Embry, Lowell Randall, Jr.

THE RELATION OF SELECTED PERSONAL, ENVIRONMENTAL, AND ACADEMIC CHARACTERISTICS TO STUDENT PERSISTENCE IN DIFFERENT TYPES OF INSTITUTIONS

The University of Arizona PH.D. 1982

THE RELATION OF SELECTED PERSONAL, ENVIRONMENTAL, AND ACADEMIC CHARACTERISTICS TO STUDENT PERSISTENCE IN DIFFERENT TYPES OF INSTITUTIONS

by

Lowell Randall Embry, Jr.

A Dissertation Submitted to the Faculty of the

CENTER FOR THE STUDY OF HIGHER EDUCATION

In Partial Fulfillment of the Requirements
For the Degree of

DOCTOR OF PHILOSOPHY

In the Graduate College

THE UNIVERSITY OF ARIZONA

1 9 8 2

THE UNIVERSITY OF ARIZONA
GRADUATE COLLEGE

As members of the Final Examination Committee, we certify that we have read the dissertation prepared by Lowell Randall Embry, Jr.

entitled The Relation of Selected Personal, Environmental, and Academic Characteristics to Student Persistence in Different Types of Institutions

and recommend that it be accepted as fulfilling the dissertation requirement for the Degree of Doctor of Philosophy.

	Date
L. O. Nelson	16 April 1982
	Date
Fred D. Harcleroad	April 16, 1982
	Date
A. S. Knoll	4-20-82
	Date
	Date

Final approval and acceptance of this dissertation is contingent upon the candidate's submission of the final copy of the dissertation to the Graduate College.

I hereby certify that I have read this dissertation prepared under my direction and recommend that it be accepted as fulfilling the dissertation requirement.

A. S. Knoll	4-20-82
Dissertation Director	Date

STATEMENT BY AUTHOR

This dissertation has been submitted in partial fulfillment of requirements for an advanced degree at The University of Arizona and is deposited in the University Library to be made available to borrowers under rules of the Library.

Brief quotations from this dissertation are allowable without special permission, provided that accurate acknowledgment of source is made. Requests for permission for extended quotation or reproduction of this manuscript in whole or in part may be granted by the head of the major department or the Dean of the Graduate College when in his judgment the proposed use of the material is in the interests of scholarship. In all other instances, however, permission must be obtained from the author.

SIGNED: Lowell R. Embry Jr

ACKNOWLEDGMENTS

It is with the sharp awareness of human limitation that I reflect upon the assistence that was needed and provided in order to pave the way for this project. The research and preparation of this manuscript has been greatly facilitated by the many people who have comprised an awesome support system.

Most of all, Professor Arthur Grant, my advisor and dissertation director, merits very sincere appreciation. His patient discussions, willingness to provide encouragement, and skillful guidance served as an example of the true spirit of the professorial role. My debt of gratitude to him cannot be adequately expressed in words.

Drs. Larry Nelson and Fred Harcleroad have provided helpful insights and careful criticism of the manuscript which have been incorporated within this volume. I wish to thank them for their personal expertise and participation as committee members.

The staff of the research annex of the Center for the Study of Higher Education deserve special thanks for their generous help with seemingly countless details. No one was ever too busy to help search out some needed information.

Finally, I wish to thank my mother and father, my wife Judy, and my three sons for their everlasting support. I especially hope that this project will in some way act as a model of future persistence in the goals of higher education for my sons: Randall, Bradley, and Christopher. For this dissertation is gratefully dedicated to them.

TABLE OF CONTENTS

TABLE OF CONTENTS--Continued

TABLE OF CONTENTS--Continued

LIST OF TABLES

LIST OF TABLES--Continued

LIST OF TABLES--Continued

ABSTRACT

This study examined the relationship between ten selected characteristics and persistence in different types of four-year institutions. The characteristics examined were divided into three separate clusters: personal (sex, race, religion), environmental (socioeconomic status, parents' educational level, number of children in the family), and academic (aptitude, high-school grades, size, and program).

The data were extracted from the National Longitudinal Study of the High School Class of 1972. The Carnegie classification was used to segregate four-year institutions of higher education into six major categories.

Persistence in higher education was defined and examined in two different ways. In the first instance a persister was a student who enrolled in a particular institution in the fall of 1972 and graduated or continued his/her enrollment in the same type of institution according to the Carnegie classification on a full- or part-time basis through the fall of 1976. In the second instance a transfer student was defined as a student who persisted over the four-year period but moved his/her enrollment to an institution in other than the original Carnegie classification.

First, data were gathered to examine the rates of student persistence. The resulting information was presented in tabular format. The second objective focused on the analysis of the relationship of

the selected characteristics with persistence among and within the six classifications of institutions.

The relationship of the selected characteristics and the distribution of persisting students among the six categories were analyzed. Different types of college-attendance patterns (persist, transfer, dropout) were isolated. These groups were compared using chi-square to determine significance of the comparisons.

The findings were highlighted by the following statements. The recruitment and retention of black students in Research and Doctoral-Granting Universities were found ineffective. There was little difference between males and females in overall persistence rates. An association existed between religion and persistence in certain types of institutions illustrated by a strong overall persistence rate for Jewish students. High socioeconomic status students had a greater opportunity at institutional mobility by transferring into other classifications and then persisting in larger proportions than students in the low and medium range. As parental educational levels increased so did the persistence rates of offspring. Aptitude and high-school grades were found strongly associated with persistence, however, different patterns were found in different institutional classifications.

CHAPTER I

THE PROBLEM AND ITS SETTING

> For every ten students who enter college in the United States, only four will graduate from that college four years later. One more will eventually graduate from the college at some point after those four years. Of the five students who dropped out of the college altogether, four will reenroll at a different college, and of those four reenrollees only two will graduate . . .. This means that of the established 7.6 million undergraduate students enrolled in 1971, roughly 2.3 million students will drop out of higher education completely (Pantages and Creedon, 1978, p. 49).

The United States has invested considerable resources in increasing access to and choice among institutions of higher education over the past decade. This increase in access and choice does not carry with it any guarantees for persistence. The large percentages of high-school graduates attending college, the increase of federal student aid, the escalation of private and public investments in higher education, the marketability of college credentials, and the press of social justice have made it extremely important to find a better method of routing students into the proper category of institution to enhance persistence. The magnitude of the number of individuals affected demands a clearer picture of the factors related to persistence for the counselor, the institution, and the student. Not one of them can afford to ignore a more detailed investigation.

Statement of the Problem

The intent of this research is to examine the relationship between individual characteristics and persistence in different types of institutions. More specifically, we do not presently know to what extent persistence rates may differ among different types of four-year institutions, nor do we know to what extent selected student characteristics relate to persistence among and within categories of institutions of higher education.

Three research questions will be addressed to determine the relationship among selected characteristics, the type of institutions, and persistence of students entering college. The three questions are as follow:

1. Do different classifications or subclassifications of our-year institutions of higher education have different rates of persisting students?
2. Do selected characteristics of persisting students in one classification of institutions of higher education differ significantly from persisting students in other classifications or subclassifications of four-year institutions?
3. Do selected characteristics of persisting students differ significantly from transfer and non-persisting students within their own classification or subclassification of four-year institutions of higher education?

Background of the Study

Student persistence in institutions of higher education has always been a concern. The medieval student who was pressed into the university at Paris or Bologna, ill-prepared mentally and emotionally, encountered the same dilemma about withdrawal each year as his modern counterpart on campus today. He had attended too few lectures, and his work had caused displeasure from his professors. He was now discouraged by his master from trying his examination, and he feared the disgrace of failure. He could not persist (Haskins, 1957, p. 70).

Nor is the lack of persistence a recent phenomenon in American education. Between 1642 and 1699 Harvard College graduated 465 of the 600 students who enrolled (Brubacher and Rudy, 1976, p. 222). Another prominent example of the importance of student persistence dates back to 1872 when a paper entitled The Early Withdrawal of Pupils from School: Its Causes and Its Remedies was presented to the National Education Association (Schreiber, 1967, p. 3).

Land-grant colleges of the late nineteenth century had difficulties in finding adequately prepared students and then keeping them. The principle exemplified by this group of institutions that every American citizen is entitled to receive some form of higher education made access and to some degree persistence a societal concern.

The rising trend of student mental health services in the colleges and universities after World War I heightened concern about students who withdrew. A point of view developed which embraced the mental, emotional, and personal aspects of the student. Their mental well-being as they persisted through their college experience was emphasized.

Counseling programs of every description--physical, emotional, academic, and even spiritual--arose on campuses with the intent of supporting college students. Individual counseling programs modeled on the University of Chicago were constructed on the assumption that higher education should concern itself with the successful development of the whole personality of the student. This admission of a more responsible role by higher education placed part of the burden of student persistence for the first time on the institutions themselves.

It was soon recognized that counseling and student personnel efforts like orientation and individual counseling needed to be undertaken not just in the freshman year but throughout a student's college career. Elementary studies were completed which showed that not only could counseling activities create significant improvement in academic performance but reduce the number of eliminations from college (Duryea, 1973, p. 30).

The doubling of enrollments in the 1950s and 1960s caused by pursuit of the American dream, demand for graduates in the job market, and growing diversity of educational opportunity led to a rebirth of concern regarding persistence from the governmental point of view. With the dramatic impact of the launching of the Russian Sputnik, American higher education entered into a period of profound soul searching leading to greater attention being given to studies of persistence at every level. Both President Kennedy and later Johnson pointed to the high cost of withdrawals for both the youth and the nation in an effort to inspire a greater concern for the problem (Schreiber, 1967, p. 3).

The Iffert study produced for the Department of Health, Education and Welfare in 1957 revealed only 40 percent of college students graduated within a four-year period, and this statistic destroyed any remaining complacency that people may have had about persistence. Finally, the full extent of the problem was exposed in more recent studies that explored the reasons why students drop out. Researchers found that students withdraw for a variety of reasons: personal, environmental, academic, financial, and emotional.

Clark Kerr, president of the University of California during this period, called upon higher education not to rely on the federal government for everything to strengthen the education system. He pointed to the importance of using methods of counseling and guidance for dropouts and a relocation or redirection of students into the proper types of institutions (Kerr, 1963, p. 76). We cannot afford to let dropouts be the forgotten children of higher education.

Although some concern among student personnel administrators developed as well as general societal concern, it has taken the financial accountability of the 1970s to force the institutions themselves to make a sincere effort to discover the underlying factors of persistence on their own campuses. John Millett accused colleges and universities of worrying about student recruitment, admission applications, and initial enrollment and neglecting equal regard for retention rates. Not enough attention is given to students' abilities and interests relating to their learning environment before admission. As institutions prepare for the 1980s, they must worry more about strategies of increasing their retention record (Millett, 1978, p. 32).

With the prospect of decreasing enrollments and the press of accountability, it is now more than ever important to institutions to examine persistence. Past investigations have been beneficial and useful in providing general information to students and educators; however, there is a need for studies using a national data base and comparing persistence among institutional categories. This study responds to this need.

Statement of the Purpose

The purpose of this study is to examine the relationship of personal, environmental, and academic characteristics to persisting, transfer, and non-persisting students in different categories of institutions of higher education.

The target population was the high-school graduating class of 1972. The data came from the National Longitudinal Study of the High School Class of 1972 (NLS) produced for the National Center for Educational Statistics by the Triangle Research Institute. Carnegie Classifications were used to categorize the institutions of higher education.

Within the design of this study three separate clusters of characteristics will be examined. They are as follow:

1. The students' personal characteristics as expressed by sex, race, and religion.
2. The students' environmental characteristics as expressed by socioeconomic status, parents' educational level, and number of children in the family.

3. The students' academic characteristics as expressed by aptitude, high-school grades, high-school program, and high-school size.

Using the basic research questions stated in a later section, these ten selected characteristics were compared among students enrolled in three major classifications of four-year institutions of higher education. This investigation resulted in a number of subquestions involving tests for significance.

Significance of the Study

The selection of the proper college is one of the most important decisions a student can make just as the admission of a freshman class is one of the most important decisions an institution of higher education can make with regard to its future. These two acts of selection are seldom linked together in the research of persistence. A major portion of the significance of this study involved the assumption that a better predictive profile of potential student characteristics would lead to better admission decisions on the part of the student and the institution and that profiles may be different at different types of institutions.

High-school counselors require a better guide to help direct students to a variety of postsecondary opportunities, but data to support effective guidance have been inadequate. Proper guidance at this level is essential because the wrong choice of a college is the most common and disastrous mistake that high-school graduates make.

Persistence in college depends upon how well a student is prepared for the institution he selects.

Students who do not persist in the college they first attend either transfer or withdraw entirely from higher education. Students who transfer are sometimes penalized by differing admissions and degree requirements. A lower priority of student service is often assigned to transfers. Institutional familiarity is lost and must be reconstructed at the students' own time and expense (Walker and Beach, 1976, p. 82).

Students who withdraw completely owing to an unfortunate selection of college waste their own time and the resources of education. Their talents are not adequately developed. Many become embittered. The opportunity to acquire theoretical and practical skills is lost. Less than 10 percent of non-persisting students have had any occupational preparation according to a Labor Department report.

Selection of a student and selection of a college is a two-way street. College admission committees are often woefully inadequate in the way they select the freshman class. They are generally representative bodies with the sole purpose of upholding the institution's standards. They examine prospective students for ability, achievement, and recommendations. However, many decisions are emotional or made on the basis of little evidence.

Institutions can no longer afford to allow admission committees to make uninformed decisions. The impact of this on operations and finance is immediate, and misallocations of limited educational resources are particularly unfortunate in an era of retrenchment. The

financial survival of many colleges will depend not only on increasing the number of students who enter but also on those who persist.

Studies in persistence have tended to concentrate on factors related to the academic characteristics of students on the assumption that college achievement is positively related to persistence. Although a correlation does exist, recent research demonstrated that this is not the only set of variables influencing attrition since there is a higher than predicted attrition rate for high-achieving students (Pantages and Creedon, 1978, p. 50).

A common shortcoming of previous studies is the fact that they fail to examine a wide range of characteristics. Typically, they focus on one or two factors at a time when trying to uncover causes of withdrawal (Gekowski and Schwartz, 1961, p. 193).

Another major problem with past studies is the scope of the research regarding the number and diversity of institutions where data are collected. The few national studies, such as Iffert's and others, suffer from poor sampling and an inadequate data base. Most are individual institutions or regional in scope, and little national significance can be concluded from the results.

The major contribution of this study is the development of persistence rates and the analysis of selected characteristics of persisting students for different categories of four-year institutions using the NLS data. If positive relationships are found in certain characteristics, it will aid students, high-school counselors, and college admission committees in matching the proper student with the proper institutional type.

This study is significant because it examines very important questions which have not been explored fully before such as the relationship of transfer students to the regular groups of persisters and non-persisters, attrition rates at different types of institutions, and relations, if any, of selected environmental, personal, and academic characteristics to persistence at different types of institutions. These answers are important because they provide an additional delineation of persistence variables using a national data base.

Objectives of the Study

The objectives of this study are as follow:

1. To allow for a better understanding of the development of students as they pass through the American higher educational system and of the complex factors associated with individual education and career outcomes.
2. To allow for the development of a more effective way of directing prospective students to the proper category of four-year institution.
3. To assess the impact of different kinds of factors on student persistence in different types of institutions.
4. To better understand the relation of demographic, sociological, and economic factors in American society in relation to enrollment and retention in higher education.

5. To further research the demographic data about retention of college students--their characteristics and individual differences.
6. To gain a better understanding of retention relating to aptitude, personality traits, achievements, and occupational interests.
7. To advance a working knowledge of the primary literature related to the persistence of college students.

