchers have also explored the relationship between high school performance variables and degree completion.

High School Academic Performance

High school GPA and SAT score are two consistent predictors of student persistence. Researchers also have examined the relationship between high school academic performance and degree completion (Lewallen, 1993; Stage & Rushin, 1993; Tracey & Sedlacek, 1987).

Average high school grades are a strong predictor of degree completion (Astin, 1997; Lewallen, 1993). In a national longitudinal retention study, Astin analyzed data on 52,898 students attending 365 baccalaureate institutions. He used average high school grades to generate a regression formula to estimate institutional expected retention rate. Students with higher grade point averages in high school have better chances of graduating from college within a certain length of time (four, six, or nine years). For instance, approximately two-thirds (65%) of students' with average high school grades of A- are expected to graduate college within four years compared to a one-fifth (20%) of students' with a C- high school average. This suggests the use of high school grades as a viable predictor of college graduation (Astin, 1997).

Lewallen (1993) in a longitudinal study of 1,985 entering freshmen examined almost 18,500 CIRP records. The sample was a national representation consisting of students attending 433 colleges who graduated from college or were enrolled after four

years of study. A regression model was employed to predict college persistence. The results indicated high school grades were the best predictor of persistence among the CIRP pre-college characteristics.

Scholastic Aptitude Test (SAT) scores are useful in predicting degree completion as well. Tinto (1993a) summarized SAT data to examine six-year degree completion rates among 1986 entrants to public and private four-year institutions. Institutional degree completion rates increased as SAT scores increased for students at both public and private institutions, by institutional selectivity classification (highly selective, selective, traditional, liberal, open). Highly selective institutions (SAT>1100) experienced 66% degree completion rates at public institutions and 82% in the private sector. Selective institutions (SAT 931-1099) had degree completion rates of 52% for public institutions and 66% for private institutions. Institutions with traditional (SAT 801-930) and liberal (SAT 700-800) selectivity experienced lower degree completion rates with public and private traditional institutions reporting 45% and 55%; and liberal colleges 40% and 45%, respectively (Tinto, 1993a).

The literature on high school academic performance has focused primarily on high school grades and SAT scores as predictors of degree completion. College academic performance variables are another set of variables researchers use to measure degree completion. The primary academic performance variable is cumulative grade point average as a measure of college performance.

College Academic Performance

The literature on college academic performance and degree completion includes research on college grade point averages and degree completion (DesJardins et al., 2002; Hu & St John, 2001; Tinto, 1997). This literature focuses primarily on the relationship between college grades and student persistence from year to year in college.

Cumulative grade point average is a significant predictor of student persistence among community college students. Tinto studied student learning strategies and persistence using a logistic regression model to predict college grades and persistence. Two hundred eighty-seven students enrolled in a west coast community college participated in this study. Cumulative grade point average proved to be a significant predictor of persistence (Tinto, 1997).

College grades have a major influence on degree completion. Hu and St John (2001) developed a regression model explore the disparity in aggregate persistence rates among racial/ethnic groups. The data were from the Indiana Commission for Higher Education (ICHE-SIS) random sample of four-year public institutions. Lower academic achievement (C average or below) is negatively associated with persistence among ethnic groups. These differences in college grades also explain differences in persistence rates (Hu & St John, 2001).

Grades earned in college are also highly correlated with timely graduation. Thus, higher grades reduce students' chances of stopping out of college and increase the chance of timely graduation. DesJardins et al. (2002) analyzed the college grade point averages of 2,373 students over six years. Results showed good grades earned in college reduce the chance of stopping out of college and increase the prospect of timely graduation.

This research suggests the issue of college grades is closely associated with degree completion at community colleges and four-year institutions for students, in general. Astin (1993) asserts that researchers need some kind of theory to examine personality development and college experiences among college students. One of these theories is Astin's empirical student typology classification.

Theoretical Typology

The use of student typologies is somewhat limited in terms of scholarly research in American higher education (Astin, 1993; Kuh, Hu, & Vesper, 2000). Seven major student typologies have been published in the higher education literature since 1960 (Kuh et al., 2000).

Keniston (1965) developed the first major student typology by describing seven types: Professionalist, Big man on campus, Gentleman-in-waiting, Apprentice, Underachiever, Activist, and Disaffiliate. Clark and Trow (1966) developed the second of the eight major typologies including: academic, collegiate, vocational, and non-conformist types. Newcombe, Koenig, Flacks, and Warwick (1967) identified five types: Scholar, Social group, Creative individualist, Wild one, and Political activist. Tabor and Hackman's (1976) 11 types were developed and labeled: Scholar, Grind, Leader, Athlete, Socializer, Careerist, Unqualified, Artist, Alienated, Directionless, and Disliked. The fifth typology was devised by Katchadourian and Boli (1985) and types were labeled:

Intellectual, Striver, Other, Careerist, and Uncommitted. In 1987, Horowitz described four types: Outsider, College man, New outsider, and Rebel (Horowitz, 1987). In 1993 Astin further developed the seventh typology framework (Astin, 1993; Kuh et al., 2000).

The typology developed by Astin (1993) is the most recent model concerning college students. As it serves as the typological model employed in this study, it is important to provide a detailed description of this framework.

Astin's empirical typology of college students was based on a factor analysis on 10,000 cases from the CIRP (Sax et al., 2002) longitudinal data file (1971-1980). These labels emerged from the factor analysis to reflect the individuality of college students as personalities. There were seven personality types identified based on student values, attitudes, beliefs, self-concepts and behaviors. These seven types include: (a) Scholar, (b) Social Activist, (c) Artist, (d) Hedonist, (e) Leader, (f) Status Striver, and (g) Uncommitted Student (Astin, 1993).

The Scholar is a student with high expectations for academic success in college. Among the characteristics of the scholar are high levels of academic and intellectual self-esteem (Astin, 1993).

Social Activists are defined as rating social values as very important. These social values include influencing political structures; influencing social values; helping others who are in difficulty; and participating in community action programs (Astin, 1993).

Students rating themselves high in artistic abilities and values are classified into the Artist typology. These artistic abilities and values include creating artistic work, writing original works, and accomplishment in performing arts (Astin, 1993).

The Hedonist is portrayed as a student who drinks and smokes. Other characteristics of the hedonist involve staying up all night and advocating the legalization of marijuana (Astin, 1993).

The Leader typically has high self-ratings in overall popularity as well as popularity with the opposite sex. The leader also has high self-reported abilities in leadership and public speaking (Astin, 1993).

The Status Striver is labeled in terms of personal values and life goals. The Status Striver is committed to being successful in his or her own business or enterprise. Other characteristics include assuming responsibility for the work of others, being well-off

financially, obtaining recognition and authority status from colleagues for noteworthy contributions in a specialized field (Astin, 1993).

Students' pre-college expectations describe the Uncommitted student. These expectations include anticipating changing career choice and/or major field of study. The Uncommitted student may also anticipate dropping out of college temporarily or permanently, and possibly transferring to another college before graduating (Astin, 1993).

The Astin model has been used for research purposes in only a limited sense. Atakpu (1990) in a doctoral dissertation used Astin types to examine determining factors of student involvement characteristics as a measure of student growth, retention, and performance. The sample consisted of 1,654 students from a single institution in the mid-west. Participants were assigned to one of the seven Astin types using factor analysis and compared with data from the College Student Experiences Questionnaire (CSEQ). The data analysis was generally inconclusive as there was no strong relationship among Astin types. However, there were statistically significant results between student typology and quality of effort scales (Atakpu, 1990).

Researchers using a different approach also employed the Astin model. Gilmartin and Sax (2002) linked fall 2000 CIRP (AFS) data with responses from the 2001 CIRP Your First College Year (YFCY) survey and a Registrar's survey (fall 2001) representing 3,106 students at 43 campuses. The findings showed differences in the predictors of retention from year one to year two of college among personality types. Due to sampling limitations results were not generalized.

In summary, the research on degree completion is extensive. This research has been conducted using large databases (national, state, regional), single institutions, and multiple institutions. These studies have examined the relationship between demographic variables and degree completion (Berkner et al., 2002; Horn et al., 2002; Hu & St John, 2001; Lewallen, 1993; Stage & Rushin, 1993; Tracey & Sedlacek, 1987), high school performance and degree completion (Astin, 1997; Lewallen, 1993; Tinto, 1993a) and college academic performance and degree completion (Hu & St John, 2001; Tinto, 1997). However, the research using the Astin types has been conducted only in terms of student

growth (Atakpu, 1990), retention (Atakpu, 1990; Gilmartin & Sax, 2002), experiences (Gilmartin & Sax, 2002), and performance (Atakpu, 1990) in higher education.

Researchers have not investigated degree completion and the relationship between Astin types. That is the gap in the literature that the present study sought to address.

CHAPTER THREE

METHODS

The purpose of this study was to explore degree completion among college students. Specifically, it employed Astin's (1993) student typology to explore differences between degree completers and dropouts. This study consisted of six components. The first component was to determine if there were significant differences within Astin types between degree completers and dropouts by demographic characteristics. The second was to determine if there were differences within Astin types between degree completers and dropouts by level of preparation for college according to high school academic performance. The third component was to determine if there were significant differences within Astin types between degree completers and dropouts by college academic performance. The fourth component was to determine if there were significant differences among Astin types by demographic categories (gender, race, socio-economic status). The fifth component was to determine if there were significant differences among Astin types by high school academic performance (GPA, SAT scores). The sixth component was to determine if there were significant differences among Astin types by college academic performance (GPA, total credit hours).

Specifically, the study was designed to explore the following research questions:

1. Are there statistically significant differences between degree completers and dropouts within Astin types by demographic categories (gender, race, socio-economic status)?
2. Are there statistically significant differences between degree completers and dropouts within Astin types by high school academic performance (GPA, standardized test scores)?
3. Are there statistically significant differences between degree completers and dropouts within Astin types by college academic performance (GPA, total credits hours)?
4. Are there statistically significant differences among Astin types by demographic categories (gender, race, socio-economic status)?

5. Are there statistically significant differences among Astin types by high school academic performance (GPA, SAT scores)?
6. Are there statistically significant differences among Astin types by college academic performance (GPA, total credit hours)?

This chapter describes the sample selection, apparatus used for data collection, validity and reliability of that apparatus, data collection procedures, and data analysis procedures.

Sample Selection

The data analyzed in this study were collected from 1994-1997 entering cohorts at three institutions. The first was a public, Masters II institution in the northeast. The second was a private Liberal Arts institution in the northeast. The third was a public research extensive institution in the mid-Atlantic. The population for this study consisted of first-time, full-time freshmen entering in fall 1994, 1995, 1996, and 1997.

The sample consisted of all first-time, full-time freshmen, 18-19 years of age, who attended summer orientation and completed the Annual Freshman Survey (AFS) designed by the Cooperative Institutional Research Program (CIRP) (Sax et al., 2002). The AFS was administered to entering freshmen during the summer orientation programs in 1994, 1995, 1996, and 1997.

Apparatus

This study utilized two databases. The first database was the CIRP Annual Freshman Survey (AFS). The second database consisted of institutional student data records. The office of Institutional Research or Academic Assessment at the institutions where these data were collected managed these databases.

Annual Freshman Survey

Since fall 1966, the Cooperative Institutional Research Program has collected survey data on the characteristics, attitudes, values, educational achievements and future goals of students who enter college. The AFS is considered the most comprehensive empirical study on college students in the country. In 2002, it included 282,549 entering freshmen at 437 institutions in America (Sax et al., 2002).

The AFS is a standardized instrument reviewed and modified annually by the CIRP advisory committee. It is designed to be administered under proctored conditions

and consists of 210 items organized in 40 sections. The format of the AFS includes questions measuring student characteristics including demographics, academic interests, high school achievements, behaviors, career plans, values, attitudes, and self-concept. A copy of the instrument can be found in Appendix A (Sax et al., 2002).

For purposes of this study, I used 53 items from seven sections on the AFS. First, I selected the five sections and corresponding items needed to assign participants to student typologies. These five sections include measures of behaviors, self-concept, attitudes, values, and expectations.

The behaviors section included 10 items that asked respondents to indicate their level of participation in certain activities during the year prior to completing the instrument. For example, participants were asked it they drank beer, smoked cigarettes, or came late to class. These items were measured on a three-point scale: (a) frequently, (b) occasionally, and (c) not at all.

Self-concept items asked respondents to rate themselves on 11 personal traits as compared to the average person of their same age. The 11 items included, for example, traits relating to academic ability, artistic ability, and leadership ability. Participants rated their abilities on a five-point scale including: (a) highest 10%, (b) above average, (c) average, (d) below average, and (e) lowest 10%.

The attitudes section included items about controversial issues and respondents were asked the degree to which they agreed with certain statements. For example, they were asked whether marijuana should be legalized and if the federal government should do more to discourage energy consumption. Participants responded on a four-point scale ranging from agree strongly to disagree strongly.

The 15 values questions asked participants to indicate, on a four-point scale, the importance of attaining a range of life goals. The four-point scale response choices included: essential, very important, somewhat important, and not important. The respondents were asked how important it was to become an authority in their field and to improve their understanding of other countries and cultures, among other things.

Expectations consisted of 13 items related to future personal outcomes. Participants were asked to respond on a four-point scale (very good chance to no chance) as to whether they believed they might achieve certain outcomes. Some of the outcomes

included, for example, changing major field, changing career choice, and dropping out of college.

These five sections from the CIRP describe the items used to assign participants to one of the seven Astin types. To respond to the research questions posed in this study, two other sections were used. These related to institutional data.

The first of these (the sixth section) focused on parental income. Data from this section were needed to answer part of the first research question in the study. This section includes one item asking respondents to estimate their parent's total income during the year before attending college. They may choose one of 14 response options ranging from a low of less than $10,000 to $250,000 or more.

The seventh section on the AFS includes one item used as a control in the study. It asks respondents to verify their permission to use their responses for further research. This item has two response options (yes or no). Only those who gave their permission to use their responses were included in the sample.

Institutional Student Data

The second database employed in the study consisted of institutional student data records. This database was comprised of three sets of variables. The first set of variables was a student status variable (grdstat). This was a categorical variable and coded to identify dropouts (code=1) and degree completers (code=2).

The second set included two demographic variables: gender and race. Gender was a categorical variable designed to classify males and females. For purposes of this study, males were coded as 1 and females were coded as 2. The race variable included White, Black, Hispanic, Native American, and Asian/Pacific Islander. Due to the disproportionately low number of Black, Hispanic, Native American, and Pacific Islander students in the sample, a decision was made to recode each of these groups into one of two categories, minority and non-minority. Therefore, Black, Hispanic, Native American, and Pacific Islander students were coded as minority (code=1) and White students were coded as non-minority (code=2).

The third set of variables included high school academic performance variables including high school grade point average (GPA), and SAT scores. The third set also

included two college academic performance measures: cumulative grade point average and total credit hours earned.

Validity and Reliability

There are several ways to determine if research data or instrumentation is valid. Content and predictive validity are two types of measures used to determine the validity of quantitative research or instrumentation. Content validity refers to the degree to which survey questions (content) reflect what the researcher wants to know (Suskie, 1996). Predictive validity is defined as the extent that a measure or data set can predict future results or outcomes (Charles, 1995).

Another important aspect of instrumentation is reliability. Reliability is defined as the degree of internal consistency or stability of the measure over a period of time (Borg, 1981).

The AFS was first established in 1966 as a national longitudinal study of the American higher education system. It is well known as the nation's oldest and most extensive empirical study of higher education in America.

The content validity of the AFS is reviewed each year by the CIRP Advisory Committee to ensure AFS items measure what they are intended to measure. The role of the advisory committee is to review survey items for appropriateness relative to the entering student population each year. This process contributes to the instrument's content validity by utilizing the advisory committee as a panel of CIRP experts.

Validity studies have been conducted to measure and confirm the predictive validity of the seven student typology scales. For example, Astin summarized the four-year predictive validity of the 1985 entering freshmen types by correlating items from the 1989 follow-up survey (Astin, 1993).

To ensure the accuracy of the institutional student data, the files were carefully examined for accuracy. Frequency analyses were conducted to detect missing items and to ensure accuracy of recoding and computation procedures.

Data Collection Procedures

With Institutional Review Board approval, I collected the AFS data through the office of Institutional Research or Academic Assessment at each participating institution.

The AFS was administered each year from 1994 to 1997, as part of the routine data collection process at each campus' summer orientation.

The administration of the AFS was proctored by each institution and scheduled as an orientation activity with a formal date, time, and location established for each AFS administration. Upon completion of AFS summer administration sessions, the institution submitted completed instruments to the CIRP processing center for analysis.

The data were returned from the CIRP processing center to the Institutional Research/Academic Assessment offices as four separate SPSS (Statistical Package for the Social Sciences, version 11.5) data files, one for each year (1994, 1995, 1996, 1997). I obtained copies of the four SPSS data files from the Institutional Research/Academic Assessment offices from the three institutions and merged them to create one data file. The student identification numbers were removed to protect students' privacy.

The institutional student data were collected on entering freshmen cohorts in fall 1994, 1995, 1996 and 1997. Specifically, I collected from the Institutional Research/Academic Assessment offices the following data elements in SPSS format: gender, race, admit type (first-time freshman), enrollment status (graduated, not graduated), combined SAT score, high school grade point average, college cumulative grade point average, and total credits earned in college.

Data Analysis Procedures

To answer the six research questions, the data were analyzed in four stages. The first stage involved four steps to classify students into one of the seven student typology classifications. To complete this first stage, I used AFS data provided by respondents and followed the same procedure employed by Astin when he generated the types. This procedure included three steps necessary to place students in one of seven student typology categories.

The first step was to create seven scale variables with each variable representing one of seven student typologies: scholar (schlr), social activist (socactv), artist (artst), hedonist (hednst), leader (leadr), status striver (ststrv), and uncommitted (uncmtd). Table 1 illustrates the AFS items and sections used to compute the corresponding scale scores for each typology classification (Astin, 1993).

The second step included computing scale scores for each of the seven scales.

Table 1 *Student Typology Scales*

Scale	AFS Items	AFS Section
Scholar		
	Academic ability (self-rating)	Self-concept
	Expect to be elected to an academic honor society	Expectations
	Expect to graduate with honors	Expectations
	Intellectual self-confidence (self-rating)	Self-concept
	Mathematical ability (self-rating)	Self-concept
Social Activist		
	Participating in a community action program	Values
	Helping others who are in difficulty	Values
	Influencing social values	Values
	Influencing the political structure	Values
Artist		
	Creating artistic work	Values
	Artistic ability	Self-concept
	Writing original works	Values
	Becoming accomplished in one of the performing arts	Values
Hedonist		
	Marijuana should be legalized	Attitudes
	Drank beer	Behaviors
	Smoked cigarettes	Behaviors
	Hours Spent Per Week Partying	Behaviors

Table 1 (continued)

Scale	AFS Items	AFS Section
Leader		
	Popularity (self-rating)	Self-concept
	Social self-confidence (self-rating)	Self-concept
	Leadership ability (self-rating)	Self-concept
	Public speaking ability (self-rating)	Self-concept
	Expect to be elected to student office	Expectations
Status Striver		
	Be an authority in my own field	Values
	Being successful in a business of my own	Values
	Having administrative responsibility	Values
	Being very well off financially	Values
	Obtain Recognition from colleagues in my field	Values
Uncommitted		
	Expect to change career choice	Expectations
	Expect to change major field	Expectations
	Expect to drop out of this college temporarily	Expectations
	Expect to dropout permanently	Expectations
	Expect to transfer to another college	Expectations

This was accomplished by adding the sum of item scores for each scale. This scale score result was used to assign students to one of the seven categories using the highest score above the minimal cut-scores provided by CIRP. Table 2 illustrates the cut scores to assign students to one of the seven typology categories (Astin, 1993).

The third step of the first stage included setting up seven codes (1-7), one for each student typology classification: 1=Scholar, 2=Social Activist, 3=Artist, 4=Hedonist, 5=Leader, 6=Status Striver, 7=Uncommitted. Using the SPSS recode variable procedure, this step was completed by assigning participants to one of the seven typologies based on the scale cut-score provided by CIRP (Astin, 1993).

The fourth and last step of the first stage of data analysis involved creating a socio-economic variable (SES) from the AFS (parental income, section 21). The SES variable was computed by collapsing response choices into three range categories by total family income earned in the year before attending college. The three range categories were defined as lower (less than $39,999), middle ($40,000-$79,999), and high ($75,000 or higher). Using the SPSS recode procedure I assigned codes to each of the three categories: lower = 1, middle =2, and high=3.

The second stage involved preparation of the institutional data file. To complete this stage I created one SPSS data file consisting of the following variables: (a) grdstat (degree completer=1, dropout=2); (b) race (minority=1, non-minority=2); (c) gender (male=1, female=2); (d) socio-economic status (lower=1, middle=2, high=3); (e) high school grade point average (scale); (f) combined SAT score (scale); (g) college cumulative grade point average (scale); and, (h) college total credits earned (scale).

In the third stage, I merged institutional student data records with the CIRP data prepared in stages one and two. This was accomplished by matching student ID numbers in the two sets of data. The completion of the third stage resulted in one complete data file that could be used to run statistical tests in the fourth stage of the data analysis.

Prior to the fourth stage, a reliability analysis procedure (Chronbach's alpha) was conducted on the seven scales. The purpose of this step was to measure inter-item

Table 2 *Student Typology Scale Ranges and Cut Scores*

Typology Category	Range	No	Yes
Scholar	5-23	5-17	18-23
Social Activist	4-16	4-11	12-16
Artist	4-17	4-11	12-17
Hedonist	4-18	4-15	16-18
Leader	4-20	4-15	16-20
Status Striver	5-20	5-15	16-20
Uncommitted	5-20	5-15	16-20

correlation and scale alpha. This allowed the researcher to calculate inter-item correlations and corresponding scale alphas.

The fourth stage of data analysis was to conduct statistical tests to respond to the six research questions posed in the study. This included the use of four different statistical procedures, each appropriate for certain research questions. A decision was made to set the alpha level at .05 for all statistical tests. This decision was made to reduce the possibility of a type II error and was chosen based on the size of the sample and the frequency distribution of degree completers and dropouts within Astin types.

The first research question examined whether there were statistically significant differences between degree completers and dropouts within Astin types by demographic category (gender, race, socio-economic status). I assigned participants into one of the seven Astin type categories and conducted the analysis for each demographic variable using category codes assigned to each demographic variable. For example, the gender variable was sorted by males (code=1) and females (code=2) and Astin type. This resulted in 14 groups (e.g., Male Scholar Completers, Male Scholar Drop Outs, Female Scholar Completers, and Female Scholar Dropouts. To respond to this question, I conducted a chi-square non-parametric statistical test to determine if there were significant relationships between degree completers and dropouts by gender within Astin categories. This procedure was repeated using the race (minority = code 1, non-minority = code 2) and socio-economic status (low = code 1, middle = code 2, high = code 3) variables.

The second research question examined differences between degree completers and dropouts within Astin types by high school academic performance (GPA, SAT scores). I first sorted participants into one of the seven Astin types. Then I calculated the mean high school grade point average and SAT score for degree completers and dropouts in each group. Next, I conducted an independent samples t-test to determine if the mean high school grade point averages were significantly different between degree completers and dropouts within Astin categories. This procedure was repeated using SAT scores.

The third research question examined differences between degree completers and dropouts within Astin types by college academic performance (GPA, total credit hours). I used an analysis of covariance (ANCOVA) statistical procedure to determine if the mean

college grade point averages were significantly different between degree completers and dropouts within Astin categories. High school grade point average and SAT scores were used as covariates (control variables) due to their linear relationship with the dependent variable. This procedure was repeated using total credit hours.

The fourth research question examined differences among Astin types by demographic category (gender, race, socio-economic status). Using the existing seven Astin type categories and coding scheme, I conducted the analysis for each demographic variable across the Astin types. To respond to this question, I conducted a chi-square non-parametric statistical test to determine if there were significant differences among Astin types first by gender within Astin categories. This procedure was repeated using the race and socio-economic status variables.