Nature of the Study

The methodology used is comparative since the primary focus of the study is the relationship of characteristics associated with persistence of students in several categories of institutions. A persister in each category was examined with the assumption that certain variables affect the ability to persist. Different types of college attendence patterns (transfers, persisters, and non-persisters) were isolated to determine if one group exhibits certain characteristics the other does not. These groups were then compared with respect to factors which are thought to be related to differences among the groups. Chi-square was used to determine the significance of comparisons. The likenesses and differences among persisters at differing categories of institutions were compared by using their mean variances.

A number of difficulties and limitations were encountered during the analysis: lack of control, the unexplained interaction of several relevant factors, and the validity of classifying subjects into certain

groups for comparison (Van Dalen, 1966, p. 223). While the comparative method cannot produce results as precise and reliable as a personally designed and administered experiment, it does reveal valuable information concerning the nature of persistence.

CHAPTER II

REVIEW OF THE LITERATURE

The literature concerning persistence and withdrawal of college students is large and deals with the subject from a number of points of view. The college dropout is evidently a subject of some concern since there is scarcely a college that has not examined the subject in some detail. However, since most studies are concerned with individual institutions, there is a great need for national analyses.

Early Studies

Early reviewers of the literature, Knoell (1966), Summerskill (1962), and Waller (1964) found basic design for follow-up studies sorely lacking. Research tended to be microcosmic in nature instead of macrocosmic. Few national studies had been attempted leaving an unreliable reference to the larger population of students and different types of institutions. In early studies the lack of computer technology prevented the collection and analysis of large amounts of data. Consequently, material about who persists in college and how individual and institutional characteristics are related was not available (Knoell, 1966, p. 64).

The methodologies of early studies were categorized into four types by Knoell (1960, p. 42): the census type of study providing a

base of data for individual institutions, the autopsy study attempting to interview dropouts at the time of withdrawal, the case study involving specific groups or individuals tracked by the institution for the purposes of making decisions about students, and predictive studies relating admission variables to success or failure in college.

Summerskill (1962) concentrated his criticism of the research on the varibles associated with attrition and attrition rates. He exposed the conflicting treatment of social, academic, and motivational factors by exposing poor control of related variables, poor design, and inadequate data sources. It was his distinction to first call for basic research on student motivational factors and their influence on persistence in specific college environments.

Summerskill (1962) reviewed thirty-five studies that created attrition rates for students entering hundreds of differing colleges and universities from 1913 to 1962. Median values were computed for the aggregate of these studies with the results as follow: median loss in four years was 50 percent, and median graduated in four years was 37 percent.

His analysis showed that attrition rates had not changed appreciably over those forty years. Four studies conducted at different colleges in the 1920s showed a loss after four years of 53 percent of entering students. The equivalent figure for six other studies in the 1930s was 50 percent, for eight studies in the 1940s 49 percent, and for five studies in the 1950s 51 percent. Summerskill concluded that American colleges lose on the average approximately one-half of their

students in the four years following enrollment. Of the persisters about 40 percent graduate on schedule and approximately 20 percent graduate beyond four years. These figures have tended to hold for the first half of the twentieth century.

Iffert's (1957) benchmark study became a base for most of the researchers in the 1960s. He conducted the first systematic and comprehensive analysis of the principal variables influencing rentention, transfer, and withdrawal of students by sampling 13,700 students entering higher education from over 150 institutions. His major conclusions were (1) 50 percent of the entering class will be lost to the average college by the end of four years, (b) only 40 percent of the entering class will graduate from that college four years later, (c) the remaining 10 percent will graduate from that college after four years, and (d) 20 percent of the lost students will graduate from that college or from some other institution eventually. Iffert's findings set the stage for investigations to follow.

Eckland (1964, p. 410) found in his longitudinal study that 49.7 percent of the students graduated after varying periods of continuous enrollment, and only 36.5 percent of this group completed their program within four years. Of the students who dropped out of college for any length of time, he found that 70 percent of them reenrolled at either the same institution at a later date or at another, and of these students approximately 55 percent graduated. The Eckland study concluded that of the students who enroll in college approximately 70 percent will eventually graduate from some institution. Despite Eckland's optimism, his results are limited since the entering class of 1952 at

the University of Illinois might be unique to that institution (Trent and Ruyle, 1965, p. 61).

Recent Concerns of the Literature

Despite the extensive early literature regarding persistence in higher education, many shortcomings existed. Tinto (1975, p. 90) found that inadequate attention had been paid to questions of definitions. This often led researchers to lump together forms of leaving behavior that were very different. Pantages and Creedon (1978, p. 50) criticized the concentration of factors relating to persistence that used academic achievement of college students as the major variable influencing attrition since they had found there was a higher than predicted attrition rate for high-achieving students.

Studies of attrition have also been criticized by Marks (1967, p. 220) for having relied too heavily on ex post facto methodology. An investigator using this approach either selected a sample of students who had dropped out or used a postwithdrawal interview. Eckland (1964) tried to avoid this shortcoming by analyzing the students' records to find probable causes or predictors of attrition.

Research on dropouts has also been marked by inadequate conceptualization of the dropout process. This has been particularly noticeable in the lack of attention that longitudinal models pay to interaction of the variables. An understanding of the processes of interaction brings over time differing individuals within the institution to varying levels of persistence (Tinto, 1975, p. 94).

Another failing of past research was that there was limited comparability, with no two data bases being constructed the same

(Panos and Astin, 1968, p. 60). Astin (1972, p. 3) further criticized the early national studies, Iffert (1957) and Trent and Medsker (1968) as being outdated and misleading to some degree. Incomplete samples, inadequate data, and a total reliance on the student responses in the follow up are potential defects which were not dealt with completely in the past.

Astin (1975) continued his research in this area and laid the foundation for another way to examine the phenomenon of college student persistence. His publication, Preventing Students from Dropping Out, is a study involving a cohort of 41,356 students of the 1968 freshman class. Astin used the Cooperative Institutional Research Program's sample of 358 colleges and universities developed to construct national freshman norms. Follow-up data were collected in the fall of 1972. The analysis used dropouts and persisters as the dependent variables and fifty-three personal variables including academic and environmental characteristics as independent variables.

The National Longitudinal Study of the High School Class of 1972 has offered a solid data base for recent studies in persistence. Peng and Fetters (1977) used multiple regression analysis to determine characteristic predictors of persistence in four-year colleges. Their results ranked in order of importance were as follow: college grades, high-school rank, high-school curriculum, educational aspiration, race, and social class background. Sex had no appreciable effect, and blacks were more likely than whites to persist when other characteristics were controlled. Bowers, Pierce, Blitch, and Carr (1977) produced like results examining withdrawal one year after entering college. This

analysis included a larger number of variables and revealed that enrollment in non-college preparatory curricula had a decided negative affect on attendance.

Fetters (1977) used the NLS data to dispute Summerskill (1962) and Astin (1975) by finding a lower overall withdrawal rate than previously reported. Fetter's (1977) results are consistent with those of Tinto (1975) and Sewell and Shah (1967). He concluded his investigation by encouraging future researchers in the area of persistence to make use of the strong data base of the NLS.

Influence of College Environment

Only in the past twenty years has research focused on the importance of the college environment in persistence. Iffert (1957) prompted a reevaluation of earlier assumptions that college environment was to be treated as a constant for all students attending. Subsequent research has provided convincing evidence to support this reevaluation. Individual colleges and types of institutions in their selection of students with respect to aptitude, values, and background create their own kind of persisting and non-persisting student (Pantages and Creedon, 1978, p. 75).

Chickering (1966) and Pervin (1966, p. 245) confirmed in their findings that each college has a climate of its own which attracts a certain type of student. The type of institution selected is, therefore, a significant factor in determining college success and graduation. Students who failed to persist at one type of institution were found to be undergoing stress caused by the institution itself. When

the college milieu met the students' needs, graduation possibilities increased.

Kamens (1971) noted that the college environment affected the formation of vocational and occupational goals. The college attended not only created changes in the students but forced them into line with the institution's goals. Astin (1975, p. 110) confirmed Kamens' finding by showing that higher prestige colleges had lower attrition. Kamens had explained that colleges with higher academic standings discouraged less able students. His findings did go on to show that the influence of institutional prestige on dropout decisions is greatest among students with academic career choices and that prestigious colleges strengthened the meaning and reward value of academic symbols for students, whereas in low prestige colleges grades did not have an impact on dropout rates among students with academic choices.

Little research has been done on college size or type in relation to persistence. Feldman and Newcomb (1969, p. 41) concluded that large institutions contribute to the probability that a student will withdraw. Panos and Astin (1968) discovered that the greater the time it takes to get from one location to another on the campus, the greater the rate of attrition. Iffert (1957, p. 83) showed that transfer students tend to transfer to larger institutions. Kamens (1971) found that large institutions had better retention rates for medium- and higher-ability students. Tinto (1975) believed that college size is related to attrition but was unclear in what manner.

Iffert (1957, p. 21) grouped the institutions he examined by types of control and curricular organization. Under control he used

the two groupings of public and private, further breaking down private into those independent of church control and those dependent completely or partially on a religious order. For curricular organization five categories were used: universities, technical institutions, liberal arts, teachers colleges, and junior colleges.

Astin (1972) developed a unique taxonomy for institutions in his studies on dropouts. Using a college selectivity index of the average academic ability of entering freshmen, he was able in the investigation of student persistence rates to stratify institutions within seven self-determined categories based on the selectivity score for each. Astin (1975) also compared four-year colleges with two-year colleges in his analysis.

Fetters (1977) made use of the NLS data to confirm Summerskill's (1962) finding of a greater attrition existing in state-controlled institutions than in private ones. His report classified institutions in four-year and two-year categories and showed a decided contrast of goal and mission between the public and private. Fetter alluded to the fact that a further delineation would be helpful since the atmosphere is decidedly different in various subcategories of four-year schools.

Characteristics of Persisting, Transfer, and Non-Persisting Students

The first serious attempt to relate student characteristics to success in higher education came in the form of a profile of 35,000 graduating students of the college class of 1961 using the data collected by the National Opinion Research Center. Verner (1965, p. 115) profiled the early sixties graduate as a male, white, native American

from cities over 100,000 in population. He was a member of the middle or upper middle class, of the Protestant religion, and of a family including one member who was a professional or manager. His concept of himself was happy, cooperative, idealistic, and ambitious. Academically, he accomplished a B average, planned to continue his education at the graduate level, and appreciated intellectual concerns. Although primitive in nature and certainly a reflection of the period in which the study was conducted, this early profile led to inquiries by researchers regarding what to look for in selecting students.

Clark (1960, p. 571) concluded that assessing student characteristics at entrance to college provided a base line for determining persistence. These characteristics were labeled input varibles and included ability, emotional state, motivation, values, and attitude. Ryle (1971) postulated that each individual brings a set of characteristics to the university he attends. When the university provides conditions which are compatible with the student's characteristics, persistence will generally occur.

Bucklin and Bucklin (1970) researched selected personality traits of persisters and found they tended to follow a problem to its completion. They tended to have a strong ambition, a sense of responsibility, and systematic work habits. Motivation on the part of the students was highly related to persistence; also since persisting students usually came from families supporting educational advancement, the student was reinforced by his home environment. Marks (1967) confirmed these results by reporting that persisting students were overly concerned with parental expectations.

Spady (1970) reported that students are more likely to persist if they have completion of their education as a clear goal. Students with modest goals are less likely to graduate. Turner (1970) profiled a persisting student as one who was more selective in the choice of an institution, less likely to allow social life to interfere with assignments, and more self-reliant before entering college. He indicated that persisting students generally attend college with the required prerequisites.

Transfer students are often excluded in persistence literature even though by the mere definition of a transfer student there is implied an incompatability between the student and the initial four-year institution attended. Iffert (1957, p. 81) did, however, design his study to gather information on transferring students. He examined the number and percentages of students who transferred, types of institution they transferred from, time of transfer, and the reason for transferring. Of the students he surveyed in four-year institutions, 10.3 percent transferred. Nearly 40 percent of these transferred within the first year of enrollment.

The most important factors affecting transfer were found to be dissatisfaction with academic programs, desire to attend a different institution (size, public, or private), desire to be nearer home, and the need to attend a less expensive institution. Chickering and Hannah (1969, p. 557) determined that a strong feeling of discomfort, a more positive impression regarding another school, and a discovered discrepancy between the college's proposed beliefs and the actual behavior found typified those who failed to persist at their initial institution.

The literature has been directed more intensely toward describing the characteristics of non-persisting students in order to identify the issues relating to dropouts and then develop programs to reduce the occurrence. In Pantages and Creedon's (1978, p. 65) critique of the literature, they found that withdrawal is not necessarily related to academic difficulties but more to personal considerations such as the emotional and adjustmental problems involved in attending college.

Kapur (1972, p. 354) concluded that the factors for withdrawing were multi-dimensional. The decision to drop out is related to a number of intellectual, educational, motivational, psychological, and social characteristics interacting with characteristics of universities and colleges. Knoell's (1966) observation that withdrawal is a mixture of student, institutional, and interpersonal variables is supported by Kapur.

Hannah's (1969) research describes a non-persisting student as more anxious, impulsive, less willing to please their parents and their peers, and less personally integrated. He concluded that they withdraw because of a lack of direction and motivation. Hannah also found a carryover effect of social and academic problems from high school to college.

Personal Factors Associated with Persistence

Sex

Sex is one of the prominent demographic factors investigated in studies of persistence. In many studies little difference has been found in dropout rates between the sexes. Neither Iffert's (1957)

study nor Summerskill's (1962) review found significant differences between men and women. Later studies which do show differences are mixed. Demos (1968) and Nelson (1966) showed men with a higher withdrawal rate while other researchers like Astin (1964) and Tinto (1975) found women dropping out more frequently. However, Fetter's (1977) research using NLS data found no evidence to support the claim of Astin concerning differing withdrawal rates.

Astin (1964) explains the conflict by pointing out that the sex of the student is an important factor at some institutions and not at others. His findings further demonstrate that although the dropout rate is similar among the sexes, men and women do differ in their dropout patterns. In four-year institutions women are more likely to receive their degrees within the expected four-year time, but more men from the initial cohort will eventually graduate since once a woman has dropped out of the education process, she is less likely to reenter than a man.

Cope and Hannah's (1975) conclusions supported the theory that the reasons for dropping out are different between the sexes. Women's major reason for withdrawal was marriage, whereas men tended to drop out more from lack of motivation or interest (Iffert, 1957; Panos and Astin, 1968). Finances were cited as an equally important matter for both sexes. Frequently cited by both men and women in the more recent studies were dissatisfaction with the college environment, lack of interest in studies, uncertain career plans, and uncertain major (Cope and Hannah, 1975). These studies illustrate that men and women consistently give different reasons for withdrawal, men tending to cite

internal and academic reasons while women frequently cited external and non-academic ones.

Sex is not a clear variable in determining persistence except when institutional type is taken into account. At that point it may or may not be significant.

Race

Despite the fact that the literature is mixed on the effect of race on persistence, it is an essential factor in the educational inquiry of a subject of this nature. Astin (1972) found black students had a lower rate of persistence than non-black students though the differences were greater at the two-year colleges than at the four year. However, if ability is controlled, persistence rates for blacks were at least as high as non-blacks. Astin (1975, p. 25) follows up with the finding that no significant differences were found for students who were black, oriental, or American Indian if other factors were controlled. Fetters (1977) found the same pattern of withdrawal rates among races at both two- and four-year institutions.

Religion

Although religion can be considered both an environmental and personal variable, it has been included under personal factors since by the time an individual reaches college age, it often becomes a matter of choice. It is recognized, however, that the freedom of such choices depends to a large extent on the personal makeup of the individual.

Since religion is strongly associated with ethnicity, the individual is exposed to different value systems. Therefore, one group

may place more emphasis on the education of its members, and this may result in a greater number persisting. Newcomb (1962) demonstrated that a student's social-support structure created attitudes that affect success or failure in college. Astin (1973) found that Jewish students were more likely to persist than non-Jewish students.

Turner's (1970) findings give support to the idea that innate motivational and attitudinal personal makeup separates persisters from non-persisters. Trend and Ruyle's (1965) results supported these findings by showing less opportunity is available for students who are allowed to think poorly of themselves. Religion and its association with self-concept remains a complex characteristic which deserves more inquiry.

Academic Factors Associated with Persistence

Aptitude

Aptitude is one of the most measured characteristics in studies of persistence. Summerskill (1962) reported a significant difference between persisting and non-persisting students occurring in sixteen of twenty studies which he reviewed. However, there is evidence that admission decisions have relied too heavily on ability scores. Astin (1973) qualified his early research showing persistence closely related to academic ability by pointing out that it is only half as stable a predictor as high-school rank.

A synthesis of the Sewell and Shah (1967) and Wegner and Sewell (1970) findings found aptitude is the most significant factor affecting

persistence. They rationalized that students with lower aptitude are less likely to meet the academic requirements and are more inclined to drop out. Deever and Hendricks (1970) related ACT results to persistence and discovered a strong relationship between performance in high school and ACT scores in terms of predictive success during the first academic year.

Ability remains an influencing factor, but it is limited in scope and power as a measurement tool. It must be examined in concert with other academic, environmental, and personal variables.

High-School Grades

Most studies which have looked at high-school grades have found significant differences between persisters and non-persisters. Summerskill's (1962) review and most of Astin's research showed strong relationships between high-school grades and persistence. Astin (1972) reported this consistent relationship demonstrating students with A averages in high school were three times as likely to receive their degrees within a four-year period as those who made a C average or lower.

Iffert (1957) had investigated high-school rank and found those students in the top fifth of their class had more than double the probability to graduate than students in the second fifth and eight times more than students in the lower fifth. High-school rank was twice as effective a predictor of persistence as ability scores.

Although a number of studies have found no significant difference with high-school grades, Eckland (1964) argued that the results

may be attributed to the fact that a large number of students transfer or reenter at a later date and are not accounted for in the design of the study being evaluated. Some of these studies have been conducted at highly selective institutions where the differences between high-school grades is small causing other factors to play a more important role in persistence.

Since many investigations have demonstrated a strong relationship between high-school rank or high-school grades and academic performance in college, caution must be taken in equating college academic performance to persistence. High-school performance has been shown by many studies including Eckland (1964) and Morrisey (1971) to predict college performance, but it does not predict college persistence.

Fetters (1977, p. 39) examined the differences between academic and non-academic dropouts and found a relationship. Low high-school grades were far more likely to be associated with academic withdrawals. High-school grades were more predictive than standardized test scores with respect to both academic and non-academic withdrawal.

High-School Size

Though the size of the high school from which the student graduates has not generally been found to be significant to persistence in college, some significance is indicated by the literature. Cope and Hannah (1975) suggested that there is some evidence that graduates of small high schools are more likely to drop out. Little (1959) reported that, although smaller graduating classes did have higher attrition

rates, they cannot be attributed entirely to the school's size but to other factors like achievement, rank, and grades.

Anderson (1974) found that students from small high schools did have a higher attrition rate, and those from large high schools had a higher persistence rate. He does qualify his findings however by indicating his sample may be biased for this characteristic. More studies are needed using high-school size and type in order to illustrate more clearly the relationship to persistence.

High-School Program

Coker (1968) found a significant difference between male and female persisting students in the area of vocational role preference, vocational choice, and type of high-school program. According to Coker persisting students tend to complete high school with a clear picture of their future educational and vocational plans. Verner (1965) found high-school experience to be important in influencing an individual's future higher education.

Environmental Factors Associated with Persistence

Socioeconomic Status

Iffert (1957, p. 62) showed significance between income levels of non-persisting and persisting college students but was careful to conclude it was not a major factor of persistence for his study. He explained that since students in private colleges, generally from families of high income levels, had lower attrition rates, it may have biased the sample for this variable. Eckland (1965) reported that

family income is more a factor in determining the students who will return to college after their first withdrawal.

Fetters (1977, p. 33) reported that family income is a good predictor for entrance into college. His relationship is even stronger for four-year institutions than two-year ones.

Parental Education

Parental education is a significant variable that affects attrition. Farnsworth (1959) reported that if a student's family values education, the student is more apt to adopt those values and persist in college. Astin (1973) discovered that persistence is related to the educational level of the mother. He showed that a mother with a degree tended to increase the chance of her children obtaining theirs. Verner's (1965) profile showed fathers of persisters have a professional or managerial job generally requiring a high level of educational background.

Number of Children in the Family

Little research is available on the relation of the number of children in the family and persistence. There are some data to support the fact that two students on the same campus from the same family tend to persist at much higher rates than average. This can be attributed in part to the reinforcement of family tradition or expectations.

The effects of the educational level of the student's parents when the student enters college is a recent concern of the literature. This has to do more than simply with the academic ability on the part of the helping parents and more with the degree of parental aspirations

and emotional support for the student. Morrisey (1971) revealed that persistence was influenced by the degree of the student's emotional dependence upon his parents because the more dependent a student was on his parents the more often he persisted in pleasing his parents by obtaining a degree. Sandell and Rossman (1971) found that students who portrayed their parents favorably tended to persist. These students were more open in discussing matters with their parents and had a closer family bond.

Conclusion

Based on a review of the literature, it was apparent that rates of persistence varied according to the type of institution examined. Early studies had focused on individual institutions and could not be generalized to other institutions. Iffert's (1957) attempt to classify institutions was valuable, but it lacked the sample and design found in a more recent classification of institutions. Astin provided valuable analysis but classified primarily between four- and two-year colleges.

Recent studies using the NLS data have been of importance in examining persistence rates at four- and two-year colleges. However, a more detailed investigation of the problem is lacking for four-year institutions.

CHAPTER III

THE DESIGN OF THE STUDY

This study was designed to provide additional material and add to the research on persistence in higher education by examining persistence characteristics in several categories of four-year institutions using the Carnegie classification system.

The intent of the study was twofold. First, the persistence rates of several classifications of four-year institutions were examined to provide a clearer picture of the reasons for academic success. Second, ten characteristics selected and grouped in personal, environmental, and academic headings were examined in order to determine their influence on persistence. Use of this information may be of assistance to high-school counselors and students in deciding what kinds of characteristics to look for in the selection of a college type.

The difference between the students who persist, transfer, and drop out in the classification of institution they first enrolled was also studied. This was undertaken in the expectation that it would provide admission committees of institutions with more information regarding enrollment in and withdrawal from specific types of institutions.

Definition of the Terms

Persister: A participating student in the National Longitudinal Study who enrolled in a particular institution in the fall of 1972 and

graduated or continued his/her enrollment in the same type of institution according to the Carnegie classification on a full- or part-time basis through the fall of 1976.

Transfer: A participating student in the National Longitudinal Study who enrolled in a particular institution in the fall of 1972 and although graduated or continued as a student on a full- or part-time basis through the fall of 1976 moved his/her enrollment to an institution in other than the original Carnegie classification.

Non-persister or Dropout: A participating student in the National Longitudinal Study enrolled in a particular institution in the fall of 1972 who withdrew from that institution for at least one semester without transferring to another college.

Carnegie Classification: A classification which divides institutions of higher education into five main categories and a number of sub-categories. The three categories of the four-year institutions, liberal arts colleges, comprehensive universities and colleges, and doctoral-granting institutions will be examined in the study (Appendix A).

Doctoral-Granting Institutions: This group contains institutions of higher education which awarded at least ten Ph.D. degrees in 1970. This category includes research universities.

Comprehensive Universities and Colleges: This group includes state and some private colleges that offer a liberal arts program and at least one professional or occupational program such as teacher training or nursing. Many offer master's degrees but lack a doctoral program.

Liberal Arts Colleges: This category includes colleges that either score five or above on Astin's selectivity index or are among the two hundred leading baccalaureate-granting institutions with a strong liberal arts tradition.

Personal Characteristics: These are selected variables used to formulate a student's external and internal description. Three categorical variables, sex, race, and religion, will be analyzed.

Environmental Characteristics: These are selective variables regarding the student's home environment: number of children in the family, socioeconomic status, and parents' educational level.

Academic Characteristics: These are selective variables describing the student's academic preparation: aptitude, high-school grades, high-school program, and high-school size.

Assumptions of the Study

1. That after correcting for certain oversampling the national sample used by the NLS is representative of high-school graduates.
2. That responses to the NLS base-year and follow-up surveys represent the true status and/or information of the participants.
3. That composite variables and indices calculated by the NLS staff are correct and represent the real status of the respondents for whom they are reported.
4. That the Triangle Research Institute correctly assigned FICE codes to NLS participants attending college.

5. That the Carnegie Classification file at the Center for the Study of Higher Education at the University of Arizona is a correct file for assigning FICE codes to current institutions.

Limitations of the Study

1. The study is subject to the usual limitation inherent in generalizing from s sample to its population.
2. The study is limited to the student characteristics chosen. It is recognized that other characteristics may affect persistence.
3. The study deals only with the graduating high-school class of 1972 and those students who attend college in the fall of that year.
4. The study examines only three of the five Carnegie Classification categories: doctoral-granting institutions, comprehensive universities and colleges, and liberal arts colleges.
5. The study is limited to significance between each characteristic being examined and not any interaction of variables which may occur.

Research Procedure

This section comprises the working design of the study describing in detail the activities needed to accomplish it. Background information on the subjects and data-gathering methods of the NLS,

selection of the characteristics examined in the study, and the method of analyzing the data are presented.

Sample

The data for this study will come from the National Longitudinal Study of the High School Class of 1972. This long-range survey was supported by the National Center for Education Statistics and came about as a result of a 1968 report to determine the specific data requirements for educational leaders and researchers. The NLS is a rich data base designed for a longitudinal examination of a national sample of American high-school seniors. It was created to follow young people after graduation from high school and relate what happens in the immediate years following to prior educational background and personal and environmental characteristics in order to aid them in obtaining a productive and satisfying position within American society.

The base-year study began in the spring of 1972 with the accumulating of data from three sources: the students themselves in a student questionnaire, a school questionnaire providing information about the grading system and types of programs offered, and a special questionnaire directed to the high-school counselors. The base-year data were collected by the Educational Testing Service. The follow-up surveys were performed and data collected by the Triangle Research Institute. Three follow-up surveys have been completed in fall of 1973, 1974, and 1976. The results were placed on a public use computerized data file.

The original study was planned to include 1,200 public, private, and church-related schools including 21,600 students. Due to the

failure of some high schools to return questionnaires or administer the data properly, back-up schools were used to maintain the sample for later surveys. The final NLS sample contains 1,318 schools and 22,532 students. The sample was selected in the following manner:

> The sample design is a stratified, two-stage probability sample of all schools, public and private, in the fifty states and the District of Columbia, which contained twelfth graders during the 1971-72 school year. The first-stage school sampling frame was constructed from computerized school files maintained by the Office of Education and the National Catholic Education Association. It was divided into 600 final strata based upon the following variables:
>
> - Type of control (public or nonpublic)
> - Geographic region (Northeast, North Central, South, and West)
> - Grade 12 enrollment (less than 300, 300 to 599, and 600 or more)
> - Proximity to institutions of higher learning (three categories)
> - Percent minority group enrollment (eight categories, public schools only)
> - Income level of the community (eleven categories, public schools; eight categories, Catholic schools)
> - Degree of urbanization (ten categories)
>
> The number of classes defined by a cross-tabulation of the above stratification varibles is far greater than the number of classes that could, in fact, be utilized in the stratification. Consequently, it was necessary to consolidate, or ignore in some instances, some of the stratification criteria. The final strata involved priority considerations dictated by the higher ranking of the stratification variables and judgment in consolidating the various classes to produce strata of the desired sizes.
>
> Schools in the smallest grade 12 enrollment strata (fewer than 300 seniors) were selected (without replacement) with probabilities proportional to their estimated number of senior students. Schools in the remaining enrollment strata were selected with equal probabilities (again without replacement). The number of disadvantaged students was increased by sampling schools in low-income areas and schools with high proportions of minority group enrollments

at twice the rate used for the remaining schools. Income for any area was based upon either an adjusted 1960 Census median income of the county containing the school or the average adjusted gross income determined from the 1966 tax returns with the same five-digit zip code as that for the school. The minority group enrollments for individual schools were determined from either the records of the Office of Civil Rights or the 1970 Census data by counties.

Within each final stratum, four schools were selected and then two of the four were randomly designated as the primary selections. The other two schools were retained as backup or substitutes and used in the sample only if one or both of the primary schools did not co-operate.

The second stage of the sampling procedure consisted of first drawing a simple random sample of 18 students per school and then selecting five additional students as replacements for possible nonparticipants among the 18. In both cases, the students within a school were sampled with equal probabilities without replacement.

The study excluded schools for physically or mentally handicapped students, schools for legally confined students, and schools (such as area vocational schools) where students were also enrolled in other institutions included in the sample frame. Also excluded were special categories of students such as early graduates and adult education students (Levinsohn, et. al., 1978).

Design

In order to address the three research questions regarding the relationship among selected characteristics, the type of institutions, and persistence of students entering college, the variables to be treated were chosen on the criterion that they have been utilized to differing degrees and found to be of value in other studies. All NLS variables meeting this criteria were used. Characteristic variables were placed in logical groupings: environmental (socioeconomic status, parents' educational level, number of children in the family), personal

(age, sex, and religion), and academic (aptitude, high-school grades, high-school program, and high-school size) in the anticipation of making the analyses more meaningful.

The three major research questions included in this study were analyzed separately for each of the ten selected characteristics. In the first question frequency counts were used to determine persistence rates. Students who had graduated or continued their enrollment four years after high-school graduation in 1972 were compared with the initial students enrolling in each of the six Carnegie classifications of colleges and universities. The resulting percentages or rates of persistence were then exhibited in tabular form. A descriptive analysis of the data was then developed.

The second research question explored differences in persisters among the six institutional types for each selected characteristic. The null hypotheses that persistence in type of school classification was independent of each of the ten selected variables tested. A chi-square test was used in each of these tests.

The main test for the treatment of the selected variables in both research question two and three of the study involved the chi-square. If the probability was significant at the .05 level or the .01 level it was noted and investigated.

Finally, research question three addressed the differences within each Carnegie classification among persisters, transfers, and non-persisters. The ten selected characteristics were tested for each of the six classifications to determine if significance existed in their

college attendance patterns (persister, transfer, and dropout). This resulted in sixty chi-square tests.

Statistical Techniques

The data obtained from the National Longitudinal Study of the High School Class of 1972 were analyzed using the Statistical Package for the Social Sciences (SPSS) (Nie et al., 1975). The SPSS was used to eliminate oversampled minorities in the NLS population to determine frequencies of persisters for comparative analysis of persistence rates and to explore the relationships among selected characteristics and the six institutional classifications using cross-tabulations for descriptive analysis.