The fifth research question examined differences among Astin types by high school academic performance (GPA, SAT scores). Analysis of variance (ANOVA) was used to evaluate if there were statistically significant differences in the mean high school grade point averages among the Astin types. Games-Howell post hoc comparisons were conducted to locate significant differences in the mean high school grade point average. This procedure was repeated using the SAT scores as the dependent variable.

The sixth research question examined differences among Astin types by college academic performance (GPA, total credit hours). I conducted an analysis of covariance (ANCOVA) statistical procedure to determine if the mean college grade point averages were significantly different among Astin types. High school grade point average and SAT scores were used as covariates (control variables) due to their linear relationship with the dependent variable. This procedure was repeated using total credit hours as the dependent variable.

In conclusion, the present study was designed to explore degree completion among college students using Astin's (1993) empirical student typology. The methodology presented in this chapter is appropriate and is designed to respond to the six research questions asked in this study.

CHAPTER FOUR
RESULTS

The chapter reports the results of this study. The first section describes the sample. The second section includes results of data analysis used to respond to the six research questions.

Sample

The data set included 14,456 records submitted from the three participating institutions. There were 7,091 records removed due to missing college GPA/credit hours (n=169) or not meeting selection criteria for any of the seven Astin's typology classifications (n=6,922). The final sample consisted of 7,365 records.

There were 4,588 participants assigned to the degree completer group and 2,777 assigned to the dropout group. Males represented 57.3% of the degree completers and 55.5% of the dropouts. Females represented 42.6% of the degree completers and 44.5% of the dropouts. White/Caucasian represented the majority of the sample including 4,042 degree completers (88.1%) and 2,371 dropouts (85.4%). Collectively, the number of minority students included 526 degree completers (11.5%) and 372 dropouts (13.4%). Parents' annual income and socio-economic status data indicate 13.7% of degree completers are low- income students (629), 34.2% are middle-income (1,569), and 45.4% are high-income (2,085). Dropouts included 23.7% low-income (658), 33.1% middle-income (920), and 35.5% (985) high-income students. Frequency counts and corresponding percentages are reported in Table 3 for degree completers and dropouts by gender, race/ethnicity, minority/non-minority, parents, annual income, and socio-economic status.

Results of Data Analysis

The analysis of data utilized CIRP AFS responses merged with institutional student data records (high school GPA, college GPA, college credits, graduation status). The CIRP AFS is a standardized instrument consisting of 210 items organized in 40 sections. Thirty-two CIRP AFS items were used to compute the seven Astin type scales

including Scholar (5 items), Social Activist (4 items), Artist (4 items), Hedonist (4 items), Leader (5 items), Status Striver (5 items), and Uncommitted (5 items).

Results of the internal consistency assessment (Chronbach's alpha) on the seven scales are located in Table 4. Nunnally and Peter (as cited in Hair, Anderson, Tatham & Black, 1998) assert that Chronbach's alpha is considered the most common measure to assess reliability of scales. Moreover, Robinson, Shaver, and Wrightsman (as cited in Hair, Anderson, Tatham & Black, 1998) claim the minimum standard for Chronbach's alpha is usually considered .70 or .60 for exploratory studies.

Results showed scale alphas ranged between .69 (Hedonist and Uncommitted) and .74 (Leader). Other scale alphas were Social Activist (.72), Artist (.71), Status Striver (.70) and Scholar (.70). These scale alpha results suggest the minimum standard for exploratory research (.60) was achieved and the common standard of .70 was met in five Astin type scales. Further, results of this reliability analysis were consistent with scales alphas reported by Gilmartin and Sax (2002) who reported scale alphas from another study as follows: Artists (.68), Hedonists (.58), Leaders (.73), Status Strivers (.71), Scholars (.68), and Social Activists (.71). The alphas in the present study were quite consistent with those reported by Gilmartin and Sax (2002) suggesting that the Astin typology scales are relatively stable. Those used in this study meet acceptable standards of reliability and therefore were appropriate for this study.

Table 5 summarizes the descriptive statistics for items on each of the seven scales. Results are reported for CIRP AFS items within Astin type. For each item the number of responses (n), mean (M), range, and standard deviation (SD) are reported. The number of responses (n) ranged from 7,197 (Hours spent per week partying) to 7,356 (Intellectual self-confidence self-rating). Means (M) ranged from 1.43 (Smoked Cigarettes) to 4.21 (Academic ability self-rating). Standard deviations (SD) ranged from .64 (Academic ability self-rating) to 1.82 (Hours spent per week partying).

Six research questions guided this research. The first three questions addressed differences between degree completers and dropouts within the seven Astin types according to demographics (research question 1), high school academic performance (research question 2), and college academic performance (research question 3). The other three research questions addressed differences among the Astin types according to

Table 3

Demographic Characteristics of the Sample (N=7,365)

Characteristics	Degree Completer (n=4,588)		Dropout (n=2,777)	
	n	%*n*	*n*	%*n*
Gender				
Male	2,361	57.3	1,540	55.5
Female	1,956	42.6	1,237	44.5
Race/Ethnicity				
White/Caucasian	4,042	88.1	2,371	85.4
African American/Black	102	2.2	94	3.4
Hispanic	101	2.2	66	2.4
Native American	53	1.2	56	2.0
Asian/Pacific Islander	240	5.2	123	4.4
Other	30	.7	33	1.2
Minority/Non-Minority Group				
Minority	526	11.5	372	13.4
Non-minority	4,042	88.1	2,371	85.4
Socio-Economic Status				
Low income	629	13.7	658	23.7
Middle income	1,569	34.2	920	33.1
High income	2,085	45.4	985	35.5

Table 4

Results of Internal Consistency Estimates for Astin Typology Scales

Astin Typology Scales	α
Scholar	.70
Social Activist	.72
Artist	.71
Hedonist	.69
Leader	.74
Status Striver	.70
Uncommitted	.69

Table 5

Sample Mean, Range and Standard Deviation for Astin Type Scale Items

Scale/Item	*n*	M	Range	SD
Scholar				
Academic ability (self-rating)	7,354	4.21	3	.64
Expect to be elected to an academic honor society	7,292	2.87	3	.75
Expect to graduate with honors	7,320	3.23	3	.65
Intellectual self-confidence (self-rating)	7,356	4.01	4	.75
Mathematical ability (self-rating)	7,355	3.89	4	.97
Social Activist				
Participating in a community action program	7,271	2.05	3	.83
Helping others who are in difficulty	7,290	2.74	3	.81
Influencing social values	7,294	2.28	3	.88
Influencing the political structure	7,286	1.91	3	.85
Artist				
Creating artistic work	7,288	1.55	4	.88
Artistic ability	7,350	3.00	4	1.07
Writing original works	7,291	1.55	3	.86
Becoming accomplished in one of the performing arts	7,303	1.56	3	.88
Hedonist				
Marijuana should be legalized	7,204	2.10	3	1.06
Drank beer	7,332	1.74	2	.71
Smoked cigarettes	7,341	1.43	2	.69
Hours Spent Per Week Partying	7,197	3.63	7	1.82
Leader				
Popularity (self-rating)	7,330	3.49	4	.76
Social self-confidence (self-rating)	7,355	3.63	4	.89
Leadership ability (self-rating)	7,353	3.88	4	.88
Public speaking ability (self-rating)	7,350	3.26	4	1.01
Expect to be elected to student office	7,297	2.15	3	.79

Table 5 (continued)

Scale/Item	*n*	M	Range	SD
Status Striver				
Be an authority in my own field	7,313	2.98	3	.82
Being successful in a business of my own	7,281	2.30	3	1.07
Having administrative responsibility	7,266	2.39	3	.87
Being very well off financially	7,305	3.10	3	.85
Obtain Recognition from colleagues in my field	7,304	2.78	3	.83
Uncommitted				
Expect to change career choice	7,303	2.53	3	.87
Expect to change major field	7,311	2.45	3	.89
Expect to drop out of this college temporarily	7,275	1.39	3	.59
Expect to dropout permanently	7,256	1.20	3	.46
Expect to transfer to another college	7,255	1.93	3	.84

demographics (research question 4), high school academic performance (research question 5), and college academic performance (research question 6). Statistical significance was assessed using an alpha level of less than .05 for all statistical tests. Research question one examined whether or not there were statistically significant differences between degree completers and dropouts within Astin types by demographic categories (gender, race, socio-economic status). The number of degree completers and dropouts are reported for each Astin type by demographic category.

Results of chi-square tests, by gender, are summarized in Table 6. There were statistically significant differences by gender between degree completers and dropouts found in the Scholar and Status Striver types. Among Scholars, the proportion of male degree completers was significantly higher than females. This finding suggests male Scholars were more likely to graduate than female Scholars. Among Status Strivers, there were significantly more women degree completers, and men constituted a significantly higher proportion of dropouts. Results suggest female Status Strivers were more likely to graduate than their male counterparts. For Social Activists, Artists, Hedonists, Leaders, and Uncommitted types the chi-square tests revealed no statistically significant findings.

Table 7 reports chi-square differences between degree completers and dropouts by race. Statistically significant differences were found in the Leader and Status Striver types. Chi-square tests by race were not completed for the Uncommitted type, by race, due to frequency cell counts less than five. Among Leaders, there was a significantly higher proportion of non-minority degree completers than minority degree completers. Conversely, there was significantly higher proportion of minority dropouts. The same pattern held for Status Strivers. These findings suggest Leader and Status Striver non-minorities were more likely to graduate than minorities.

Table 8 reports chi-square results by socio-economic status. Statistically significant differences were found in five out of seven types including Scholar, Social Activist, Hedonist, Leader, and Status Striver. A series of chi-square tests were conducted to locate statistically significant pairs within each type. For the Scholar type, there were statistically significant differences between each pair of categories (low income, middle income, high income combinations). For Social Activists, Leaders, Hedonists and Status

Table 6

Chi-Square Analysis on Differences Between Degree Completers and Dropouts Within Astin Types by Gender

Typology Category	% Degree Completers	% Dropouts	Chi-square	df	p
Scholar			6.155	1	.013*
Female	65.4	34.6			
Male	69.2	30.8			
Social Activist			1.142	1	.285
Female	50.6	49.4			
Male	45.3	54.7			
Artist			.987	1	.320
Female	36.5	63.5			
Male	31.4	68.6			
Hedonist			.225	1	.614
Female	44.0	56.0			
Male	46.8	53.2			
Leader			1.826	1	.177
Female	65.5	34.5			
Male	60.9	39.1			
Status Striver			4.486	1	.034*
Female	67.4	32.6			
Male	61.9	38.1			
Uncommitted			4.17	1	.518
Female	38.8	61.2			
Male	43.7	56.3			

*p<.05

Table 7

Chi-Square Analysis on Differences Between Degree Completers and Dropouts Within Astin Types by Race

Typology Category	% Degree Completers	% Dropouts	Chi-square	df	p
Scholar			2.99	1	.084
Minority	64.1	35.9			
Non-Minority	68.3	31.7			
Social Activist			.306	1	.580
Minority	52.3	47.7			
Non-Minority	48.6	51.4			
Artist			.036	1	.849
Minority	35.9	64.1			
Non-Minority	34.4	65.6			
Hedonist			.397	1	.529
Minority	52.0	48.0			
Non-Minority	45.5	54.5			
Leader			.524	1	.022*
Minority	53.3	46.7			
Non-Minority	64.9	35.1			
Status Striver			5.76	1	.016*
Minority	58.2	41.8			
Non-Minority	66.3	33.7			
Uncommitted					
Minority	-	-			
Non-Minority	-	-			

*p<.05

Table 8

Chi-Square Analysis on Differences Between Degree Completers and Dropouts by Socio-Economic Status

Typology Category	% Degree Completers	% Dropouts	Chi-square	df	p
Scholar			65.73	2	.000* a,b,c
Low Income	55.7	44.3			
Middle Income	67.5	32.5			
High Income	73.2	26.8			
Social Activist			8.93	2	.011 *a,c
Low Income	36.7	63.3			
Middle Income	51.9	48.1			
High Income	54.2	45.8			
Artist			2.02	2	.363
Low Income	29.7	70.3			
Middle Income	33.9	66.1			
High Income	39.3	60.7			
Hedonist			20.30	2	.000* a,c
Low Income	16.3	83.7			
Middle Income	46.2	53.8			
High Income	54.3	45.7			
Leader			20.47	2	.000* a,c
Low Income	47.4	52.6			
Middle Income	64.0	36.0			
High Income	69.5	30.5			
Status Striver			19.33	2	.000* a,c
Low Income	52.4	47.6			
Middle Income	66.6	33.4			
High Income	68.4	31.6			

Table 8 (continued)

Typology Category	% Degree Completers	% Dropouts	Chi-square	df	p
Uncommitted			.836	2	.658
Low Income	31.3	68.7			
Middle Income	39.3	60.7			
High Income	40.7	59.3			

*p<.05

Note. a = difference between low and middle income, b = difference between middle and high income, c = difference between low and high income

Striver types, the proportion of middle and high income degree completers was significantly higher than low income degree completers.