Sample Selection. The NLS oversampled minority and disadvantaged students at a rate that produced twice as many of these students in the final cohort as was necessary for a representative sample of the population. In order to assure that this oversampling did not bias the results of the research, a technique was used to overcome this problem. This technique randomly selected only one-half of the minority and disadvantaged students for inclusion in the sample used in the analyses reported here.

Frequency Counts. The use of frequency counts was critical to the establishment of the overall persistence rates of each Carnegie classification of institutions of higher education. Frequency counts also were distributed for each category of the ten selected characteristics creating a wealth of data for comparison. This revealed the

basic distributional features of the variables under study. In order to display these data, tabular formats were generated for each characteristic.

An initial examination of the persistence rates of the characteristic under study allowed the investigator to formulate hypotheses regarding the relationships involved as well as to check the validity of the information to be used in later statistical tests. This provided an insight which carried over to the subsequent statistical resolution.

Cross-Tabulations. Once the distribution of each characteristic was known, the relationships among categories of the variables, college attendance patterns, and the six institutional classifications could be systematically investigated. Cross-tabulation is a numerical tabular display of data, usually in frequency and/or percentage form, in which two variables are cross-classified in order to study relationships between them.

It was found desirable to summarize the relationships of each cross-tabulation table with a test of significance and a measure of association. Chi-square was used to determine if the relationship was statistically independent, and Cramer's V was used to indicate strength of the relationship.

Chi-square, a statistical procedure to compare the observed frequencies with the expected frequencies, tested each characteristic and the classification of institutions. The significance test determined in terms of probability that the observed proportion is a chance departure from the expected proportion of students in different types

of institutions. If the proportion is significant at the .05 or .01 level, it was noted and investigated. Chi-square assumed that the variables were measured at the nominal level. Any data regarding the order of categories were ignored and must be considered in the interpretation for the statistics (Ferguson, 1976, p. 187).

Cramer's V was the statistical test suitable for large tables used to indicate the strength of the relationship among the variables if significance was found using chi-square. In conclusion, frequencies and percentages (summary statistics) were placed in tabular form to describe the different aspects of the data, and chi-square and Cramer's V (inferential statistics) were used to test the relationships of the variables.

CHAPTER IV

ANALYSIS OF THE DATA

Analysis of persistence rates among different types of institutions during the past decade is especially intriguing and important to the academic counseling for higher education and the future of higher education generally; the wide diversity of higher education made the Carnegie classification structure a superior tool for categorizing American institutions. The data base provided by the National Longitudinal Study of the High School Class of 1972 produced the strongest opportunity to date to examine higher educational persistence. It was the association between student characteristics and retention, using a recognized classification system and a national data base, that presented a unique research opportunity.

This chapter addresses the three research questions formulated previously. The first research question involving persistence rates of categories of four-year institutions provided the major contribution of this dissertation. The second and third research questions deal with the significance of student characteristics in persistence.

The data are presented in two sections in this chapter. For practical purposes the first section begins with research question one involving a general discussion of the rates of persistence divided into two subclassifications for each type: doctorate-granting institutions

(1.1-2 and 1.3-4), comprehensive universities (2.1 and 2.2), and liberal arts colleges (3.1 and 3.2). Appendix A explains this delineation. In some instances subcategories have been combined to maintain uniformity in the analyses of the data and to maintain adequate sample sizes. For example, Research Universities I and II have been combined into one category; similarly the subcategories of doctoral-granting institutions have been combined.

The second section focuses on the differences among the personal, environmental, and academic variables of students. Initially, a descriptive analysis of the persistence rates will be done for each variable. The variable's statistical significance will be noted, the strength of the relationship examined, and interpretation and analysis of the findings will follow.

In some cases the results of chi-square testing were inappropriate or indicated no significant difference among the groups for the particular variable examined. In most cases, the null hypotheses stating that variables were independent of college classification could not be rejected. Nonetheless, additional descriptive analyses were recorded in order to reveal trends in the data. A point of clarification should be made that the differences in these cases were attributable to chance variation and require further study to elicit significant results.

Persistence Rates of Institutions

The primary contribution of the study is the development of persistence rates for the differently classified four-year institutions in

the United States. A tabular display of selected characteristics precedes the discussion of a particular variable.

Table 1 shows the persistence rates for the six classifications of institutions as calculated by dividing the number of students who were enrolled during the fall of 1976 (or graduated earlier) by the number of those students who enrolled four years previously in 1972. These rates indicate the percentage of students remaining in the same school or the same institutional classification for four years.

Little difference in persistence rates occurred between Research (1.1-2) and Doctorate-Granting (1.3-4) universities or Comprehensive I (2.1) and Comprehensive II (2.2) universities and colleges. However, liberal arts colleges showed a great disparity in rates. Liberal Arts Colleges I (3.1) maintained the highest persistence rate, 47.9 percent. On the other hand, Liberal Arts Colleges II (3.2) produced the lowest rate, 27.7 percent.

To understand this variance the highly selective nature of the prestigious liberal arts schools in category I must be contrasted to the smaller, private, religious schools which make up the majority of liberal arts colleges in category II. Students enrolled in 3.1 institutions (elite liberal arts colleges) have generally sounder academic backgrounds; stronger, goal-oriented attitudes; and family and peer pressures all positively affecting persistence. Admission standards in these institutions are stringent usually assuring the academic abilities of new students will be high.

On the other hand, many Liberal Arts Colleges II are among the most vulnerable higher education institutions. Many have not been able

Table 1. Rates of Student Persistence Over Four Years by Classification of Institution.

	starting	persisting	
	S	P	%-P
Rsch. Univ. I & II	1047	427	40.8
Ph.D. Granting I & II	668	260	39.0
Comprehensive I	1698	598	35.3
Comprehensive II	385	128	33.3
Liberal Arts I	190	91	47.9
Liberal Arts II	390	108	27.7
Total	4378	1612	36.8

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

to maintain standards, prestige, or financial stability during the inflation of the 1970s to sufficiently attract enough students to survive. Over one-hundred colleges closed their doors. Many were victims of their goals. They were the less visible colleges, located generally in rural areas, with their enrollments limited mainly to full-time students living on campus. They were expensive but not prestigious enough during a time when financial aid struggled to keep up with the escalating cost of higher education. Their enrollment was small and remained that way since they had little ability to attract new clientele: older, part-time, or commuter students. Popular programs in the technical or professional areas were lacking, expensive to undertake, and contrary to their mission. Finally financial support has diminished during the past decade. Many of these institutions did not benefit substantially from the federal student-aid programs of the late 70s, which were designed in part to make federal dollars available to religiously affiliated institutions (Leslie, Grant, and Brown, 1981, p. 47).

Table 2 shows the rates of students who enrolled in 1972 and persisted in higher education regardless of classification. This table gives the total persistence rate of students in four-year institutions including transfers from one classification to another as 55 percent. This percentage is less than those reported in Eckland's (1964) longitudinal study of the freshman class of 1952 at the University of Illinois twenty years earlier and Iffert's 1957 benchmark study. Both of these findings produced a final persistence rate of 70 percent. After only four years of persistence the entering class of 1972 was but 55 percent intact with further slippage possible. But this comparison

Table 2. Rates of Student Persistence Over Four Years Including Transfers From One Classification to Another.

	starting	persisting	
	S	P	%-P
Rsch. Univ. I & II	1047	626	59.8
Ph.D. Granting I & II	668	381	57.1
Comprehensive I	1698	875	51.6
Comprehensive II	385	204	53.0
Liberal Arts I	190	128	67.4
Liberal Arts II	390	194	49.8
Total	4378	2408	55.0

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

may be limited owing to different samples and methodologies.

Again there appears little difference in rates between students enrolling first at research or doctorate-granting institutions (59.8 percent compared to 57.1 percent) or Comprehensive Universities I or II (51.6 percent compared to 53 percent). However, it is important to note that research/doctorate universities had higher rates of persistence than comprehensive institutions both before and after transfers were calculated. This may be accounted for by the selectiveness of the research/doctoral-granting institutions particularly the private ones.

Liberal arts colleges again show the greatest variation. Students enrolled at Liberal Arts Colleges I have the highest percentage of persistence of all six categories with a 67.4 percent, contrasted with the Liberal Arts Colleges II which have the lowest, 49.8 percent.

However Table 3, focusing on the difference in percentage of the persistence rates between students who remain in the same classification and those who transfer to other classifications (comparing the differences in rates between Tables 1 and 2), reveals that students in the less prestigious liberal arts colleges have the greatest success after they transfer to another category of institution. Their persistence rate is increased 22.1 percentage points after they transfer. This can be compared with Comprehensive I colleges, which have the lowest percentage point increase (16.3) after they transfer to other categories. An explanation may lie in the fact that the pool of 2.1 students are of a less selected nature than other classifications and are not as likely to succeed in other more discriminating academic environments. On the other hand, students entering Liberal Arts Colleges

Table 3. Percentage-Point Increase in Persistence Rate After Transfers to Other Classifications are Included.

	WP	TP	I
Rsch. Univ. I & II	40.8	59.8	19.0
Ph.D. Granting I & II	39.0	57.1	18.1
Comprehensive I	35.3	51.6	16.3
Comprehensive II	33.3	53.0	19.7
Liberal Arts I	47.9	67.4	19.5
Liberal Arts II	27.7	49.8	22.1
Total	224.0	338.7	114.7

WP = Persistence rate within the original classification

TP = Total persistence rate including transfers to other classifications

I = Increase in persistence rate expressed by percentage point difference.

II appeared to increase their persistence substantially after they transferred away from the smaller, less diversified liberal arts colleges.

The important perception to retain is that 55 percent of the students entering in 1972 persisted four years (see Table 2) and persisted at the type of institution they originally entered at a rate of 36.8 percent with the highest and lowest rates occurring in Liberal Arts Colleges I and II respectively (see Table 1).

Personal Characteristics

Three personal characteristics were chosen for analysis: race, sex, and religion. Although environmental by most standards, religion was added to discover to what extent the deeply rooted values of the three major American congregations might be associated with persistence within institutional classifications.

Race

The students' race was taken from the base year data of the NLS of the High School Class of 1972. The self-identified race variable on the student questionnaire was compared with the student's school record information for validity.

Since the NLS oversampled minority students at a rate double that of the normal population, a random selection was used to exclude 50 percent of the minorities. Six other racial categories, representing less than 5 percent of the remaining sample, were eliminated. For the purpose of this study racial distinction refers only to black and white.

Table 4. Persistence Rates Within Institutional Classification by Race at Four-Year Institutions.

	White			Black		
	S	P	%-P	S	P	%-P
Rsch. Univ. I & II	926	384	41.5	57	13	22.8
Ph.D. Granting I & II	608	241	39.7	39	11	28.2
Comprehensive I	1433	521	36.4	181	48	26.6
Comprehensive II	327	112	34.3	42	12	28.6
Liberal Arts I	171	82	48.0	10	5	50.0*
Liberal Arts II	327	90	27.6	49	15	30.7
Total	3792	1430	37.7	378	104	27.5

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

*Number of cases precludes valid inferences

Persistence Rates. Black and white students were analyzed in each of the six institutional classifications. The number of black and white students initially enrolling was compared to those completing or still in attendance after four years for a total of twelve persistence rates. Whites ranged from 27.6 percent in Liberal Arts Colleges II to 48.0 percent in Liberal Arts Colleges I while blacks ranged from 22.8 percent in Research Universities to 50 percent in Liberal Arts Colleges I as shown in Table 4.

In the doctorate-granting and comprehensive institutions, blacks persisted at lower percentages. In liberal arts colleges the reverse was true with blacks persisting at a slightly greater percentage in both the elite and non-elite liberal arts colleges.

By far the largest disparity of persistence between black and white students occurred in Research Universities I and II. Only 22.8 percent of the enrolling blacks completed compared to 41.5 percent of whites. A white student therefore had nearly twice the opportunity to persist than a black student in this type of institution. When the persistence rates include transfers to other classifications as illustrated in Table 5, the same difference existed at major research universities between black and white persistence, 33.4 percent compared with 61.1 percent. The probable explanation may lie in a combination of factors: a strong research focus which may inhibit student-faculty relations; higher standards; and a lack of supportive services for minorities.

The persistence rates for black students as they transfer to other classifications of institutions increase at only half the rate of

Table 5. Persistence Rates Including Transfers to Other Classifications by Race at Four-Year Institutions.

	White			Black		
	S	P	%-P	S	P	%-P
Rsch. Univ. I & II	926	565	61.1	57	19	33.4
Ph.D. Granting I & II	608	355	58.4	39	16	41.1
Comprehensive I	1433	770	53.8	181	67	37.1
Comprehensive II	327	183	56.0	42	16	38.1
Liberal Arts I	171	116	67.9	10	7	70.0*
Liberal Arts II	327	164	50.2	49	23	47.0
Total	3792	2153	56.8	378	148	39.2

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

*Number of cases precludes valid inferences

corresponding white students with the exception of black students initially enrolling in elite liberal arts colleges. This may reflect the highly selective nature of the prestigious liberal arts colleges or be due to the small number of cases examined.

The total persistence rates at all types of institutions combined equal 27.5 percent for black and 37.7 for white students who remain in their original classification. That difference increased to 39.2 percent black and 56.8 percent white when compared to the total persistence rates including those students who transferred. This demonstrated that on an average blacks are less likely to persist than whites after they transfer to another category. This 17.6 percent overall difference in persistence rates illustrates a social concern worth additional study.

Research Question 2. The second research question involves a test of students persisting at the institution of initial enrollment to determine if there are significant differences for the selected characteristics among the six classifications of institutions. The null hypothesis was established as follows:

> Persistence in different types of institutions is independent of race.

The tests results of all ten selected characteristics were listed in Table 6 and will be referenced in subsequent discussions of each characteristic in answer to research question two.

In the case of race the null hypothesis was rejected at the .01 level indicating that there were racial differences among persisters in the six categories of institutions.

Table 6. Test Results of Selected Characteristics of Persisting Students Across Institutional Classification.

Selected Characteristics	Raw Chi-Square	Probability	Cramer's V
Race	23.6663	.0003**	.1242
Sex	14.9942	.0104*	.0964
Religion	59.3372	.0000**	.1511
SES	89.3814	.0000**	.1665
Parents Ed. Level	23.4097	.2691	.1677
No. of Children in Family	10.0524	.4359	.0645
Aptitude	71.6264	.0000**	.1739
H.S. Grades	102.8707	.0000**	.1964
H.S. Program	36.6996	.0001**	.1061
H.S. Size	37.3241	.0000**	.1522

* significance at the .05 level

** significance at the .01 level

Persistent blacks were in the largest percentage in Liberal Arts II schools. There 14.3 percent of persisting students were blacks. Two partial explanations may account for this phenomenon. White students may be more financially able to transfer out of a small private environment. However, the main reason was probably that there are a number of small, private black colleges in the 3.2 category who according to their mission encourage and support persistence among their students.

Only 24 of 649 persisting students in research and doctoral-granting institutions were black. This illustrates the difficulties that research and doctoral institutions may have regarding recruitment and retention of black students.

Research Question 3. This group of subquestions was designed to examine the relationship of race and the three attendance patterns (persist, transfer, dropout) with institutional classification. A chi-square test was used to determine significance and a Cramer's V test to determine the strength of the relationship of each classification for a total of twelve tests as shown in Table 7.

The null hypothesis was established and tested for each category of institution as follows:

A student's college attendance pattern at a research university is independent of race.

In two of the six classifications the null hypothesis was rejected indicating that race is not independent of classification for Research Universities and Comprehensive Colleges and Universities I.

Statistically, research institutions show a significant

Table 7. Race of Persisters, Transfers, and Dropouts by Institutional Classification.

Race by Classification	Persisters f	Persisters %	Transfers f	Transfers %	Dropouts f	Dropouts %	Chi-Square, Probability, & Cramer's V
Research I & II							
black	13	22.8	6	10.5	38	66.7	X^2=17.0635
white	384	41.5	181	19.5	361	39.0	p= .0002**
							v= .1318
Ph.D. I & II							
black	11	28.2	5	12.8	23	59.0	X^2= 4.5204
white	241	39.6	114	18.8	253	41.6	p= .1043
							v= .0836
Comprehensive I							
black	48	26.5	19	10.5	114	63.0	X^2=18.3200
white	521	36.4	249	17.4	663	46.3	p= .0001**
							v= .1065
Comprehensive II							
black	12	28.6	4	9.5	26	61.9	X^2= 5.6570
white	112	34.3	71	21.7	144	44.0	p= .0591
							v= .1238
Liberal Arts I							
black	5	50.0	2	20.0	3	30.0	X^2= .0221
white	82	48.0	34	19.9	55	32.2	p= .9890
							v= .0111
Liberal Arts II							
black	15	30.6	8	16.3	26	53.1	X^2= 1.0096
white	90	27.5	74	22.6	163	49.8	p= .6036
							v= .0518

f = frequency counts, % = percentages, X^2 = raw chi-square, p = probability scores, v = Cramer's V.

* significant at the .05 level

** significant at the .01 level

difference in persistence between black and white students. This was noted earlier during the analysis of persistence rates. A dropout rate of 66.7 percent for blacks compared to 39 for white students even though blacks in research universities make up the smallest percentage of students within any institutional group except for Liberal Arts Colleges I where the lowest dropout rate for blacks was found. This difference may lie in the fact that although both types of institutions have high standards, admission policies and decisions may be more selective at the chiefly private, elite liberal arts colleges. Since most of the research universities are public, there would be varying policies of undergraduate admission. This would tend to decrease the likelihood of persistence.

The Comprehensive Universities I category (2.1) showed a college attendance pattern similar to the more selective liberal arts colleges; however, the relationship as tested by the Cramer V was not as strong. Conversely, Comprehensive I schools are largely public with a high priority assigned to serving citizens of the state or local community. Open admission policies and lower tuition charges make higher education more accessible to students from all levels of preparation. More black students enrolled in 2.1 Comprehensive Colleges and Universities I than the combined total of the remaining five classifications.

Sex

The students' sex was extracted from the base year NLS. The self-identified sex variable on the student questionnaire was cross-referenced with students' school records for validity. After 50 percent of the minority and disadvantaged students were excluded from the

sample, the remaining 4,376 valid cases were separated into male and female.

Persistence Rates. For students persisting in their initial institutional classification after four years, there was a negligible difference between males and females, 37.0 percent compared to 36.4 percent. The highest percentage of persistence for both male and female occurred in Liberal Arts I, and the lowest percentage was in Liberal Arts II. This maintained the overall pattern found in the general persistence rates by classification (see Table 8).

Persistence rates by sex and by category did show one notable distinction. Although the enrollment in the Liberal Arts I category for men is lower than women, male persistence rates were higher, 57 percent compared to 41.8 percent. Though fewer men attend the private prestigious liberal arts colleges, once there they had a better chance to persist than women (see Table 9).

This suggests that women who choose elite liberal arts colleges should possibly be better screened and advised at the high-school level before admission. When the persistence rate including transfers to other classifications were examined, the difference between males and females was lower, 70.9 percent contrasted with 64.9 percent. Even though little variance exists between the total persistence rates for men and women, women had a slightly better chance of persisting once they transferred.

Research Question 2. To determine if significance existed, the hypothesis that persistence in a Carnegie classification is independent of sex was tested. The results were noted in Table 6.

Table 8. Persistence Rates Within Institutional Classification by Sex at Four-Year Institutions.

	Male			Female		
	S	P	%-P	S	P	%-P
Rsch. Univ. I & II	583	245	42.0	464	182	39.2
Ph.D. Granting I & II	370	141	38.1	298	119	39.9
Comprehensive I	822	283	34.4	878	315	35.9
Comprehensive II	180	59	32.8	205	69	33.7
Liberal Arts I	79	45	57.0	111	46	41.4
Liberal Arts II	170	47	27.7	220	61	27.7
Total	2204	820	37.2	2176	792	36.4

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

Table 9. Persistence Rates Including Transfers to Other Classifications by Sex at Four-Year Institutions.

	Male			Female		
	S	P	%-P	S	P	%-P
Rsch. Univ. I & II	583	351	60.2	464	275	59.3
Ph.D. Granting I & II	370	204	55.1	298	177	59.4
Comprehensive I	822	418	50.9	878	457	52.1
Comprehensive II	180	95	52.8	205	109	53.2
Liberal Arts I	79	56	70.9	111	72	64.9
Liberal Arts II	170	84	49.4	220	110	50.0
Total	2204	1208	54.8	2176	1200	55.1

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

The null hypothesis was rejected at the .05 level indicating that the differences were not strong.

Another factor when persisters alone are analyzed regards the number of males and females. Males make up the majority of persisters in research/doctorate-granting universities, and females make up the majority of persisters in comprehensive and liberal arts institutions.

Research Question 3. This group of subquestions was designed to examine the relationship of sex and the three major college attendance patterns for students (persist, transfer, dropout) with their institutional classification. The results included a chi-square test to determine significance and a Cramer's V test to determine strength for each classification totalling twelve tests listed in Table 10.

The resulting null hypothesis that a student's college attendance pattern is independent of sex was accepted in each of the six classifications.

Within each classification men and women showed no significant difference regarding persisting, transferring, and dropping out. This confirmed Fetter's (1977) research using NLS data. Also there was nothing to support Astin's (1978, p. 215) finding that women in four-year institutions are more likely to remain enrolled during the four-year period than men.

Religion

The student's religion was determined from the base-year NLS. After the oversampled minorities were extracted, three of the six categories were eliminated leaving the three major American religious

Table 10. Sex of Persisters, Transfers, and Dropouts by Institutional Classification.

Sex by Classification	Persisters f	Persisters %	Transfers f	Transfers %	Dropouts f	Dropouts %	Chi-Square Probability, & Cramer's V
Research I & II							
male	245	42.0	106	18.2	232	39.8	X^2=1.0242
female	182	39.2	93	20.0	189	40.7	p= .5992
							v= .0313
Ph.D. I & II							
male	141	38.1	63	17.0	166	44.9	X^2=1.3794
female	119	39.9	58	19.5	121	40.6	p= .5017
							v= .0454
Comprehensive I							
male	283	34.6	135	16.5	401	49.0	X^2= .3459
female	315	35.9	142	16.2	420	47.9	p= .8412
							v= .0143
Comprehensive II							
male	59	32.8	36	20.0	85	27.2	X^2= .0371
female	69	33.7	40	19.5	96	46.8	p= .9816
							v= .0091
Liberal Arts I							
male	45	57.0	11	13.9	23	29.1	X^2=4.977
female	46	41.4	26	23.4	39	35.1	p= .0834
							v= .1618
Liberal Arts II							
male	47	27.6	37	21.8	86	50.6	X^2= .0181
female	61	27.7	49	22.3	110	50.0	p= .9910
							v= .0065

f = frequency counts, % = percentages, X^2 = raw chi-square, p = probability scores, v = Cramer's V

* significant at the .05 level
** significant at the .01 level

denominations: Protestant, Roman Catholic, and Jewish, totalling 3,330 valid cases.

Persistence Rates. Religion was separated into the six classifications. The number of students enrolling was compared to those completing or still in attendance after four years in the same institutional category for a total of eighteen persistence rates by religion.

Protestants ranged from 30.6 percent in Liberal Arts Colleges II to 47.0 percent in Liberal Arts Colleges I. Roman Catholics ranged from only 20.3 in 3.2s to 65.0 percent in 3.1s. Total persistence of 38.4 percent was the same for Protestants and Catholics but differed with Jews accounting for 47.9 percent (see Table 11).

Jews persisted at a higher rate in every classification except Doctorate-Granting Universities where Catholics were slightly higher and Comprehensive Universities and Colleges II where Protestants led in numbers and percentages. Jews were especially strong in the Liberal Arts Is. Cultural emphasis on education and prestige may account for this distinctive showing.

Catholics, on the other hand, showed their lowest persistence in the small Liberal Arts II and Comprehensive II colleges. This fact is even more magnified when compared with the rates of Catholic students who began in the Comprehensive II and Liberal Arts II institutions and then transferred to other classifications and persisted at higher levels than Protestants as shown in Table 12.

The explanation may lie in the fact that Catholic institutions, especially in the 3.2 category, include religiously controlled colleges many of which are reasonably selective in their academic standards for

Table 11. Persistence Rates Within Institutional Classification by Religion at Four-Year Institutions.

	Protestant			Roman Catholic			Jewish		
	S	P	%-P	S	P	%-P	S	P	%-P
Rsch. Univ. I & II	445	184	41.4	232	103	44.4	103	48	46.6
Ph.D. Granting I & II	286	115	40.2	222	98	44.2	24	10	41.7
Comprehensive I	695	258	37.2	539	199	37.0	58	29	50.0
Comprehensive II	165	61	37.0	123	38	30.9	9	3	33.3
Liberal Arts I	83	39	47.0	41	23	56.1	20	13	65.0
Liberal Arts II	193	59	30.6	89	18	20.3	3	1	33.3
Total	1867	716	38.4	1246	479	38.4	217	104	47.9

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

Table 12. Persistence Rates Including Transfers into Other Classifications by Religion at Four-Year Institutions.

	Protestant			Roman Catholic			Jewish		
	S	P	%-P	S	P	%-P	S	P	%-P
Rsch. Univ. I & II	445	277	62.3	232	149	64.3	103	72	69.9
Ph.D. Granting I & II	286	170	59.5	222	129	58.1	24	18	75.0
Comprehensive I	695	376	54.1	539	301	55.9	58	41	70.7
Comprehensive II	165	91	55.2	123	69	56.1	9	7	77.8
Liberal Arts I	83	56	67.5	41	29	70.8	20	16	80.0
Liberal Arts II	193	96	49.8	89	49	55.1	3	2	66.7
Total	1867	1066	57.1	1246	726	56.9	217	156	71.9

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

admission but may impose tight social structures and lack the atmosphere which students find comfortable in completing their education.

More impressive is the fact that Jewish students have the highest persistence rate in all six classifications when transfers are included for an outstanding 71.8 percent total. Protestants and Catholics are a distant second tied with a total 57 percent rate.

Research Question 2. The hypothesis that a persister's Carnegie classification is independent of religion was tested for significance. The results are placed in Table 6.

For the case of religion, the null was rejected at the .01 level indicating that there was some religious difference among persisters in the six categories of institutions.

Persisting Protestants were, as expected, the largest percentages in every classification. They were especially prominent in 2.2 and 3.2 schools as compared to Catholics and Jews.

Comprehensive I institutions have by far the largest percentage of Protestants and Catholics persisting. In contrast, one-half of all the Jewish students who persist are concentrated in the research universities. In summary, there are more Jewish students in larger, professionally oriented research universities than their Protestant and Catholic counterparts.

Research Question 3. A group of subquestions was designed to examine the relationship of religion and the three major college attendance patterns for students (persist, transfer, dropout) with their institutional classification. The results included a chi-square test and a Cramer's V for each classification resulting in twelve tests

(refer to Table 13).

The null hypothesis that a student's college attendance pattern is independent of religion was accepted in all but one of the six classifications.

In Liberal Arts II institutions the null was rejected at the .05 level indicating significance. This occurrence can best be interpreted by the previously mentioned low persistence rates and high transfer rates of Catholics in this classification.

Environmental Characteristics

Three variables were selected to discover if aspects of a student's environment affect persistence in higher education. Socioeconomic status is a commonly tested characteristic chosen to examine the type of support the student is likely to draw upon for financial assistance. Parent's educational level and the number of children in the family were also included to investigate family support.

Socioeconomic Status

A student's socioeconomic status (SES) was an index developed from the base year NLS. The variable was divided into low, medium, and high ranges and each student classified accordingly. After the oversampled minority and disadvantaged were excluded, 4,369 valid cases remained for analysis.

Persistence Rates. Socioeconomic status was separated into three ranges among the six college classifications and resulted in eighteen persistence rates. Low-range students fluctuated from 22.3 percent in 3.2s to a surprising 50 percent in 3.1s for students who

Table 13. Religion of Persisters, Transfers, and Dropouts by Institutional Classification.

Religion by Classification	Persisters f	Persisters %	Transfers f	Transfers %	Dropouts f	Dropouts %	Chi-Square Probability, & Cramer's V
Research I & II							
Protestant	184	41.3	93	20.9	168	37.8	X^2=2.4795
R. Catholic	103	44.4	46	19.8	83	35.8	p= .6483
Jewish	48	46.6	24	23.3	31	30.1	v= .0399
Ph.D. I & II							
Protestant	115	40.2	55	19.2	116	40.6	X^2=7.4468
R. Catholic	98	44.1	31	14.0	93	41.9	p= .1141
Jewish	10	41.7	8	33.3	6	25.0	v= .0837
Comprehensive I							
Protestant	258	37.1	118	17.0	319	45.9	X^2=6.7029
R. Catholic	199	36.9	102	18.9	238	44.2	p= .1524
Jewish	29	50.0	12	20.7	17	29.3	v= .0509
Comprehensive II							
Protestant	61	37.0	30	18.2	74	44.8	X^2=5.5047
R. Catholic	38	30.9	31	25.2	54	43.9	p= .2393
Jewish	3	33.3	4	44.4	2	22.2	v= .0963
Liberal Arts I							
Protestant	39	47.0	17	20.5	27	32.5	X^2=2.6753
R. Catholic	23	56.1	6	14.6	12	29.3	p= .6136
Jewish	13	65.0	3	15.0	4	20.0	v= .0964
Liberal Arts II							
Protestant	59	30.6	37	19.2	97	50.3	X^2=9.1938
R. Catholic	18	20.2	31	34.8	40	44.9	p= .0500*
Jewish	1	33.3	1	33.3	1	33.3	v= .1270

f = frequency counts, % = percentages, X^2 = raw chi-square, p = probability scores, v = Cramer's V.

* significant at the .05 level
** significant at the .01 level

persisted in their same classification for four years. Medium-range students varied from 31.9 percent to 42.3 percent, and high-range students varied from 24.7 percent to 50 percent (see Table 14).

With the exception of the Liberal Arts I and II colleges, the generalization can be made that as a student's socioeconomic status increases so does the persistence rate. This was illustrated in the total persistence rate column which rose from 30.4 percent in the low group to 40.2 percent in the high.

The higher than expected rate for low-SES students in Liberal Arts Colleges I and the lower than expected rates for high-SES students (24.7 percent) are a deviation from this generalization. Only twelve low-SES students chose 3.1 institutions but six persisted. This suggests that although fewer low-SES students get the opportunity to enroll in 3.1 colleges, the ones who do stand a better chance of persisting, and since admission standards in the elite liberal arts colleges tend to be high, the students admitted tend to be academically well qualified, however the sample is too small for valid inference.

High-SES students, on the other hand, attend Liberal Arts Colleges II in greater number than the two other classifications, yet persist at the lowest level. This may be associated with the fact that high-SES students have the means to attend the small expensive schools as a part of their status but also have the mobility to transfer elsewhere (refer to Table 15). Mobility among the high-SES students is reflected in every classification of institution. Students who transfer to other classifications are much more likely to persist in the high range rather than the low range of socioeconomic status, 61.8

Table 14. Persistence Rates Within Institutional Classification by SES at Four-Year Institutions.