The second research question examined statistically significant differences between degree completers and dropouts, within Astin types, by high school academic performance (GPA, SAT). High school grade point averages were calculated using a 100 point scale. The highest mean high school grade point average was the Scholar degree completer type (92.06). The lowest mean high school grade point average was reported in the Uncommitted dropout group (85.32). Table 9 shows results of independent samples t-tests to assess differences by mean high school grade point average. Statistically significant differences were found in six of seven Astin types. In all cases, degree completers earned significantly higher grade point averages. The Hedonist type resulted in a statistically insignificant result.

Table 10 reports results by SAT score. The highest mean SAT score was found in the Scholar degree completer group (1,253). The lowest mean SAT score was the Social Activist Dropout category (1,095). Statistically significant differences were found in Scholar [t (3,784)=5.36, p=.000], Social Activist [t (383.96)=2.33, p=.02], and Leader [t (778)=3.04, p=.002] types. In all cases, degree completer scores were significantly higher than scores of dropouts.

The third research question examined differences between degree completers and dropouts (GRDSTAT) within Astin types by college GPA and total college credits (dependent variables). ANCOVA tests were conducted using adjusted means. The purpose of recalculating means was to adjust the dependent variable as if all subjects performed equally on the covariates (high school grades and SAT scores). Therefore, the adjusted means were calculated to control for the influence of covariates (high school GPA, SAT score) on the dependent variables (college GPA, total college credits). The main effects of the covariates on the dependent variables (college GPA, total college credits) were tested to determine if high school GPA or SAT is a predictor of college academic performance. A statistically significant finding on the main effects of the covariate means that, after the influence of the covariate on the dependent variable was accounted for, the covariate is considered a predictor of college academic performance (Howell, 1997).

Table 9

Independent Samples t-test on Differences Between Degree Completers and Dropouts Within Astin Categories by High School GPA

Typology Category		M	df	t	p
Scholar			3259	11.54	.000*
	Degree Completer	92.06			
	Dropout	89.86			
Social Activist			301.60	5.87	.000*
	Degree Completer	87.98			
	Dropout	85.58			
Artist			288	2.86	.005*
	Degree Completer	87.77			
	Dropout	85.51			
Hedonist			214.77	1.83	.068
	Degree Completer	87.06			
	Dropout	86.13			
Leader			697	6.52	.000*
	Degree Completer	88.62			
	Dropout	86.38			
Status Striver			599.83	7.64	.000*
	Degree Completer	88.64			
	Dropout	86.47			
Uncommitted			127	4.21	.000*
	Degree Completer	88.13			
	Dropout	85.32			

*p<.05

Table 10

Independent Samples t-test on Differences Between Degree Completers and Dropouts Within Astin Categories by SAT Score

Typology Category		M	df	t	p
Scholar			3784	5.36	.000*
	Degree Completer	1253			
	Dropout	1229			
Social Activist			383.96	2.33	.020*
	Degree Completer	1121			
	Dropout	1095			
Artist			272	.391	.696
	Degree Completer	1165			
	Dropout	1159			
Hedonist			326	1.46	.144
	Degree Completer	1157			
	Dropout	1139			
Leader			778	3.04	.002*
	Degree Completer	1125			
	Dropout	1098			
Status Striver			1274	1.05	.291
	Degree Completer	1118			
	Dropout	1111			
Uncommitted			138.74	-.547	.585
	Degree Completer	1139			
	Dropout	1150			

*p<.05

Adjusted means of college grade point averages are reported in Table 11. The highest adjusted mean was the Scholar degree completer (3.06). The lowest adjusted mean was the Hedonist dropout (1.95).

ANCOVA results using college GPA as the dependent variable are reported in Tables 12-18. Table 13 suggests the adjusted college grade point averages for Social Activist degree completers (2.87) was significantly higher (p=.044) than for dropouts (2.49). The main effects of the covariates were tested and suggested high school grades (p=.187) and SAT scores (p=.116) were not significant predictors of college academic performance (cumulative GPA). Table 17 shows the adjusted college grade point averages of Status Strivers were significantly higher (p=.011) for degree completers (2.84) compared to dropouts (2.10). The main effects of the covariates were tested and suggested high school grades (.514) and SAT scores (.547) were not significant predictors of college academic performance (cumulative GPA). Data located in Tables 12 (Scholar), 14 (Artist), 15 (Hedonist), 16 (Leader), and 18 (Uncommitted) reveal statistically insignificant findings between degree completers and dropouts, respectively. Appendix B depicts the adjusted means for all types.

Table 19 shows adjusted means of total college credits for degree completers and dropouts within Astin type. The range includes a high of 140.19 (Scholar degree completer) and a low of 62.64 (Hedonist dropout). ANCOVA results for each Astin type (Tables 20-26) show statistically significant findings between degree completers and dropouts for Scholar (Table 20) and Status Striver types (Table 25). For Scholars, the main effects of the covariates were tested and suggested high school grades (p=.035) were a significant predictor of college academic performance in terms of total college credits earned. Results showed SAT scores (p=.075) were not significant predictors of college academic performance (total college credits) for the Scholar type. For Status Strivers, the main effects of the covariates were tested and suggested high school grades (p=.830) and SAT scores (p=.856) were not significant predictors of college academic performance (total college credits). No significant findings were revealed for the other types. Appendix C depicts the adjusted means for all types.

Table 11

Adjusted Means of College Cumulative Grade Point Averages for Degree Completers and Dropouts Within Astin Type

Typology Category		M	Std. Error
Scholar			
	Degree Completer	3.06	.013
	Dropout	2.39	.022
Social Activist			
	Degree Completer	2.87	.043
	Dropout	2.49	.055
Artist			
	Degree Completer	2.91	.068
	Dropout	2.66	.065
Hedonist			
	Degree Completer	2.71	.049
	Dropout	1.95	.058
Leader			
	Degree Completer	2.87	.026
	Dropout	2.38	.044
Status Striver			
	Degree Completer	2.84	.020
	Dropout	2.10	.032
Uncommitted			
	Degree Completer	2.80	.076
	Dropout	2.69	.092

Table 12

ANCOVA Results on Differences Between Degree Completers and Dropouts Within Scholar Type by Cumulative Grade Point Average

Source	Type III Sum of Squares	df	Mean Square	F	p
Corrected Model	587.11	6	97.85	266.63	.000
Intercept	2.34	1	2.34	6.39	.011
Covariate Main Effects					
SATCOMP	1.05	1	1.05	2.87	.090
HSGPA	5.23	1	5.23	14.25	.000
GRDSTAT	.072	1	.072	.196	.658
Error	1172.89	3196	.367		
Total	28433.09	3203			
Corrected Total	1760	3202			

*p<.05

Table 13

ANCOVA Results on Differences Between Degree Completers and Dropouts Within Social Activist Type by Cumulative Grade Point Average

Source	Type III Sum of Squares	df	Mean Square	F	p
Corrected Model	29.46	6	4.91	13.75	.000
Intercept	.856	1	.856	2.39	.122
Covariate Main Effects					
SATCOMP	.884	1	.884	2.47	.116
HSGPA	.625	1	.625	1.75	.187
GRDSTAT	1.45	1	1.45	4.07	.044*
Error	118.86	333	.357		
Total	2664.40				
Corrected Total	148.33				

*p<.05

Table 14

ANCOVA Results on Differences Between Degree Completers and Dropouts Within Artist Type by Cumulative Grade Point Average

Source	Type III Sum of Squares	df	Mean Square	F	p
Corrected Model	21.94	6	3.65	7.53	.000
Intercept	2.61	1	2.61	5.37	.021
Covariate Main Effects					
SATCOMP	2.04	1	2.04	4.22	.041
HSGPA	3.55	1	3.55	7.31	.007
GRDSTAT	.524	1	.524	1.07	.300
Error	111.69	230	.486		
Total	1938.13	237			
Corrected Total	133.64	236			

*p<.05

Table 15

ANCOVA Results on Differences Between Degree Completers and Dropouts Within Hedonist Type by Cumulative Grade Point Average

Source	Type III Sum of Squares	df	Mean Square	F	p
Corrected Model	50.93	6	8.48	24.69	.000
Intercept	.227	1	.227	.661	.417
Covariate Main Effects					
SATCOMP	.126	1	.126	.367	.545
HSGPA	.379	1	.379	1.10	.294
GRDSTAT	.268	1	.268	.779	.378
Error	86.98	253	.344		
Total	1629.02	260			
Corrected Total	137.91	259			

*p<.05

Table 16

ANCOVA Results on Differences Between Degree Completers and Dropouts Within Leader Type by Cumulative Grade Point Average

Source	Type III Sum of Squares	df	Mean Square	F	p
Corrected Model	74.00	6	12.33	39.34	.000
Intercept	.055	1	.055	.176	.675
Covariate Main Effects					
SATCOMP	.028	1	.028	.088	.767
HSGPA	.185	1	.185	.592	.442
GRDSTAT	.306	1	.306	.976	.324
Error	209.12	667	.314		
Total	5318.72	674			
Corrected Total	283.12	673			

*p<.05

Table 17

ANCOVA Results on Differences Between Degree Completers and Dropouts Within Status Striver Type by Cumulative Grade Point Average

Source	Type III Sum of Squares	df	Mean Square	F	p
Corrected Model	202.06	6	33.67	112.56	.000
Intercept	.000	1	.000	.001	.981
Covariate Main Effects					
SATCOMP	.109	1	.109	.33	.547
HSGPA	.127	1	.127	.426	.514
GRDSTAT	1.93	1	1.93	6.48	.011*
Error	335.10	1120	.299		
Total	8351.05	1127			
Corrected Total	537.167	1126			

*p<.05

Table 18

ANCOVA Results on Differences Between Degree Completers and Dropouts Within Uncommitted Type by College GPA

Source	Type III Sum of Squares	df	Mean Square	F	p
Corrected Model	8.38	6	1.39	4.07	.001
Intercept	.072	1	.072	.211	.647
Covariate Main Effects					
SATCOMP	.149	1	.149	.435	.511
HSGPA	.023	1	.023	.067	.796
GRDSTAT	.520	1	.520	1.51	.221
Error	35.98	105	.343		
Total	893.17	112			
Corrected Total	44.37	111			

*p<.05

Table 19

Adjusted Means of Total College Credits for Degree Completers and Dropouts Within Astin Type

Typology Category		M	Std. Error
Scholar			
	Degree Completer	140.19	.576
	Dropout	72.07	.977
Social Activist			
	Degree Completer	130.91	2.22
	Dropout	73.63	2.86
Artist			
	Degree Completer	136.15	4.05
	Dropout	91.07	3.90
Hedonist			
	Degree Completer	132.42	2.72
	Dropout	62.64	3.25
Leader			
	Degree Completer	131.44	1.22
	Dropout	69.85	2.04
Status Striver			
	Degree Completer	134.17	.929
	Dropout	64.40	1.53
Uncommitted			
	Degree Completer	136.68	3.95
	Dropout	73.37	4.79