	Low			Medium			High		
	S	P	%-P	S	P	%-P	S	P	%-P
Rsch. Univ. I & II	75	20	26.7	344	127	37.0	627	280	44.7
Ph.D. Granting I & II	58	22	38.0	262	97	37.1	344	141	41.0
Comprehensive I	260	81	31.2	776	265	34.2	659	252	38.3
Comprehensive II	55	15	27.3	178	59	33.2	151	54	35.8
Liberal Arts I	12	6	50.0	52	22	42.3	126	63	50.0
Liberal Arts II	54	12	22.3	182	58	31.9	154	38	24.7
Total	514	156	30.4	1794	628	35.0	2061	828	40.2

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

Table 15. Persistence Rates Including Transfers into Other Classifications by SES at Four-Year Institutions.

	Low			Medium			High		
	S	P	%-P	S	P	%-P	S	P	%-P
Rsch. Univ. I & II	75	32	42.7	344	196	57.0	627	398	63.5
Ph.D. Granting I & II	58	26	44.9	262	138	52.7	344	217	63.1
Comprehensive I	260	105	40.4	776	378	48.8	659	392	59.5
Comprehensive II	55	20	36.4	178	90	50.6	151	93	61.6
Liberal Arts I	12	7	58.4	52	32	61.6	126	89	70.7
Liberal Arts II	54	28	51.9	182	81	44.5	154	85	55.2
Total	514	218	42.4	1794	915	51.0	2061	1274	61.8

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

percent versus 42.4 percent.

Research Question 2. The hypothesis that a persister's Carnegie classification is independent of socioeconomic status was created to determine if significance existed (refer to Table 6).

This hypothesis was rejected at the .01 level, indicating that persistence among institutional classification is dependent upon the level of economic status.

Comprehensive I institutions account for more low- and medium-SES persisters than any other category. In the case of low-SES students, more persisters occur here than among all the remaining combined persisting low-SES students. In contrast, the high-SES students persist in the greatest numbers in research universities. In addition, persisting high-SES students in doctorate-granting universities equal more than both low- and high-SES persisting students combined in this classification.

In summary, fewer low-SES students attend college, and the ones who do have less opportunity to enroll in a variety of institutions probably owing to financial considerations. The number of low-SES persisters are centered in the Comprehensive I institutions. Medium-SES persisting students are more homogeneous among the six classifications. Finally, high-SES persisting students are concentrated in the research/doctorate universities but have the best staying power in the Liberal Arts Colleges I.

Research Question 3. This group of subquestions was designed to determine the relationship of socioeconomic status and the three

major college attendance patterns for students within each institutional classification. The results included a chi-square test to calculate significance and a Cramer's V test to calculate strength for each classification totalling twelve tests (refer to Table 16).

The null hypothesis that a student's college attendance pattern is independent of socioeconomic status was rejected in five of the six classifications.

The Liberal Arts I colleges were the only institutions independent of socioeconomic status. The attendance pattern of students demonstrated independent continuance, transferring, and leaving from socioeconomic status. Although fewer medium- and low-SES students than high-SES students enroll in Liberal Arts Colleges I, the ones who do enroll tend to persist. This has to do with the highly selective mechanisms, both academic and financial, as well as motivational pressures to continue in the 3.1 schools.

For students in research/doctorate-granting universities a dependency between SES and college attendance patterns was evident. This was probably due to the contrast between the low-SES students who tended to drop out and the medium- and high-SES students who persisted and transferred successfully at a much higher rate. This was especially obvious in Research Universities where 280 high-socioeconomic-status students persisted.

At Comprehensive Colleges and Universities I an even stronger dependency manifested itself. More low-SES students enrolled in these categories owing perhaps to reduced financial requirements. Their

Table 16. Socioeconomic Status of Persisters, Transfers, and Dropouts by Institutional Classification.

SES by Classification	Persisters f	Persisters %	Transfers f	Transfers %	Dropouts f	Dropouts %	Chi-Square, Probability, & Cramer's V
Research I & II							
low	20	26.7	12	16.0	43	57.3	X^2=16.0685
medium	127	36.9	69	20.1	148	43.0	p= .0029**
high	280	44.7	118	18.8	229	36.5	v= .0876
Ph.D. I & II							
low	22	37.9	4	6.9	32	55.2	X^2=14.6153
medium	97	37.0	41	15.6	124	47.3	p= .0056**
high	141	41.0	76	22.1	127	36.9	v= .1049
Comprehensive I							
low	81	31.2	24	9.2	155	59.6	X^2=38.9798
medium	265	34.1	113	14.6	398	51.3	p= .0000**
high	252	38.2	140	21.2	267	40.5	v= .1072
Comprehensive II							
low	15	27.3	5	9.1	35	63.6	X^2=22.0809
medium	59	33.1	31	17.4	88	49.4	p= .0002**
high	54	35.8	39	25.8	58	38.4	v= .1693
Liberal Arts I							
low	6	50.0	1	8.3	5	41.7	X^2= 2.5740
medium	22	42.3	10	18.2	20	38.5	p= .6314
high	63	50.0	26	20.6	37	29.4	v= .0823
Liberal Arts II							
low	12	22.2	16	39.6	26	48.1	X^2=17.9165
medium	58	31.9	23	12.6	101	55.5	p= .0013**
high	38	24.7	47	30.5	69	44.8	v= .1516

f = frequency counts, % = percentages, X^2 = raw chi-square, p = probability scores, v = Cramer's V

* significant at the .05 level
** significant at the .01 level

dropout rates were higher than the research/doctoral-granting institutions for all three levels of SES. At Comprehensive Colleges and Universities II and Liberal Arts Colleges II, there was a continuation of this pattern.

In summary, the more financial support a student can draw upon the greater the chance of persistence or mobility to transfer to another classification successfully except in 3.1 colleges. As the students' socioeconomic status gets lower, there is less opportunity for the student to select, transfer, or persist among the institutional classifications.

Parental Education

The parents' educational level was determined from two variables, father's and mother's educational level, extracted from the base year NLS. After 50 percent of the minority and disadvantaged students were excluded from the sample and a composite parents' educational level created by taking the average of the father's and mother's educational background, 4,378 valid cases remained separated into five categories: less than high school, high school, some college, four-year college, and M.A./Ph.D.

Persistence Rates. Parental education was broken into five groups among the six college classifications and resulted in thirty persistence rates. Rates for students whose parents did not complete high school ranged from 26.6 percent in Comprehensive Universities and Colleges II to 45.4 percent in Doctorate-Granting Universities. Those students whose parents did complete high school produced a range from

30.8 percent in 2.1s to 52 percent in 3.1s. Parents having some college ranged from 23.2 percent in 3.2s to 40.1 percent in 1.1-2s. The children of college graduates at the B.A. level produced rates which ranged from 24.0 percent in Comprehensive Universities and Colleges II to 50 percent in Liberal Arts Colleges I. M.A./Ph.D. level group ranged from 26.8 percent in 3.2s to 50.8 percent in 3.1s (see Table 17).

The bulk of students with parental education less than high school enrolled at 2.1 institutions. Four-year college and M.A./Ph.D. parental students gravitated toward the research/doctorate-granting institutions. M.A./Ph.D. parents tended to send a much greater percentage of their children to 3.1 institutions.

When persisting transfers were also considered, a pattern emerged in the persistence rates of students grouped by levels of parental education. As the parents' educational level increased so did persistence rates ranging from 47.6 to 63 percent (refer to Table 18).

The highest rates of persistence were in the M.A./Ph.D. educational level where the parental support apparently provided strong academic and motivational factors. Students with M.A./Ph.D. parents were more likely to transfer and then succeed than those whose parents had less education. The more education a parent had, the more persistent the offspring was in an institution of higher education.

Research Question 2. In order to determine if some statistical significance existed among persisters, the hypothesis that a persister's Carnegie classification is independent of parental educational level was

Table 17. Persistence Rates Within Institutional Classification by Parents Educational Level at Four-Year Institutions.

	Less Than H.S.			High School			Some College			4-Year College			M.A./Ph.D.		
	S	P	%-P	S	P	%-P	S	P	%-P	S	P	%-P	S	P	%-P
Rsch. Univ. I & II	45	14	31.1	204	68	33.3	249	100	40.1	264	122	46.2	280	123	43.9
Ph.D. Granting I & II	44	20	45.4	165	60	36.3	178	64	35.9	166	74	44.5	118	50	42.3
Comprehensive I	193	69	35.7	490	151	30.8	463	162	34.9	285	119	41.3	261	97	37.1
Comprehensive II	30	8	26.6	112	39	34.8	109	42	38.5	75	18	24.0	57	21	36.8
Liberal Arts I	8	3	37.5	25	13	52.0	45	17	31.7	42	21	50.0	70	37	50.8
Liberal Arts II	39	11	28.2	105	35	33.3	99	23	23.2	80	21	26.2	67	18	26.8
Total	359	125	34.8	1101	366	33.2	1143	408	35.7	912	375	41.1	853	346	40.6

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

Table 18. Persistence Rates Including Transfers to Other Classifications by Parents Educational Level at Four-Year Institutions.

	Less Than H.S.			High School			Some College			4-Year College			M.A./Ph.D.		
	S	P	%-P	S	P	%-P	S	P	%-P	S	P	%-P	S	P	%-P
Rsch. Univ. I & II	45	23	51.1	204	108	52.9	249	147	59.0	264	169	64.0	280	179	63.9
Ph.D. Granting I & II	44	23	52.2	165	78	47.2	178	102	57.3	166	108	65.0	118	78	66.1
Comprehensive I	193	88	45.5	490	216	44.0	463	240	51.8	288	173	60.0	261	158	60.5
Comprehensive II	30	11	36.6	112	57	50.5	109	60	55.0	75	40	53.3	57	35	61.4
Liberal Arts I	8	4	50.0	25	16	64.0	45	28	62.2	42	29	69.0	70	51	72.8
Liberal Arts II	39	22	56.4	105	52	49.5	99	42	42.4	80	37	46.2	67	41	61.1
Total	359	171	47.6	1101	527	47.9	1143	619	54.2	912	556	61.0	853	542	63.5

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

tested. The results were noted in Table 6.

In the case of parental education the null was rejected at the .01 level only in the situation where the parental education level was M.A./Ph.D.

Research Question 3. This group of subquestions was designed to determine the relationship of parents' educational level and the three major college attendance patterns for students within each classification. The results included a chi-square and Cramer's V test. This resulted in thirty tests for each totalling sixty tests (see Table 19).

The null hypothesis that a student's college attendance pattern is independent of parental education was found true in every situation. This is in partial contrast to Kowalski's (1977, p. 65) findings indicating that a majority of the fathers of dropouts had not entered college.

Number of Children in the Family

A student's family size was taken from the base year NLS question regarding number of brothers and sisters. After oversampled minority and disadvantaged students were extracted and the seven initial categories collapsed, 3,192 valid cases remained and were divided into three categories: none, one or two, three or more.

Persistence Rates. The number of children in the family separated into the three chosen categories among the six college calssifications produced eighteen individual persistence rates and a total rate for each category of the variable. The total persistence rates ranged

Table 19. Parent's Educational Level of Persisters, Transfers, and Dropouts by Institutional Classification.

Parent's Educ. Level by Classification	Persisters f	Persisters %	Transfers f	Transfers %	Dropouts f	Dropouts %	Chi-Square, Probability, & Cramer's V
Research I & II							
L.T.H.S.	43	35.9	22	18.4	55	45.8	X^2=2.3438
H.S.	76	36.6	37	17.8	95	45.7	p= .9686
S.C.	84	38.6	46	21.1	88	40.4	v= .6800
4-year	115	47.0	44	18.0	86	35.1	
M.A.+	109	43.5	50	20.0	92	36.6	
Ph.D. I & II							
L.T.H.S.	44	44.0	12	12.0	44	44.0	X^2=7.4674
H.S.	71	38.6	21	11.5	92	50.0	p= .4871
S.C.	50	33.6	35	23.5	64	43.0	v= .2174
4-year	59	39.6	28	18.8	62	41.7	
M.A.+	41	42.7	25	26.1	30	31.3	
Comprehensive I							
L.T.H.S.	129	35.2	42	11.5	196	53.4	X^2=4.4730
H.S.	138	29.3	74	15.7	260	55.1	p= .8122
S.C.	150	38.5	62	15.9	178	45.7	v= .1542
4-year	97	39.2	46	18.6	105	42.4	
M.A.+	74	35.6	53	25.5	81	39.0	
Comprehensive II							
L.T.H.S.	22	29.4	12	16.0	41	54.7	X^2=2.0840
H.S.	34	34.7	15	15.3	49	50.0	p= .9118
S.C.	34	36.2	17	18.1	43	45.8	v= .1364
4-year	14	24.2	19	32.8	25	43.0	
M.A.+	19	38.0	11	22.0	20	40.0	
Liberal Arts I							
L.T.H.S.	6	28.6	1	4.8	14	66.7	X^2=5.8571
H.S.	13	56.6	5	21.7	5	21.7	p= .4394
S.C.	18	40.9	10	22.8	16	36.4	v= .4278
4-year	21	51.3	8	19.6	12	29.3	
M.A.+	33	52.4	13	20.7	17	27.0	
Liberal Arts II							
L.T.H.S.	20	25.7	18	23.1	40	51.3	X^2=4.6979
H.S.	40	34.2	21	18.0	56	47.9	p= .5831
S.C.	24	27.9	16	18.6	46	53.5	v= .1872
4-year	12	20.3	12	20.3	35	59.4	
M.A.+	14	27.0	19	36.5	19	36.5	

L.T.H.S. = Less than High School, H.S. = High School, S.C. = Some College, 4-year = 4-year College, M.A.+ = M.A./Ph.D.

from 36.5 to 38.7 percent in each category indicating that overall very little difference exists (refer to Table 20).

However, students who were the only child showed the lowest persistence rates of 18.8 percent in 3.2 institutions and 40 percent in 3.1s. This may relate to the atmosphere of liberal arts colleges which places students in closer contact with each other thereby creating a greater need for interaction on their part, and students with no brothers and sisters are less likely to have these interaction skills. This theory may be supported when these persistence rates are compared with the ones after a student transferred to another classification (see Table 21). In this situation the deviation of the liberal arts schools' rates among the categories of brother and sister are not as great. This indicated that only children are just as likely to persist overall in college as students with brothers and sisters if we include transfers to other classifications.

Research Question 2. The hypothesis that a persister's Carnegie classification is independent of the number of brothers and sisters the student had was tested for significance. The results showed no significance. The results showed no significant relationship and were noted in Table 6.

Research Question 3. A group of subquestions was designed to examine the relationship of the number of siblings in the student's family and the three major college attendance patterns for students within their institutional classification. The results included a chi-square test and a Cramer's V for each classification resulting in twelve

Table 20. Persistence Rates Within Institutional Classification by Number of Brothers and Sisters at Four-Year Institutions.

	None			1 or 2			3 or more		
	S	P	%-P	S	P	%-P	S	P	%-P
Rsch. Univ. I & II	132	53	40.2	408	162	39.7	225	108	48.0
Ph.D. Granting I & II	81	34	42.0	250	102	40.8	162	65	40.2
Comprehensive I	200	75	37.5	642	246	38.4	378	122	32.3
Comprehensive II	44	13	29.6	150	53	35.4	93	34	36.6
Liberal Arts I	15	6	40.0	69	36	52.2	50	26	52.0
Liberal Arts II	48	9	18.8	145	45	31.1	86	20	23.3
Total	520	190	36.5	1664	644	38.7	994	375	37.7

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

Table 21. Persistence Rates Including Transfers to Other Classifications by Number of Brothers and Sisters at Four-Year Institutions.