Table 20

ANCOVA Results on Differences Between Degree Completers and Dropouts Within Scholar Type by Total College Credits

Source	Type III Sum of Squares	df	Mean Square	F	p
Corrected Model	3177580.85	6	529596.81	719.79	.000
Intercept	1144.95	1	1144.95	1.55	.212
Covariate Main Effects					
SATCOMP	2337.67	1	2337.67	3.17	.075
HSGPA	3260.92	1	3260.92	4.43	.035
GRDSTAT	26093.07	1	26093.07	35.46	.000*
Error	2351495.40	3196	735.76		
Total	52956703.65	3203			
Corrected Total	5529076.26	3202			

*p<.05

Table 21

ANCOVA Results on Differences Between Degree Completers and Dropouts Within Social Activist Type by Total College Credits

Source	Type III Sum of Squares	df	Mean Square	F	p
Corrected Model	268444.09	6	44740.68	46.25	.000
Intercept	642.44	1	642.44	.664	.416
Covariate Main Effects					
SATCOMP	203.89	1	203.89	.211	.646
HSGPA	402.13	1	402.13	.416	.520
GRDSTAT	400.81	1	400.81	.414	.520
Error	322085.60	333	967.22		
Total	4679723.04	340			
Corrected Total	590529.70	339			

*p<.05

Table 22

ANCOVA Results on Differences Between Degree Completers and Dropouts Within Artist Type by Total College Credits

Source	Type III Sum of Squares	df	Mean Square	F	p
Corrected Model	162807.91	6	27134.65	15.57	.000
Intercept	8846.24	1	8846.24	5.07	.025
Covariate Main Effects					
SATCOMP	9256.26	1	9256.26	5.31	.022
HSGPA	11194.40	1	11194.40	6.42	.012
GRDSTAT	4233.09	1	4233.09	2.43	.120
Error	400605.67	230	1741.76		
Total	3411979.21	237			
Corrected Total	563413.59	236			

*p<.05

Table 23

ANCOVA Results on Differences Between Degree Completers and Dropouts Within Hedonist Type by Total College Credits

Source	Type III Sum of Squares	df	Mean Square	F	p
Corrected Model	308418.50	6	51403.08	47.79	.000
Intercept	59.20	1	59.20	.055	.815
Covariate Main Effects					
SATCOMP	121.23	1	121.23	.113	.737
HSGPA	228.57	1	228.57	.213	.645
GRDSTAT	650.04	1	650.04	.604	.438
Error	272118.41	253	1075.56		
Total	3364550.41	260			
Corrected Total	580536.91	259			

*p<.05

Table 24

ANCOVA Results on Differences Between Degree Completers and Dropouts Within Leader Type by Total College Credits

Source	Type III Sum of Squares	df	Mean Square	F	p
Corrected Model	532336.84	6	88722.80	128.72	.000
Intercept	1516.05	1	1516.05	2.20	.139
Covariate Main Effects					
SATCOMP	565.29	1	565.29	.820	.365
HSGPA	982.62	1	982.62	1.42	.233
GRDSTAT	251.66	1	251.66	.365	.546
Error	459720.07	667	689.23		
Total	9854957.64	674			
Corrected Total	992056.92	673			

*p<.05

Table 25

ANCOVA Results on Differences Between Degree Completers and Dropouts Within Status Striver Type by Total College Credits

Source	Type III Sum of Squares	df	Mean Square	F	p
Corrected Model	1153147.90	6	192191.31	283.83	.000
Intercept	113.21	1	113.21	.167	.683
Covariate Main Effects					
SATCOMP	22.22	1	22.22	.033	.856
HSGPA	31.40	1	31.40	.046	.830
GRDSTAT	3279.53	1	3279.53	4.84	.028*
Error	758385.03	1120	677.12		
Total	16745975.31	1127			
Corrected Total	1911532.93	1126			

*p<.05

Table 26

ANCOVA Results on Differences Between Degree Completers and Dropouts Within Uncommitted Type by Total College Credits

Source	Type III Sum of Squares	df	Mean Square	F	p
Corrected Model	106756.80	6	17792.80	19.11	.000
Intercept	242.82	1	242.82	.261	.611
Covariate Main Effects					
SATCOMP	26.53	1	26.53	.028	.866
HSGPA	129.66	1	129.66	.139	.710
GRDSTAT	1301.56	1	1301.56	1.39	.240
Error	97752.34	105	930.97		
Total	1602228.24	112			
Corrected Total	204509.15	111			

*p<.05

The results of the ANCOVA analyses are complex. To simplify interpretation, a chart was developed that identifies which factors are useful predictors for which Astin types. See Appendix D for this summary chart.

The fourth research question examined differences among Astin types by demographic categories (gender, race, socio-economic status). Results of chi-square tests, by gender, are summarized in Table 27. The male and female groups revealed statistically significant differences. Males (62.6%) were more likely to be Scholars than females (37.4%) and differed significantly from all the other Astin types except Hedonists. Females (67.5%) were more likely to be Social Activists than males (32.5%) and differed significantly from all the other six Astin types. For Artists, the proportion of females (50.1%) was slightly higher than males (49.9%) and was significantly different than Scholars, Social Activists, and Hedonists. Males (61.9%) were more likely to be Hedonists than females (38.1%) and proportions differed significantly from all other Astin types except Scholars. For Leaders, the proportion of females (52.3%) was higher than males (47.7%) and was significantly different than all other Astin categories except Artist and Uncommitted types. For Status Strivers, the proportion of males (54.1%) was higher than females (45.9%) and was significantly different than all other Astin categories except Artist, Hedonist and Uncommitted types. For Uncommitted types, the proportion of males (52.1%) was slightly higher than females (47.9%) and was significantly different than all other Astin categories except Artists, Leaders, and Status Strivers.

Table 28 reports chi-square differences among Astin types by race. Statistically significant differences were found among the seven Astin types. Among all seven Astin types, the proportion of non-minority students was higher than minority students. For the minority group, the highest proportion was found in the Status Striver (17.8%) type and the lowest located in the Uncommitted (6.1%) type. For the non-minority group, the highest proportion was located in the Uncommitted (93.9%) type and the lowest proportion was found in the Status Striver (82.2%) type.

Follow-up chi-square tests were conducted to locate statistically significant pairs by race. For Scholars, the proportion of non-minorities (89.2%) and minorities (10.8%)

Table 27

Chi-Square Analysis on Differences Among Astin Types by Gender

Characteristic	% Male	% Female	Chi-square	df	p
Typology Category			207.06	6	.000*a,b,d,e,f,g,h,i,j,k,l,p,qr,s
Scholar	62.6	37.4			
Social Activist	32.5	67.5			
Artist	49.9	50.1			
Hedonist	61.9	38.1			
Leader	47.7	52.3			
Status Striver	54.1	45.9			
Uncommitted	52.1	47.9			

*p<.05

Note. Difference Between: a=Scholar and Social Activist, b= Scholar and Artist, d=Scholar and Leader, e=Scholar and Status Striver, f=Scholar and Uncommitted, g=Social Activist and Artist, h=Social Activist and Hedonist, i=Social Activist and Leader, j=Social Activist and Status Striver, k=Social Activist and Uncommitted, l=Artist and Hedonist, p=Hedonist and Leader, q=Hedonist and Status Striver, r=Hedonist and Uncommitted, s=Leader and Status Striver

Table 28

Chi-Square Analysis on Differences Among Astin Types by Race

Characteristic	% Minority	% Non-Monority	Chi-square	df	p
Typology Category			62.39	6	000*a,b,c,ef,h,k,l,no,p,q,s,t,u
Scholar	10.8	89.2			
Social Activist	14.1	85.9			
Artist	11.7	88.3			
Hedonist	7.2	92.8			
Leader	12.9	87.1			
Status Striver	17.8	82.2			
Uncommitted	6.1	93.9			

*p<.05

Note. Difference Between: a=Scholar and Social Activist, b= Scholar and Artist, c=Scholar and Hedonist, e=Scholar and Status Striver, f=Scholar and Uncommitted, h=Social Activist and Hedonist, k=Social Activist and Uncommitted, l=Artist and Hedonist, n=Artist and Status Striver, o=Artist and Uncommitted, p=Hedonist and Leader, q=Hedonist and Status Striver, s=Leader and Status Striver, t=Leader and Uncommitted, u=Status Striver and Uncommitted

significantly differed from all other Astin types except Leaders. For Social Activists, the proportion of non-minorities (85.9%) and minorities (14.1%) significantly differed from Scholar, Hedonist, and Uncommitted types. For Artists, the proportion of non-minorities (88.3%) and minorities (11.7%) significantly differed from all other Astin types except Social Activists and Leaders. For Hedonists, the proportion of non-minorities (92.8%) and minorities (7.2%) significantly differed from all Astin categories except the Uncommitted type. For Leaders, the proportion of non-minorities (87.1%) and minorities (12.9%) significantly differed from Hedonist, Status Striver, and Uncommitted types. For Status Strivers, the proportion of non-minorities (82.2%) and minorities (17.8%) significantly differed from all other Astin types except Social Activists. For Uncommitted types, the proportion of non-minorities (93.9%) and minorities (6.1%) significantly differed from all other Astin types except Hedonists.

Table 29 reports chi-square results among Astin types by socio-economic status. Statistically significant differences were found in low, middle, and high income groups among the seven Astin types. For all Astin categories except Artist and Uncommitted types, there were a significantly higher proportion of high-income students than middle or low-income students. The same was also evident for middle and low income students, respectively. For all Astin types, the proportion of middle and high-income students combined was higher than low and middle-income students combined. This pattern suggests, for all Astin types, participants were more likely to come from middle/high-income socio-economic backgrounds than middle/low-income socio-economic backgrounds. For the high-income group, the highest proportion was found in the Hedonist type (58.1%) type and the lowest located in the Uncommitted (36.7%) type. For the middle-income category, the highest proportion was located in the Uncommitted (41.5%) type and the lowest in the Hedonist (28.4%) type. For the low-income group, data showed the highest proportion was in the Artist (29.1%) type and the lowest proportion was in the Scholar (17.8%) type.

Follow-up chi-square tests were conducted to locate statistically significant pairs by socio-economic status. Scholars differed significantly from all other Astin groups except the Leader and Uncommitted types. For Social Activists, proportions differed significantly from all other Astin categories except the Uncommitted and Artist types.

Table 29

Chi-Square Analysis on Differences Among Astin Types by Socio-Economic Status

Characteristic	% Low Income	% Middle Income	% High Income	Chi-square	df	p
Typology Category				83.71	12	.000*a,b,c,e,h,i,j,l,m n,p,q,r,u
Scholar	17.8	38.5	43.7			
Social Activist	25.3	35.7	39.0			
Artist	29.1	36.7	34.2			
Hedonist	13.4	28.4	58.1			
Leader	18.0	34.3	47.6			
Status Striver	18.2	32.9	48.8			
Uncommitted	21.8	41.5	36.7			

*p<.05

Note. Difference Between: a=Scholar and Social Activist, b= Scholar and Artist, c=Scholar and Hedonist, e=Scholar and Status Striver, h=Social Activist and Hedonist, i=Social Activist and Leader, j=Social Activist and Status Striver, l=Artist and Hedonist, m=Artist and Leader, n=Artist and Status Striver, p=Hedonist and Leader, q=Hedonist and Status Striver, r=Hedonist and Uncommitted, u=Status Striver and Uncommitted

For Artists, proportions differed significantly from all other Astin groups except Uncommitted and Social Activist types. For Hedonists, proportions differed significantly from all other Astin types. This suggests Hedonists are more likely to come from high-income backgrounds than any other Astin type. For Leaders, proportions differed significantly from Artists, Hedonists, and Social Activists. For Status Strivers, proportions differed significantly from all other Astin categories except Leaders. For the Uncommitted type, proportions differed significantly from Status Strivers and Hedonists.