	None			1 or 2			3 or more		
	S	P	%-P	S	P	%-P	S	P	%-P
Rsch. Univ. I & II	132	74	56.1	408	244	59.8	225	144	64.0
Ph.D. Granting I & II	81	45	55.6	250	152	60.8	162	90	55.6
Comprehensive I	200	109	54.6	642	350	54.6	378	189	50.0
Comprehensive II	44	20	45.5	155	85	54.9	93	53	57.0
Liberal Arts I	15	10	66.7	69	50	72.5	50	33	66.0
Liberal Arts II	48	21	43.8	145	82	56.6	86	40	46.6
Total	520	279	53.7	1664	963	57.9	994	549	55.2

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

tests (see Table 22).

The null hypothesis that a student's college attendance pattern is independent of the number of brothers and sisters was accepted in each classification of institution. Therefore, the number of brothers and sisters of persisters, transfers, and dropouts is not a good predictor of persistence.

Academic Characteristics

Four characteristics were selected as representative of the students' academic background in order to investigate the effect academic preparation has on the ability to persist in four-year institutions of higher education. Aptitude and high-school grades are two traditional variables used in the college admissions process to determine the level of preparation a student has in relation to the standards of the institution the student plans to attend. High-school program and senior-class size were also included to help evaluate the students' academic environment.

Aptitude

A student's aptitude range was determined from the base year NLS of the High School Class of 1972. This variable resulted from a sixty-nine minute test battery measuring both verbal and non-verbal ability. It was a composite of scores generated in vocabulary, math, reading, rote memory, letter groups, and mosaic comparisons (Fetters, 1974, p. 4).

The aptitude composite variable was available in three ranges:

Table 22. Number of Brothers and Sisters of Persisters, Transfers, and Dropouts by Institutional Classification.

Brothers & Sisters by Classification	Persisters f	Persisters %	Transfers f	Transfers %	Dropouts f	Dropouts %	Chi-Square, Probability, & Cramer's V
Research I & II							
none	53	40.2	21	15.9	58	43.9	X^2=5.7144
1 or 2	162	39.7	82	20.1	164	40.2	p= .2215
3 or more	108	48.0	36	16.0	81	36.0	v= .0611
Ph.D. I & II							
none	34	42.0	11	13.6	36	44.4	X^2=4.6804
1 or 2	102	40.8	50	20.0	98	39.2	p= .3217
3 or more	64	37.4	25	14.6	82	48.0	v= .0683
Comprehensive I							
none	75	37.5	34	17.0	91	45.5	X^2=3.9547
1 or 2	246	38.3	104	16.2	292	45.5	p= .4123
3 or more	122	32.3	67	17.7	189	50.0	v= .0403
Comprehensive II							
none	13	29.5	7	15.9	24	54.5	X^2=1.7427
1 or 2	53	34.2	32	20.6	70	45.2	p= .7830
3or more	34	36.6	19	20.4	40	43.0	v= .0546
Liberal Arts I							
none	6	40.0	4	26.7	5	33.3	X^2=2.0174
1 or 2	36	52.2	14	20.3	19	27.5	p= .7326
3 or more	26	52.0	7	14.0	17	34.0	v= .0868
Liberal Arts II							
none	9	18.8	12	25.0	27	56.3	X^2=4.4517
1 or 2	45	31.0	37	25.5	63	43.4	p= .3483
3 or more	20	23.3	20	23.3	46	53.5	v= .0893

f = frequency counts, % = percentages, X^2 = raw chi-square, p = probability scores, v = Cramer's V.

* significant at the .05 level
** significant at the .01 level

low, medium, and high. After the oversampled minorities were excluded from the initial population, 3,155 valid cases remained.

Persistence Rates. The analysis of aptitude subdivided into three ranges among the six college classifications resulted in eighteen individual persistence rates and a total rate for each range. In the low range there was only one student in Liberal Arts Colleges I, and he did not persist. Those remaining in the low range varied from 9.6 percent in Research Universities to 30.1 percent in Comprehensive Universities and Colleges II for a total persistence of 16.3 percent. The medium range was more homogeneous between 27.4 percent in 3.2s to 44.5 in 3.1s totalling 32.4 percent. High-aptitude persistence totalled 43.6 percent (see Table 23). A general impression resulted that as a student's aptitude increased so did the persistence rate. Every Carnegie classification showed a strong positive relation between ability and persistence with the exception of Comprehensive Universities II. Here a surprising 30.1 percent of low-aptitude students persisted. This may result from more individualized remedial support which may be more likely to occur there than in major research universities or liberal arts colleges.

Low-aptitude students were much less likely to attend four-year colleges than those of medium or high aptitude. Of the low-aptitude students attending, the majority were in the comprehensive universities as contrasted with the high-aptitude students who attended the doctorate-granting institutions.

The discrepancy between the low-aptitude students and the other

Table 23. Persistence Rates Within Institutional Classification by Aptitude at Four-Year Institutions.

	Low			Medium			High		
	S	P	%-P	S	P	%-P	S	P	%-P
Rsch. Univ. I & II	21	2	9.6	216	72	33.4	518	241	46.6
Ph.D. Granting I & II	14	2	14.3	197	69	35.1	279	122	43.8
Comprehensive I	114	16	14.1	507	164	32.4	605	258	42.7
Comprehensive II	30	9	30.1	102	29	28.5	149	59	39.6
Liberal Arts I	1	0	--	27	12	44.5	104	56	53.9
Liberal Arts II	35	6	17.2	128	35	27.4	108	32	29.7
Total	215	35	16.3	1177	381	32.4	1763	768	43.6

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

two ranges of aptitude was even more evident when total persistence rates including transfers into other classifications were compared. Low-aptitude students increased to 26 percent persistence contrasted with 63.6 percent of high-aptitude students. The success of transferrability of low-aptitude students was almost nil. This pointed to the fact that low-ability students do not dramatically increase their chance to persist at other institutions once they transfer (see Table 24).

Research Question 2. To determine if statistical significance existed, the null hypothesis that a persister's Carnegie classification is independent of aptitude was composed and results posted (refer to Table 6).

In the case of aptitude the null was rejected at the .01 level indicating that there was some aptitude difference among persisters in the six classifications of four-year institutions. The Cramer's V showed a strong measure of association.

Comprehensive I institutions account for more low- and medium-aptitude persisters than any other classification. There were more persisters among the low-aptitude students in these institutions than in any of the other types of institutions, but the Comprehensive II Colleges and Universities have the greatest percentage of persisters among the low-aptitude students.

Research Question 3. This group of subquestions was designed to determine the relationship of aptitude and the three attendance patterns for students within each institutional classification. The

Table 24. Persistence Rates Including Transfers into Other Classifications by Aptitude at Four-Year Institutions.

	Low			Medium			High		
	S	P	%-P	S	P	%-P	S	P	%-P
Rsch. Univ. I & II	21	6	28.6	216	112	51.9	518	330	63.7
Ph.D. Granting I & II	14	2	14.3	197	99	50.3	279	179	64.2
Comprehensive I	114	25	22.0	507	234	46.2	605	382	63.2
Comprehensive II	30	10	33.3	102	45	44.2	149	95	63.8
Liberal Arts I	1	0	--	27	16	59.3	104	76	73.1
Liberal Arts II	35	13	37.2	128	67	52.4	108	60	55.6
Total	215	56	26.0	1177	573	48.7	1763	1122	63.6

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

results included a chi-square test to calculate significance and a Cramer's V test to calculate the strength of association for each classification totalling twelve tests (see Table 25).

The null hypothesis that a student's college attendance pattern is independent of aptitude was rejected in four of the six classifications.

Liberal Arts I and II colleges were the two classifications in which the hypothesis was accepted. College attendance patterns at these institutions demonstrated an independent relationship among low, medium- and high-aptitude students. In the 3.1 schools the attendance pattern was heavily skewed in the high range with 42.4 percent of the population persisting. The low range included only one student, and he/she dropped out.

Research/Doctorate-Granting Universities showed a strong dependency between aptitude and college attendance patterns. This can best be explained by the contrasting data showing the low-aptitude student tending to drop out while the medium- and high-range student persisted and transferred successfully at a much higher rate. This was obvious in Research Universities where 241 high-aptitude students persisted.

Comprehensive colleges and universities reported an even greater dependency in the case of 2.1s. Although more low-aptitude students enrolled in this category owing perhaps to generally less restrictive admissions criteria, their pattern of college attendance contrasted sharply with the attendance patterns of medium- and high-range matriculants, and the number of students in the medium range were much more

Table 25. Aptitude of Persisters, Transfers, and Dropouts by Institutional Classification.

Aptitude by Classification	Persisters f	Persisters %	Transfers f	Transfers %	Dropouts f	Dropouts %	Chi-Square, Probability, & Cramer's V
Research I & II							
low	2	9.5	4	19.0	15	71.4	X^2=22.2022
medium	72	33.3	40	18.5	104	48.1	p= .0002**
high	241	46.5	89	17.2	188	36.3	v= .1213
Ph.D. I & II							
low	2	14.3	0	0	12	85.7	X^2=20.2291
medium	69	35.0	30	15.2	98	49.7	p= .0004**
high	122	43.7	57	20.4	100	35.8	v= .1437
Comprehensive I							
low	16	14.0	9	7.9	89	78.1	X^2=78.8404
medium	164	32.3	70	13.8	273	53.8	p= .0000**
high	258	42.6	124	20.5	223	36.9	v= .1793
Comprehensive II							
low	9	30.0	1	3.3	20	66.7	X^2=16.8905
medium	29	28.4	16	15.7	57	55.9	p= .0020**
high	59	39.6	36	24.2	54	36.2	v= .1734
Liberal Arts I							
low	0	0	0	0	1	100.0	X^2= 4.2658
medium	12	44.4	4	14.8	11	40.7	p= .3712
high	56	53.8	20	19.2	28	26.9	v= .1271
Liberal Arts II							
low	6	17.1	7	20.0	22	62.9	X^2= 3.8052
medium	35	27.3	32	25.0	61	47.7	p= .4330
high	32	29.6	28	25.9	48	44.4	v= .0838

f = frequency counts, % = percentages, X^2 = raw chi-square, p = probability scores, v = Cramer's V.

* significant at the .05 level
** significant at the .01 level

prone to drop out than in the high range. A similar pattern holds for the 2.2 colleges, but here dependency on aptitude was not quite as strong.

In conclusion, the higher the aptitude a student had the greater the relationship with stronger persistence or mobility to other types of institutions. The lower a student's aptitude, the less the relationship with strong persistence or good mobility.

High-School Grades

A student's high-school grades were taken from the base year NLS of the High School Class of 1972 using the students' school record information for validity. This produced a composite grade for the student on either an alphabetical or numerical grading system for a total number of twenty-six categories.

These categories were combined and then collapsed to present the three alphabetical ranges of A, B, and C. After grades below C were eliminated and the oversampled minority and disadvantaged students were randomly excluded, 3,622 cases were used in the analysis.

Persistence Rates. High-school grades were divided into three ranges among the six college classifications and resulted in eighteen individual persistence rates and a total rate for each range. Persistence of A students fluctuated from 26.3 percent in 3.2s to 50.8 percent in both 1.1-2s and 3.1s. B students varied from 31.9 percent in 3.2s to 52.6 percent in 3.1s, and C students had the lowest and smallest range of persistence moving from 24.9 percent to a high of 34.8 percent (see Table 26).

Table 26. Persistence Rates Within Institutional Classification by High-School Grades at Four-Year Institutions.

	A			B			C		
	S	P	%-P	S	P	%-P	S	P	%-P
Rsch. Univ. I & II	345	175	50.8	366	148	40.5	152	38	25.0
Ph.D. Granting I & II	150	73	48.7	326	163	50.0	185	55	29.8
Comprehensive I	288	110	38.2	569	236	41.5	467	135	28.9
Comprehensive II	74	34	46.0	124	47	37.9	107	30	28.1
Liberal Arts I	69	35	50.8	59	31	52.6	23	8	34.8
Liberal Arts II	61	16	26.3	116	37	31.9	141	35	24.9
Total	987	443	44.9	1560	662	42.4	1075	301	28.0

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

A and B students' total persistence was very close, 44.9 and 42.4 percent. Students in the C range were lower than the A and B range in every classification. Their compared total rate was only 28 percent.

Although A and B range students have like persistence rates, a further look at classifications showed differences. A students gravitated to and initially persisted in the Research Universities while B students led in both categories of liberal arts colleges. An explanation of this situation may be that B students perform better in the smaller, structured academic programs offered by the liberal arts colleges.

The relationship between high-school grades and persistence weakens considerably when rates include transfers to other classifications (refer to Table 27). This was illustrated in the total persistence rate which dropped from 67 percent in the A group to 44.5 percent in the C group. Persistence tended to decrease for students with lower high-school grades in every classification but 3.2.

A students who transferred were more persistent than those in the other two grade ranges. This was especially true for A students who transferred out of liberal arts colleges to other types of four-year institutions. Their persistence rates increased dramatically after transferring. Mobility among the A students was reflected in every category.

Research Question 2. To determine if significance existed, the hypothesis was formed that a persister's Carnegie classification

Table 27. Persistence Rates Including Transfers to Other Classifications by High-School Grades at Four-Year Institutions.

	A			B			C		
	S	P	%-P	S	P	%-P	S	P	%-P
Rsch. Univ. I & II	345	240	69.6	366	219	59.9	152	63	41.5
Ph.D. Granting I & II	150	105	70.0	326	196	60.2	185	90	48.7
Comprehensive I	288	174	60.5	569	332	58.4	467	196	42.0
Comprehensive II	74	51	69.0	124	70	56.5	107	50	46.8
Liberal Arts I	69	52	75.4	59	41	69.5	23	12	52.2
Liberal Arts II	61	39	64.0	116	54	46.6	141	67	47.6
Total	987	661	67.0	1560	912	58.5	1075	478	44.5

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

is independent of high-school grades (refer to Table 6).

In the case of high-school grades the null was rejected at the .01 level indicating that the number of persisters is dependent on high-school grades. High-school grades showed the strongest relationship with persistence of all ten selected characteristics as computed by Cramer's V.

Comprehensive I Colleges and Universities account for more B and C range persisters than any other classification. In contrast, the A students persisted in the greatest numbers in Research Universities. An unusual pattern existed for Liberal Arts Colleges II where only sixteen A students persisted compared to a larger number of persisters in B and C students. This suggests that A students may be transferring from 3.2 schools to other types of institutions.

Research Question 3. This group of subquestions was designed to determine the relationship of high-school grades with the three major college attendance patterns for students within each institutional classification. The results included a chi-square test to calculate significance and a Cramer's V to calculate strength for each classification totalling twelve tests (see Table 28).

The null hypothesis that a student's college attendance pattern is independent of high-school grades was rejected in four of the six classifications.

Comprehensive II Universities and Liberal Arts I Colleges were found independent of high-school grades. Liberal Arts I school's attendance patterns demonstrated a strong, independent relationship among

Table 28. High-School Grade Average of Persisters, Transfers, and Dropouts by Institutional Classification.