The fifth research question examined differences among Astin types by high school academic performance (GPA, SAT scores). Descriptive statistics on high school grade point average are reported, by typology category, in Table 30. The means ranged from 91.45 (Scholar) to 86.38 (Artist). ANOVA results are reported in Table 31. Statistically significant differences between Astin type groups were found (p=.000). Post hoc results are reported (Table 32) to locate statistically significant differences between Astin types, by high school grade point average. Games-Howell tests revealed that the mean high school grade point average of the Scholar type was significantly higher than the other six Astin types (p=.000). The means of Social Activist, Artist, Hedonist, and Uncommitted types were significantly lower when compared individually against the Scholar, Leader, and Status Striver types. The largest significant difference of 5.07 was between the Scholar and Artist type (p=.000). The smallest significant difference of .05 was between the Leader and Social Activist types (p=.003).

Descriptive statistics on SAT scores are reported, by typology category, in Table 33. The SAT means ranged from 1245.93 (Scholar) to 1109.59 (Social Activist). ANOVA results are reported in Table 34. Statistically significant differences between Astin type groups were found (p=.000).

Post hoc results are reported (Table 35) to locate statistically significant differences between Astin types, by SAT scores. Games-Howell tests showed that the mean SAT score of the Scholar type was significantly higher than the other six Astin types (p=.000). The means of Social Activist, Leader, and Status Striver types were significantly lower when compared individually against Artist, Hedonist, and Scholar types. The largest significant difference of 136.34 was between the Scholar and Social

Table 30

Descriptive Statistics on Differences Among Astin Types by High School Grade Point Average

Typology Category	*n*	M	SD
Scholar	3,261	91.45	4.98
Social Activist	370	86.94	3.96
Artist	290	86.38	6.64
Hedonist	277	86.64	4.07
Leader	699	87.93	4.30
Status Striver	1,169	87.99	4.35
Uncommitted	129	86.76	4.03

Table 31

ANOVA Results on Differences Among Astin Types by High School Grade Point Average

	Sum of Squares	df	Mean Square	F	p
Between Groups	25254.78	6	4209.13	184.51	.000*
Within Groups	141158.85	6188	22.81		
Total	166413.63	6194			

*p<.05

Table 32

Post Hoc ANOVA Results on Differences Among Astin Types by High School Grade Point Average

Astin Type Group (I)	Astin Type Group (J)	Mean Difference (I-J)	Std. Error	p
Scholar	Social Activist	4.51	.22	.000*
	Artist	5.07	.40	.000*
	Hedonist	4.80	.26	.000*
	Leader	3.51	.18	.000*
	Status Striver	3.46	.15	.000*
	Uncommitted	4.69	.36	.000*
Social Activist	Scholar	-4.51	.22	.000*
	Artist	.55	.44	.869
	Hedonist	.29	.32	.969
	Leader	-.99	.26	.003*
	Status Striver	-1.05	.24	.000*
	Uncommitted	.18	.41	.999
Artist	Scholar	-5.07	.40	.000*
	Social Activist	-.55	.44	.869
	Hedonist	-.26	.46	.998
	Leader	-1.55	.42	.005*
	Status Striver	-1.60	.41	.002*
	Uncommitted	-.37	.52	.992
Hedonist	Scholar	-4.80	.260	.000*
	Social Activist	-.29	.320	.969
	Artist	.26	.460	.998
	Leader	-1.29	.294	.000*
	Status Striver	-1.34	.276	.000*
	Uncommitted	-.11	.431	1.000
Leader	Scholar	.3.51	.184	.000*
	Social Activist	.99	.262	.003*
	Artist	1.55	.423	.005*
	Hedonist	1.29	.294	.000*
	Status Striver	-.05	.206	1.000
	Uncommitted	1.17	.390	.046

Table 32 (continued)

Astin Type Group (I)	Astin Type Group (J)	Mean Difference (I-J)	Std. Error	p
Status Striver	Scholar	-3.46	.154	.000*
	Social Activist	1.05	.242	.000*
	Artist	1.60	.410	.002*
	Hedonist	1.34	.276	.000*
	Leader	.05	.206	1.000
	Uncommitted	1.23	.377	.022*
Uncommitted	Scholar	-4.69	.365	.000*
	Social Activist	-.18	.410	.999
	Artist	.37	.527	.992
	Hedonist	.11	.431	1.000
	Leader	-1.17	.390	.046*
	Status Striver	-1.23	.377	.022*

*p<.05

Table 33

Descriptive Statistics on Differences Among Astin Types by Mean SAT

Typology Category	*n*	M	SD
Scholar	3,786	1245.93	125.53
Social Activist	418	1109.59	111.25
Artist	274	1162.43	122.07
Hedonist	328	1148.53	113.74
Leader	780	1116.38	116.08
Status Striver	1,276	1116.48	110.01
Uncommitted	141	1145.31	121.91

Table 34

ANOVA Results on Differences Among Astin Types by Mean SAT

	Sum of Squares	df	Mean Square	F	p
Between Groups	26724124.77	6	4454020.79	308.14	.000*
Within Groups	101121383.50	6996	14454.17		
Total	127845508.30	7002			

*p<.05

Table 35

Post Hoc ANOVA Results on Differences Among Astin Types by Mean SAT

Astin Type Group (I)	Astin Type Group (J)	Mean Difference (I-J)	Std. Error	p
Scholar	Social Activist	136.34	5.81	.000*
	Artist	83.50	7.65	.000*
	Hedonist	97.39	6.60	.000*
	Leader	129.55	4.63	.000*
	Status Striver	129.44	3.69	.000*
	Uncommitted	100.61	10.46	.000*
Social Activist	Scholar	-136.34	5.81	.000*
	Artist	-52.84	9.16	.000*
	Hedonist	-38.94	8.31	.000*
	Leader	-6.79	6.84	.956
	Status Striver	-6.89	6.25	.927
	Uncommitted	-35.72	11.61	.038*
Artist	Scholar	-83.50	7.65	.000*
	Social Activist	52.84	9.16	.000*
	Hedonist	13.89	9.68	.783
	Leader	46.04	8.46	.000*
	Status Striver	45.94	7.99	.000*
	Uncommitted	17.11	12.64	.826
Hedonist	Scholar	-97.39	6.60	.000*
	Social Activist	38.94	8.31	.000*
	Artist	-13.89	9.68	.783
	Leader	32.15	7.53	.000*
	Status Striver	32.04	6.99	.000*
	Uncommitted	3.21	12.03	1.000
Leader	Scholar	-129.55	4.63	.000*
	Social Activist	6.79	6.84	.956
	Artist	-46.04	8.46	.000*
	Hedonist	-32.15	7.53	.000*
	Status Striver	-.10	5.17	1.000
	Uncommitted	-28.93	11.07	.128

Table 35 (continued)

Astin Type Group (I)	Astin Type Group (J)	Mean Difference (I-J)	Std. Error	p
Status Striver	Scholar	-129.44	3.69	.000*
	Social Activist	6.89	6.25	.927
	Artist	-45.94	7.99	.000*
	Hedonist	-32.04	6.99	.000*
	Leader	.10	5.17	1.000
	Uncommitted	-28.82	10.71	.107
Uncommitted	Scholar	-100.61	10.46	.000*
	Social Activist	35.72	11.61	.038*
	Artist	-17.11	12.64	.826
	Hedonist	-3.21	12.03	1.000
	Leader	28.93	11.07	.128
	Status Striver	28.82	10.71	.107

*p<.05

Activist type (p=.000). The smallest significant difference of 32.04 was between Status Strivers and Hedonist types (p=.000).

The sixth research question examined differences among Astin types by college academic performance (GPA, total credit hours). Adjusted means are reported in Table 36 for college grade point average. Results indicate the highest adjusted college grade point average was the Uncommitted type (2.92) and the Status Striver type reported the lowest (2.74), when controlling for high school grade point average and SAT scores. ANCOVA results on differences among Astin types and college grade point average are reported (Table 37) and revealed no significant differences. Adjusted means are reported in Table 38 for total credit hours. Results indicate total credit hours ranged from 118.09 (Status Striver) to 102.42 (Leader) when controlling for high school grade point average and SAT scores. ANCOVA results on differences among Astin types and total credit hours are reported (Table 39) and revealed no significant differences.

In conclusion, the results of this investigation provided results to respond to the six research questions. Because this was a complex study with numerous findings, a summary of statistically significant findings by research question and Astin type scale are reported in Table 40.

A review of these results for the corresponding research questions suggests significant differences between degree completers and dropouts within Astin types by demographics, high school performance, and college academic performance. Significant differences were also found among Astin types by demographics and high school academic performance. There were no significant differences among Astin types by college academic performance. These results and implications for future practice, research, and policy are discussed in Chapter Five.

Table 36

Adjusted Means on Differences Among Astin Types by College GPA

Typology Category	M	Std. Error
Scholar	2.75	.013
Social Activist	2.91	.049
Artist	2.91	.051
Hedonist	2.58	.052
Leader	2.86	.031
Status Striver	2.74	.024
Uncommitted	2.92	.075

Table 37

ANCOVA Results on Differences Among Astin Types by College GPA

Source	Type III Sum of Squares	df	Mean Square	F	p
Corrected Model	586.08	21	27.90	64.65	.000
Intercept	2.98	1	2.98	6.90	.009
Covariate Main Effects					
SATCOMP	.628	1	.628	1.45	.228
HSGPA	7.13	1	7.13	16.52	.000
ASTYPE	1.80	6	.300	.695	.654
Error	2560.01	5931	.432		
Total	49227.61	5953			
Corrected Total	3146.10	5952			

*p<.05

Table 38

Adjusted Means on Differences Among Astin Types by Total College Credits

Typology Category	M	Std. Error
Scholar	116.82	.811
Social Activist	117.41	3.05
Artist	115.61	3.15
Hedonist	107.89	3.24
Leader	102.42	1.90
Status Striver	118.09	1.48
Uncommitted	114.56	4.64

Table 39

ANCOVA Results on Differences Among Astin Types by Total College Credits

Source	Type III Sum of Squares	df	Mean Square	F	p
Corrected Model	676019.21	21	32191.39	19.37	.000
Intercept	3777.38	1	3777.38	2.27	.132
Covariate Main Effects					
SATCOMP	3018.43	1	3018.43	1.81	.178
HSGPA	9732.84	1	9732.84	5.85	.016
ASTYPE	6542.18	6	1090.36	.656	.685
Error	9856141.85	5931	1661.80		
Total	92616117.54	5953			
Corrected Total	10532161.06	5952			

*p<.05

Table 40

Summary of Statistically Significant Findings by Research Question and Astin Type Scale

Research Question / Group Variable	Astin Type Scale: schlr (a)	socactv (b)	artst (c)	hednst (d)	leadr (e)	ststrv (f)	uncmtd (g)
Research Question 1 Chi-Square Tests							
Gender	*					*	
Race					*	*	-
SES	1,2,3*	1,3*		1,3*	1,3*	1,3*	
Low - Income							
Middle-Income							
High-Income							
Research Question 2 t-Tests							
HS GPA	*	*	*		*	*	*
SAT Score	*	*			*		
Research Question 3 ANCOVA Tests							
College GPA		*				*	
Total Credits	*					*	
Research Question 4 Chi-Square Tests							
Gender*							
schlr (a)	-	*	*		*	*	*
socactv (b)	*	-	*	*	*	*	*
artst (c)	*	*	-	*			
hednst (d)		*	*	-	*		*
leadr (e)	*	*		*	-	*	
ststrv (f)	*	*			*	-	
uncmtd (g)	*	*		*			-
Race*							
schlr (a)	-	*	*	*		*	*
socactv (b)	*	-		*			*
artst (c)	*		-	*		*	*
hednst (d)	*	*	*	-	*	*	
leadr (e)				*	-	*	*
ststrv (f)	*		*	*	*	-	*
uncmtd (g)	*	*	*		*	*	-

Table 40 (continued)

Research Question / Group Variable	Astin Type Scale: schlr (a)	socactv (b)	artst (c)	hednst (d)	leadr (e)	ststrv (f)	uncmtd (g)
Research Question 4 Chi-Square Tests							
Research Question 4 Chi-Square Tests							
SES*							
schlr (a)	-	*	*	*		*	
socactv (b)	*	-		*	*	*	
artst (c)	*		-	*	*	*	
hednst (d)	*	*	*	-	*	*	*
leadr (e)		*	*	*	-		
ststrv (f)	*	*	*	*		-	*
uncmtd (g)				*		*	-
Research Question 5 ANOVA Tests							
HS GPA*							
schlr (a)	-	*	*	*	*	*	*
socactv (b)	*	-			*	*	
artst (c)	*		-		*	*	
hednst (d)	*			-	*	*	
leadr (e)	*	*	*	*	-		*
ststrv (f)	*	*	*	*		-	*
uncmtd (g)	*				*	*	-
SAT Score*							
schlr (a)	-	*	*	*	*	*	*
socactv (b)	*	-	*	*			*
artst (c)	*	*	-		*	*	
hednst (d)	*	*		-	*	*	
leadr (e)	*		*	*	-		
ststrv (f)	*		*	*		-	
uncmtd (g)	*	*					-

*p<.05

Note. a = Scholar, b = Social Activist, c = Artist, d = Hedonist, c = Artist, d = Hedonist e = Leader, f = Status Striver, g = Uncommitted

SES=Socio-economic Status

Note. 1 = difference between low and middle income, 2 = difference between middle and high Income, 3 = difference between low and high income

CHAPTER FIVE

DISCUSSION

The purpose of this study was to explore degree completion among college students. Specifically, it employed Astin's (1993) student typology to explore differences between degree completers and dropouts. This chapter discusses the results of the study. The first section includes a discussion of the findings according to the six research questions posed in the study. The second section describes the relationship of the findings to prior research. The third section addresses the implications of the results for future practice, research and policy. The fourth section identifies limitations to the study. The chapter concludes with a brief synopsis of this research project.

Discussion of the Results

Six research questions guided this study. The first three questions examined differences between degree completers and dropouts within the seven Astin types according to demographics, high school academic performance, and college academic performance. To answer the first three research questions, the researcher conducted a series of chi-square tests (research question 1), independent samples t-tests (research question 2), and ANCOVA tests (research question 3).

Research question one examined whether or not there were statistically significant differences between degree completers and dropouts within Astin types by demographic categories (gender, race, socio-economic status). In terms of the gender variable, statistically significant differences were found in only two of the seven Astin types, Scholars and Status Strivers. For Scholars, males (69.2%) were more likely to graduate from college than females (65.4%). For Status Strivers, females (67.4%) were more likely to graduate than males (61.9%).

These findings do not suggest a common pattern explaining why male Scholars or female Status Strivers graduate from college in slightly higher proportions. For Scholars, it is conceivable that high achieving males graduate from college in higher proportions than high achieving women due to academic majors and the climate in those majors. It is also possible that male Scholars might graduate from college at a higher rate than female

Scholars because of the ease of transition within a particular major. For Status Strivers, it is possible that females seeking higher social status are more likely to perceive a college degree as a prerequisite for career success and financial security than males. It is also possible that female Status Strivers may be less entrepreneurial than males and may be less likely to dropout of college to start a business or for career advancement.

In terms of the race variable, it is surprising that the proportion of non-minority degree completers was significantly higher in only two of the seven Astin types, Leaders and Status Strivers. These findings present interesting possibilities with respect to why non-minority students are more likely to graduate from college more than minority students within these two types. For Leaders, it is not surprising that non-minorities were more likely to graduate than minorities. It is possible that non-minority Leaders come from families with higher incomes than minority students. As a result, family income level could be an artifact of race. For Status Strivers, this finding could be linked to Astin's (1993) claim that Status Strivers are more likely to have less-educated parents; hence, for Status Strivers, first generation status could be an artifact of race. The more interesting finding with respect to this question is that there are no differences between graduates and dropouts within the other five Astin types. It is impossible to speculate why this might be the case and further research should be conducted to tease out the reasons for such outcomes. The results do suggest, however, that there may be ways to mediate what have traditionally been lower completion rates for minorities in higher education.

The third demographic variable resulting in statistically significant differences was socio-economic status. The most noteworthy finding of these results is the significantly higher proportion of high-income degree completers compared to the low-income group. This pattern was evident in five of the seven Astin types. This finding confirms that, in general, high-income students are more likely to graduate from college than middle or low-income students regardless of the Astin type. It is plausible that this finding could be attributed to higher income students having increased family support. It is also possible that students from higher income families are less likely to be first generation college students, thus having parents who are more experienced with the challenges of attending college.

Another interesting pattern emerged from these findings. It appears that the proportions of low, middle, and high-income degree completers were similar for all Astin groups except the Artist and Uncommitted types. This pattern suggests that for five types degree completers are more likely to come from high or middle-income families than low-income families. For Artists, this finding is somewhat perplexing given Astin's (1993) assertion that these artistically inclined students tend to come from more affluent family backgrounds. One possible reason for this contradiction could be the availability of course offerings and majors in the arts (performing, visual, creative writing). One of the three institutions involved in the study focused on such majors and that might have influenced the findings in some unforeseen manner. For Uncommitted types, it appears that socio-economic status has minimal influence on graduation or dropping out. It is possible that Uncommitted types drop out of college due to their uncertainties about choice of major and career plans rather than financial uncertainties.

The second research question examined statistically significant differences between degree completers and dropouts, within Astin types, by high school academic performance (GPA, SAT). In terms of high school grade point average, findings suggest that degree completers are more likely to earn better grades in high school than dropouts for all Astin types except Hedonists. Further, the findings suggest that, for both degree completers and dropouts, Scholars were more likely to earn better grades in high school than the other six types. The same was true for SAT scores: the highest scores were found among Scholar degree completers.

The distinctive characteristics (self-concept. expectations) of the Scholar type could possibly explain this pattern. For example, Scholars are those who rate themselves as high academic achievers with expectations of graduating with honors. For dropouts, the highest mean SAT scores were also found among Scholars. This suggests that factors other than academic ability explain dropout rates among these students. Institutional factors, like social climate, might influence dropout rates for Scholars. It is also possible that Scholars transfer to institutions perceived as more academically challenging but appear in the data set employed in this study as dropouts.

For SAT scores, a slightly different pattern emerged as significant differences were found in two other Astin types, the Social Activists and Leaders. For degree

completers, SAT means of Social Activists (1,121) are almost identical to Leaders (1,125). For dropouts, the same was also true: SAT means of Social Activists (1,095) were similar to Leaders (1,098). One possible explanation for this pattern could be related to the characteristics unique to these types. Social Activists are those who are interested in social and political issues as well as helping others. Leaders are those who also rate themselves as socially self-confident and popular among their peers. It is conceivable that these personal characteristics influence performance on standardized tests like the SAT. Another speculation could be that decisions made by Leaders and Social Activists to dropout or graduate from college are aligned with SAT cut scores (e.g., 1,100 mean SAT scores and higher for degree completers and under 1,100 mean SAT scores for dropouts).

The third research question examined statistically significant differences between degree completers and dropouts within Astin types by college academic performance (GPA, total credit hours). To respond to this question, the researcher compared adjusted means (controlling for influences of high school grades and SAT scores) of degree completers and dropouts by Astin type. For the college GPA variable, significant differences were located in two of the Astin types, Social Activists and Status Strivers. For the total college credits variable, significant differences between degree completers and dropouts were located in the Scholar and Status Striver types. The highest adjusted mean college grade point average (3.06) and total college credits (140.19) were found in the Scholar degree completer type. In contrast, the lowest adjusted mean college grade point average (1.95) and total college credits (62.64) were located in the Hedonist dropout type.

Two interesting patterns emerged from these results. First there were statistically significant differences in the adjusted college grade point averages of the Social Activist degree completers (2.87) and dropouts (2.49). It is notable that the adjusted college GPA for dropouts was above the minimum standard required for good academic standing (2.0). Further, ANCOVA results also revealed that neither high school GPA or SAT predict college academic performance (college GPA) of Social Activists. Appendix D provides a summary of these findings.

This means that for those students interested in political or social issues (Social Activists), grades earned in college are attributed to background variables unrelated to

high school performance. It is possible that such background factors could be embedded in the characteristics of Social Activists such as participating in a community action program or influencing social justice issues. It is beyond the scope of this study to identify or assess the extent of such factors or characteristics on college academic performance or degree completion. It is possible however that Social Activists may leave college due to lack of opportunities for volunteer work. It is also possible that Social Activists drop out or transfer to other institutions with campus climates more conducive to political or social discourse.

The second interesting pattern was found in the Status Striver type. For Status Strivers, statistically significant differences were also found between degree completers and dropouts on both dependent measures (college GPA, total college credits). It is interesting that the mean adjusted college GPA for Status Striver dropouts (2.10) was also above 2.0, the minimum standard for acceptable academic progress. Further, ANCOVA results on both dependent measures (college GPA, total college credits) also revealed that high school grades or SAT scores do not predict the overall college academic performance of Status Strivers.

In light of these findings, it is likely that Status Strivers are leaving college based on non-academic factors. It is also possible that these non-academic factors include the unique characteristics embedded in the Status Striver type such as, for example, being very well-off financially or being an authority in a chosen field. Further, Astin (1993) described the Status Striver as materialistic, entrepreneurial, and more likely to major in business related fields. It is plausible that those entrepreneurial-oriented students are leaving college because of their desire to start a small business or their eagerness to pursue employment opportunities prior to college graduation.

The other three research questions addressed differences among Astin types by demographics, high school academic performance, and college academic performance. The fourth research question examined differences among Astin types by demographic categories (gender, race, socio-economic status). The results for the gender variable were nearly identical except the proportion of males and females in the Scholar, Social Activist, and Hedonist types. For both Scholars and Hedonists, the proportion of males and females were almost identical. This means that both types were more likely to be

comprised of males than females. In contrast, Social Activists, are more likely to be female than male. For the race variable, the pattern of results clearly indicated that all seven Astin types are more likely to be non-minority students. Further, it is notable that the proportion of non-minority students ranged from 82.2% (Status Striver) to 93.9% (Uncommitted). Conversely, the proportion of minority students ranged from 6.1% (Uncommitted) to Status Striver (17.8%). In terms of socio-economic status, Hedonists differ significantly from all other Astin types and have the highest proportion of high-income (58.1%) students. This contrasts with Artists who have the highest proportion of low-income (29.1%) students.

Further research is necessary to better explain these results. However, a broad view of these findings might be explained by the academic and socio-economic profile of the sample. The sample was derived from three institutions with selective to highly selective student academic profiles. Therefore, it is possible that the academic and socio-economic characteristics could be an artifact of those students with intentions of achieving academic success (Scholars). Conversely, the same could also be evident for those students from high-income families who typically perform less well academically and aim to spend more hours per week partying (Hedonists) (Astin, 1993).

The fifth research question examined differences among Astin types by high school academic performance (GPA, SAT scores). In terms of high school grade point average, significant differences were located among Astin types. The mean high school grades of Scholars, Leaders and Status Strivers were significantly higher when compared separately against the remaining Astin types. Those who aspire to excel in college (Scholars), assume leadership positions (Leaders), and who are goal oriented (Status Strivers) might be expected to earn higher grades than other types of students.

In terms of mean SAT scores, findings suggest significant differences among Astin types. Scholars, Hedonists, and Artists are more likely to achieve higher SAT scores than Social Activists, Leaders, and Status Strivers. The findings also suggest Scholars are more likely to achieve higher SAT scores than any of the other six Astin types. These results are consistent with Astin's portrayal of Scholars as academically focused students. Therefore, it is not surprising that Scholars are more likely to earn higher SAT scores than the other Astin types. On the other hand, it is surprising that

students who spend their time drinking, smoking, and staying up all night (Hedonists) are more likely to achieve higher SAT scores than students exhibiting strong leadership abilities (Leaders), social justice interests (Social Activists), and aspirations for career success (Status Strivers). For Hedonists, it is plausible that SAT exams were taken earlier (sophomore, junior years) in high school and partying behaviors may have developed during the months closer to their CIRP AFS administration. The findings for Artistic types are harder to understand and more research may be needed to explain why they score higher on SATs than other types.

There is another pattern in the results. Scholars perform better on both dependent measures (GPA and SAT score) than the other six Astin types. For the other six Astin types, the results are somewhat mixed. For example, the Leaders and Status Striver types are more likely to earn better grades in high school but less likely to achieve higher SAT scores than Artists and Hedonists. It is possible that these findings were confounded by differences in the type and rigor (general, college preparation, advanced placement) of high school courses taken. Other confounding factors could include individual differences in achievement motivation and SAT preparation. Any of these factors could explain the pattern of mixed results with respect to differences among Astin types by high school academic performance.

The sixth research question examined differences among Astin types by college academic performance (GPA, total credit hours) controlling for the influence of high school grades and SAT scores. The highest adjusted mean college grade point average was found in the Uncommitted type. In contrast, the lowest adjusted mean was found in the Hedonist types. Among the seven Astin types, the range of adjusted means was rather small. For example, the gap between the highest (2.92) and the lowest (2.58) adjusted mean college grade point average was .34. The adjusted means of Social Activists and Artists were identical (2.91) while Scholars (2.75) and Status Strivers (2.74) were nearly identical. These findings revealed no statistically significant differences among Astin types in terms of mean college grade point average.

For the total credit hours variable, results estimated Status Strivers (118.09) completed the highest number of credits in college. In contrast, results also suggest

Leaders (102.42) earned the least number of credits in college. There were no statistically significant differences in terms of total credit hours earned in college.

While this pattern may seem counterintuitive, it could mean that the reasons associated with earning higher grades in college could be connected with the varying effects of college on each of these Astin types. For example, some types may be more likely to foster their own academic success by seeking out tutoring and advising as well as higher levels of student-faculty interaction, such as mentoring or collaborative learning experiences (internships, service learning, guided research). The same could also be the case in terms of other factors that might explain academic success in college including, for example, differences in emotional maturity, achievement motivation, time management, and changing career goals. Any of these eventualities could explain why no significant differences in college achievement were revealed in these findings.

There are two considerations that should be noted about the results related to college achievement. First, these comparisons included degree completers and dropouts within each type. It is possible that unequal sample sizes among Astin types (and their respective subgroups) contributed to a higher or lower adjusted mean depending on the influence of the covariates. Second, students often experience changes in personal and academic growth while attending college. It is possible that these results were confounded by developmental changes students experience while attending college.

The findings of this study, then, reveal some interesting patterns. The next step in the process is to examine the relationship of these findings to prior studies on the topic of degree completion.

Relationship of the Findings to Prior Research

There were findings in this study that supported results of other studies on degree completion. There were also findings in this study that contradicted results of two prior studies.

Prior Research Supported by Results of This Study

Results for the research questions relating to differences between degree completers and dropouts by demographics and high school academic performance illustrated findings that supported prior research. The first group of studies that supported prior research was related to demographics (gender, race, socio-economic status).

For the gender variable, this study found mixed findings and no consistent pattern between gender and degree completion. This was consistent with results of prior research (Anderson, 1988; Berkner et al., 2002; Horn et al., 2002; Pritchard & Wilson, 2003). The issue of the effect of gender on persistence to degree remains unresolved and future examinations of this relationship are warranted.

Prior research has been conducted using socio-economic status to explain degree completion. Findings from this research revealed that students from higher income families are more likely to graduate from college than students from middle and lower income families. These findings support prior studies conducted on socio-economic status and degree completion by DesJardins et al. (2002), Lewallen (1993), Sewell and Shah (1967), and Stage & Rushin, (1993). Since this pattern is consistent across studies, it suggests that administrators need to pay more attention to persistence issues for students from middle and lower income families.

Results pertaining to high school academic performance supported prior research that examined the relationship between high school grades and persistence to degree. Findings in this study suggest degree completers are more likely to earn better high school grades than dropouts (Astin, 1997; Lewallen, 1993). While this makes intuitive sense, it also suggests that college and university administrators need to work with high school staff to promote higher performance levels for students who aspire to college degrees.

Prior Research Contradicted by Results of This Study

While the findings from this study supported several prior investigations, the results also contradicted those of five prior studies. In terms of race, the present study refuted results of prior research as the proportion of non-minority degree completers was significantly higher in only two of the seven Astin types. Previous studies have concluded that majority students succeed in college in greater numbers than their minority counterparts (Hu & St John, 2001; Porter & National Institute of Independent Colleges and Universities (U.S.), 1990; Tracey & Sedlacek, 1987). Results of this study were not consistent with prior research on race and degree completion.

The results that examined differences between degree completers and dropouts by mean SAT scores contradicted one prior study. In this study, SAT scores were

significantly higher for degree completers in three of seven Astin types. Therefore, this study did not agree fully with Tinto's (1993a) prior research suggesting institutional degree completion rates increase as SAT scores increase. It should be noted, however, that Tinto's (1993a) research included students enrolled at public and private institutions and from a range of selectivity classifications including highly selective, selective, traditional, liberal, and open. Differences in the students included in the samples of these two studies might account for the contradictory results.

A prior study conducted by Hu and St. John (2001) suggested higher grades earned in college increase the chance of graduating from college. The results from this study found this to be the case in only two of the seven Astin types. Therefore, in terms of college academic performance, this study contradicted findings from prior research.

Implications for Future Practice, Research, and Policy

In addition to illuminating previous research on the topic of degree completion, the results of this study had several implications for future practice, research, and policy. To start, this study can be used by campus enrollment officers, student affairs personnel, faculty, and high school counselors.

Enrollment management officers are responsible for recruiting entering students to colleges and universities each year. Likewise, these officers are responsible for improving the graduation rates for their respective campuses. The results from this study can be used by enrollment management officers to better assess demographic characteristics of degree completers and dropouts.

The results of this study could help enrollment management officers to better understand academic characteristics between degree completers and dropouts. Specifically, admissions personnel might focus more attention on recruiting Scholars because they are more likely to graduate from college than the other Astin types. At the same time, admissions and retention officers could use these results to focus retention efforts on those students more likely to dropout from college such as Status Strivers and Social Activists. For example, an intensive service learning experiences or similar freshman interest groups could be designed and implemented to address the needs of Social Activists. Internships or similarly structured learning experiences might be targeted to Status Strivers considering dropping out of college. The bottom line is that

officers at many campuses have access to CIRP scores on students. This means they are able to assign incoming students to Astin types. If they did so, they could target retention efforts at relevant types. Such a strategy might improve overall retention and graduation rates.

Student affairs personnel might also benefit from the findings of this study. The information might provide student affairs professionals with more information about the characteristics of entering freshman such as attitudes, values, self-concept, expectations, and behaviors. For example, Uncommitted students are more likely to enter college with lower academic credentials and with initial intentions of leaving college. These students could possibly benefit from programs and services designed to promote degree completion. Encouraging these students to participate in special theme-based interest groups linked to academic disciplines or by career clusters (e.g. Business, Engineering, Music, Education) might curtail dropout rates. These special interest groups could be organized according to theme or concept in different residence hall settings (e.g., Engineering floors, Music wing).

College and university faculty is another group that may utilize these findings. Results from this study provided important data about the characteristics of entering students. For example, Scholars are those students who perceive themselves as having high academic ability and intellectual self-confidence. This information could be useful in designing honors courses or similar higher-level learning experiences appropriate for high achieving students. On the other hand, Artists are those students who write original works, create artistic work, and are accomplished in performing arts. Faculty could use this information about the Artist types to connect these abilities and talents with congruent learning experiences. For example, admissions officers or registrars could provide information to faculty about the frequency of students interested in creative writing, music performance, and studio art. This information could be used to design special interest course offerings based on student interests.

High school counselors might also use the results of this study to better assist students in the college selection process. Specifically, the results might inform them about the risk factors associated with high school and college academic performance and persistence in college (degree completion, dropping out of college). Conversely, high

school guidance counselors could use these results to better connect high achieving students, such as Scholars, to institutions that best meet their needs and expectations.

This study was also significant for future research. Researchers might replicate this study using a more diverse sample by including students who do not meet criteria for any of the seven Astin types. The participants in this study met criteria for at least one of the seven Astin types. It is possible that by including students with no type as a separate category, researchers will gain more information about students with no type in comparison to those assigned to one of the existing seven Astin types. In addition, researchers might also achieve a greater breadth of knowledge concerning degree completion among students in general.

Second, researchers could conduct a related study by examining persistence at different points in time during the college experience. The participants from this study were sorted into two categories, degree completers and dropouts, based on their status six years after initial enrollment in college. It is possible that by studying intervening years, researchers will be able to better understand patterns of degree completion and dropping out of college. For example, researchers could explore differences between those who stay in college and those who leave college, within Astin types, after completing one, two, or three years of college.

Third, this study could also be replicated using a second survey instrument to assess student experiences and degree completion. The instrument used in this study was the CIRP (AFS) survey instrument. This instrument was used to assign participants to one of Astin's seven student types based on their responses. By using a second survey instrument, such as a first-year experiences or senior survey, researchers could link additional survey data concerning college academic and social experiences with CIRP AFS data and institutional data sets.

Finally, there are implications of the study for future policy. Three policy groups could use these findings. Federal policymakers, charged with oversight of student access and graduation rates, might find this information useful. Findings suggest demographic and academic performance factors linked to college graduation. They might find this information useful when reviewing federal policies designed to increase access and graduation rates among college students.

Second, local school boards of education could also use these findings. Findings suggest degree completers are more like to earn better grades in high school than dropouts. These findings provide K-12 policymakers with more information about high school performance and degree completion. Also, this study could provide more data about the characteristics of high school students, especially Social Activists and Status Strivers. They might use this information to establish local school district policies and inform decisions relating to academics and college planning issues.

Finally, results could be used at the institutional policy level to establish policies that might support programs and services for students more prone to drop out. The results of this study provided sufficient analysis to develop institutional policies geared towards addressing the needs of potential dropouts. They might consider using these findings in further policy matters relating to intervention or persistence.

Limitations

This study had some limitations. The first limitation was the method used to assign participants into one of the seven Astin type groups. Participants were assigned into one dominant Astin type group based on the highest scale score exceeding the minimum cut score. Therefore, it is possible that the dominant type could overlap to some extent with other types. By using this approach, it is possible that the Astin type groups may have been diffused. That is, participants could have responded to the AFS in ways that aligned them with multiple types, yet for purposes of this study they were assigned to a single type. This could have influenced the results.

A second limitation was related to the elements of the institutional data sets. One of the institutions reported high school grades using a four point scale. The other two institutions reported high school grades using a 100 point scale. While the data reported on a four point scale was converted to a 100 point scale, there is possible risk concerning the accuracy of converted data.

A final limitation related to the distribution of the sample. The representation of minority students was disproportionately smaller than non-minority students. The proportion of Uncommitted types was also disproportionately smaller than the other six Astin types. For the Uncommitted type, it was not possible to conduct chi-square tests by

race. Expanding the sample by increasing the number of minority students and Uncommitted types might have yielded different results.

Conclusion

This study examined degree completion among college students using Astin's (1993) student typology framework. The results of this research contributed to the existing body of literature on degree completion. This study was complex and yielded a mix of statistically significant findings. However, four key findings emerged from this study. First, degree completers are more likely to earn better high school grades than dropouts. Second, middle and high-income students are more likely to graduate from college than low-income students. Third, for Status Striver type students, other (non-academic) background variables predict college academic performance in terms of college GPA and total college credits. Fourth, for Social Activist type students, other (non-academic) background variables predict grades earned in college. These findings present a new direction for research on degree completion and research-based student typologies.

The results from this study also provided a more thorough understanding of the seven Astin types including their characteristics and patterns of success in college. Findings suggest more attention needs to be focused on the differences between degree completers and dropouts by Astin type.

Finally, this study was complex and is among the first studies conducted on degree completion and Astin's student typology framework. Further investigation of degree completion using Astin's typology framework is necessary for researchers to better explain patterns of graduation and dropping out of college. Upon completion of such further studies, there will be a greater breadth and depth of information available to those working in higher education and secondary schools. This information will be necessary to better understand degree completion.