High-School Grades by Classification	Persisters f	Persisters %	Transfers f	Transfers &	Dropouts f	Dropouts %	Chi-Square, Probability, & Cramer's V
Research I & II							
A	175	50.7	65	18.8	105	30.4	X^2=38.6791
B	148	40.4	71	19.4	147	40.2	p= .0000**
C	38	25.0	25	16.4	89	58.6	v= .1497
Ph.D. I & II							
A	73	49.0	32	21.5	44	29.5	X^2=19.6041
B	90	40.9	33	15.0	97	44.1	p= .0006**
C	55	29.7	35	18.9	95	51.4	v= .1330
Comprehensive I							
A	110	38.2	64	22.2	114	39.6	X^2=39.9133
B	236	41.5	98	16.9	237	41.7	p= .0000**
C	135	29.0	60	12.9	271	58.2	v= .1228
Comprehensive II							
A	34	45.9	17	23.0	23	31.1	X^2= 9.3653
B	47	37.6	24	19.2	54	43.2	p= .0526
C	30	28.0	20	18.7	57	53.3	v= .1237
Liberal Arts I							
A	35	50.7	17	24.6	17	24.6	X^2= 5.2324
B	31	52.5	10	16.9	18	30.5	p= .2643
C	8	34.8	4	17.4	11	47.8	v= .1316
Liberal Arts II							
A	16	27.6	20	34.5	22	37.9	X^2=10.2864
B	37	31.9	17	14.7	62	53.4	p= .0359*
C	35	24.8	32	22.7	74	52.5	v= .1278

f = frequency counts, % = percentages, X^2 = raw chi-square, p = probability scores, v = Cramer's V.

* significant at the .05 level
** significant at the .01 level

A, B, and C range students. A high rate of persistence was constant leading to the explanation that although fewer students in the B and C grade range enroll in 3.1 colleges, the ones who do enroll tend to persist. This has to do with the highly academic and financially selective nature as well as the motivational factors to continue in the Liberal Arts I Colleges.

Research Universities showed the greatest dependency between high-school grades and college attendance patterns due to the contrasting numbers which showed the C students tending to drop out while the A students tended to persist. This pattern occurred also in 1.3-4, 2.1, and 3.2 schools but not as strongly.

High-School Size

A student's high-school size was taken from the base year NLS of the High School Class of 1972. These academic characteristics were taken from the student's school record information.

High-school size was determined by the number of seniors it graduated in 1972. The high-school size was divided into large (greater than 400) and small (400 or less) senior classes. After the oversampled minority and disadvantaged students were factored out of the sample, 4,378 valid cases remained.

Persistence Rates. Senior class size was separated into two categories among the six college classifications and resulted in twelve persistence rates plus a total rate for each category. High schools with smaller senior class size ranged from 28.8 percent in 3.2s to 47 percent in 3.1s for a total rate of persistence for those students who

persist within the same classification of 36.6 percent. Large high schools produced students with similar ranges totalling 37.2 percent (see Table 29).

As students began to transfer from one college classification to another, a slight pattern was noted. Students from large high schools persisted at greater rates than those from smaller high schools in every initial category except Comprehensive Universities and Colleges II. This was reflected in the total persistence rate of 57.6 percent in the large schools as opposed to 53.5 percent in the smaller schools (refer to Table 30).

Research Question 2. The hypothesis that a persister's Carnegie classification is independent of high-school size was tested for significance.

In the case of high-school size the null hypothesis was rejected at the .01 level indicating that there was a difference in high-school size among persisters in the six categories of institutions (see Table 6).

Since more students attended high schools with senior class size of less than 400, it was not unusual to find more numbers of persisters in every college classification coming from these smaller schools. However, there was a definite trend of the smaller high schools to place more students in college and then for those students to persist in 2.2 and 3.2 institutions when compared to larger high schools. On the other hand, students from larger high schools placed their greatest number of persisters in the Research Universities.

Table 29. Persistence Rates Within Institutional Classification by Senior Class Size at Four-Year Institutions.

	Less than 400			More than 400		
	S	P	%-P	S	P	%-P
Rsch. Univ. I & II	560	221	39.5	487	206	42.3
Ph.D. Granting I & II	410	162	39.6	258	98	38.3
Comprehensive I	1111	395	35.6	587	203	34.6
Comprehensive II	276	95	35.5	109	33	30.3
Liberal Arts I	115	54	47.0	75	37	49.4
Liberal Arts II	275	79	28.8	115	29	25.3
Total	2747	1006	36.6	1631	606	37.2

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

Table 30. Persistence Rates Including Transfers to Other Classifications by Senior Class Size at Four-Year Institutions.

	Less than 400			More than 400		
	S	P	%-P	S	P	%-P
Rsch. Univ. I & II	560	326	58.3	487	300	61.6
Ph.D. Granting I & II	410	229	55.9	258	152	59.4
Comprehensive I	1111	561	50.5	587	314	53.5
Comprehensive II	276	150	54.4	109	54	49.6
Liberal Arts I	115	69	60.0	75	59	78.7
Liberal Arts II	275	134	48.8	115	60	52.2
Total	2747	1469	53.5	1631	939	57.6

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

Research Question 3. This group of subquestions was designed to examine the effects of high-school size and the three major college attendance patterns for students (persist, transfer, dropout) with their institutional classification. The results included a chi-square test to determine significance and a Cramer's V test on each subquestion involving the six classifications totalling twelve tests listed in Table 31.

The resulting null hypothesis that a student's college attendance pattern is independent of high school senior class size was rejected only in 3.1 institutions.

Liberal Arts I Colleges showed that students who attended larger high schools were more likely to transfer successfully to other institutional classifications and less likely to drop out than students from smaller high schools. The strength of the statement was further highlighted by the large Cramer's V statistic.

High-School Program

A student's high-school program was extracted from the school record information of the base year NLS. High-school programs were categorized into either general, academic, or vocational/technical. After the oversampled minority students were randomly eliminated from the sample, 4,377 valid cases remained for the analysis.

Persistence Rates. High-school programs were divided into three categories among the six college classifications resulting in eighteen individual persistence rates and a total rate for each category. By far the largest number of academic high school program students (3,368)

Table 31. High-School Senior Class Size of Persisters, Transfers, and Dropouts by Institutional Classification.

Senior Class Size by Classification	Persisters f	Persisters %	Transfers f	Transfers %	Dropouts f	Dropouts %	Chi-Square, Probability, & Cramer's V
Research I & II							
LT 400	221	39.5	105	18.8	234	41.8	X^2= 1.2985
GT 400	206	42.3	94	19.3	187	38.4	p= .5224
							v= .0352
Ph.D. I & II							
LT 400	162	39.5	67	16.3	181	44.1	X^2= 2.2811
GT 400	98	38.0	54	20.9	106	41.1	p= .3196
							v= .0584
Comprehensive I							
LT 400	395	35.6	166	14.9	550	49.5	X^2= 4.5220
GT 400	203	34.6	111	18.9	273	46.5	p= .1042
							v= .0516
Comprehensive II							
LT 400	95	34.4	55	19.9	126	45.7	X^2= .8051
GT 400	33	30.3	21	19.3	55	50.5	p= .6686
							v= .0457
Liberal Arts I							
LT 400	54	47.0	15	13.0	46	40.0	X^2=11.0866
GT 400	37	49.3	22	29.3	16	21.3	p= .0039**
							v= .2416
Liberal Arts II							
LT 400	79	28.7	55	20.0	141	51.3	X^2= 2.3310
GT 400	29	25.2	31	27.0	55	47.8	p= .3116
							v= .0773

f = frequency counts, % = percentages, X^2 = raw chi-square, p = probability scores, v = Cramer's V.

* significant at the .05 level
** significant at the .01 level

attended college. This was compared to 821 students in the general program and only 188 with vocational/technical training. This distributional difference was reflected in the total persistence rates. As expected, academic programs showed a higher percentage of persistence, 39.7 percent, compared to 28.5 percent in general and 21.8 percent in vocational programs (refer to Table 32).

Initial persistence of students with general high-school programs was weak in every classification ranging from 25.4 to 34 percent. Academic-program students persisted in Research Universities and Liberal Arts Colleges I at the highest levels. Vocational/technical students had little success with any category and had an extremely low 5.6 percent persistence record in Comprehensive Universities and Colleges II.

The diversity in persistence increased as transfers to other classifications were taken into account. The overall persistence rate for the academic-program students was 59.4 percent, for the general program 42.3 percent, and for vocational/technical 33 percent. Academic-program students were more mobile in transferring from one classification to another and more likely to succeed once they transferred (refer to Table 33).

Research Question 2. To determine if statistical significance existed, the null hypothesis that a persister's Carnegie classification is independent of high-school program was composed and results posted (refer to Table 6).

For the case of high-school program the null hypothesis was

Table 32. Persistence Rates Within Institutional Classification by High-School Program at Four-Year Institutions.

	General			Academic			Voc. - Tech.		
	S	P	%-P	S	P	%-P	S	P	%-P
Rsch. Univ. I & II	149	46	30.9	870	376	43.3	27	5	18.6
Ph.D. Granting I & II	109	37	34.0	530	213	40.2	29	10	34.5
Comprehensive I	363	98	27.0	1243	479	38.6	92	21	22.9
Comprehensive II	75	19	25.4	292	108	37.0	18	1	5.6
Liberal Arts I	18	5	27.8	169	85	50.3	3	1	33.3
Liberal Arts II	107	29	27.1	264	76	28.8	19	3	15.8
Total	821	234	28.5	3368	1337	39.7	188	41	21.8

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

Table 33. Persistence Rates Including Transfers to Other Classifications by High-School Program at Four-Year Institutions.

	General			Academic			Voc. - Tech.		
	S	P	%-P	S	P	%-P	S	P	%-P
Rsch. Univ. I & II	149	66	44.3	870	553	63.6	27	7	26.0
Ph.D. Granting I & II	109	56	51.4	530	310	58.5	29	15	51.8
Comprehensive I	363	139	38.3	1243	706	56.8	92	30	32.6
Comprehensive II	75	28	37.4	292	173	59.3	18	3	16.7
Liberal Arts I	18	10	55.6	169	117	69.3	3	1	33.3
Liberal Arts II	107	48	44.9	264	140	53.1	19	6	31.6
Total	821	347	42.3	3368	1999	59.4	188	62	33.0

S = students starting enrollment in the fall of 1972

P = students graduated or enrolled in the fall of 1976

%-P = Persistence Rate

rejected at the .01 level indicating that there was some dependence between program and persisters in the six categories of institutions.

Academic-program students placed more persisters in each classification than general or vocational/technical program students combined. Vocational/technical program students persisted in greater numbers in 1.3-4 and 2.1 institutions. This could be explained by the fact that the few four-year vocational/technical degrees are probably more available at the larger state schools which compose a large portion of these classifications.

In summary, academic programs in high schools produced students who persist strongly in every category. General-program students persisted in much lower numbers. Vocational/technical students placed only one persister each in 2.2 and 3.1 colleges and had only a small number of persisters in the remaining categories.

Research Question 3. This group of subquestions was developed to examine the effects of high-school program and the three major college attendance patterns for students with their institutional classification. The results included a chi-square test and a Cramer's V for each classification resulting in twelve tests (refer to Table 34).

The resulting null hypothesis that a student's college attendance pattern is independent of high-school program was accepted in 1.3-4, 3.1, and 3.2 institutions.

In 1.1-2, 2.1, and 2.2 universities the null hypothesis was rejected at the .01 level indicating significance. Research Universities' attendance pattern showed a much higher presence of dropouts in the

Table 34. High-School Program of Persisters, Transfers, and Dropouts by Institutional Classification.

Program by Classification	Persisters f	Persisters %	Transfers f	Transfers %	Dropouts f	Dropouts %	Chi-Square, Probability & Cramer's V
Research I & II							
General	46	30.9	20	13.4	83	55.7	X^2=33.0016
Academic	376	43.2	177	20.3	317	36.4	p= .0000**
Voc.-Tech.	5	18.5	2	7.4	20	74.1	v= .1256
Ph.D. I & II							
General	37	33.9	19	17.4	53	48.6	X^2= 2.3737
Academic	213	40.2	97	18.3	220	41.5	p= .6674
Voc.-Tech.	10	34.5	5	17.2	14	48.3	v= .0422
Comprehensive I							
General	98	27.0	41	11.3	224	61.7	X^2=52.8037
Academic	479	35.8	227	18.3	537	43.2	v= .0000**
Voc.-Tech.	21	22.8	9	9.8	62	67.4	p= .1247
Comprehensive II							
General	19	25.3	9	12.0	47	62.7	X^2=22.0804
Academic	108	37.0	65	22.3	119	40.8	p= .0002**
Voc.-Tech.	1	5.6	2	11.1	15	83.3	v= .1693
Liberal Arts I							
General	5	27.8	5	27.8	8	44.4	X^2= 5.1183
Academic	85	50.3	32	18.9	52	30.8	p= .2754
Voc.-Tech.	1	33.3	0	0	2	67.7	v= .1161
Liberal Arts II							
General	29	27.1	19	17.8	59	55.1	X^2= 5.2300
Academic	76	28.8	64	24.2	124	47.0	p= .2645
Voc.-Tech.	3	15.8	3	15.8	13	68.4	v= .0819

f = frequency counts, % = percentages, X^2 = raw chi-square, p = probability scores, v = Cramer's V.

* significant at the .05 level
** significant at the .01 level

general and vocational/technical students than academic students. Students from academic programs tended to persist rather than transfer or drop out. This pattern was reversed for general students and was even more negatively skewed for vocational/technical students.

Comprehensive I and II institutions showed a similar order for general and vocational/technical students. However, academic-program students were more inclined to transfer successfully to other institutional classifications.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This section presents a general overview of the background and procedures of the current investigation in view of the larger picture of persistence in higher education, articulates the findings and conclusions of the study, outlines the recommendations based on the conclusions, and proposes possible areas for further research.

Summary

This study was undertaken with a two-fold purpose. First, data were gathered to examine the rates of student persistence in the different categories of the four-year American institutions of higher education using the Carnegie classification structure. The second objective was the analysis of the relationship of selected student characteristics with persistence among and within the classifications of colleges and universities. The central focus of both these purposes was to illuminate some of the consequences resulting from college selection by individual students and college recruitment and admission by institutions. A national data base and a recognized system of institutional classification were valuable elements of this analysis.

Although the existing body of research findings is large and varied, a review of the literature revealed the need for more and better understanding of persistence. It was also apparent that many previous

examinations of persistence were concerned primarily with individual institutions and had therefore been somewhat limited in scope. Restrictive factors such as limited sampling, a lack of follow-up, and diagnostic constraints caused by a lack of computer technology pointed to a need for a national analysis using a computerized data base.

Study of the literature of persistence revealed a rough consensus as to what factors were most critical to an additional investigation of persistence. It was found possible to represent most of these variables with the ten student characteristics taken from the National Longitudinal Study of the High School Class of 1972 (NLS). These ten characteristics were divided into three groups: personal (sex, race, religion), environmental (socioeconomic status, parental education, number of children in the family), and academic (aptitude, high-school grades, size, and program).

To accomplish the purpose of this study, specific objectives and research questions were formulated and examined. These were tested using data from the National Longitudinal Study of the High School Class of 1972 to which was applied the Carnegie classification structure of higher-education institutions. One research question involved an examination of the rates of persistence among six subclassifications of four-year institutions.

The remaining two research questions focused on the relationships of persistence to selected student characteristics and their rates of persistence among (research question two) and within (research question three) institutional classification. Question two uncovered

the relationship of the selected characteristics and the distribution of persisting students among the six categories of institutions. Question three examined the relationship of race and the three college attendance patterns (persist, transfer, and dropout) within institutional classification. The more significant results are discussed in the following section.

Conclusions

Persistence Rates of Institutions

Differences in persistence rates among research (40.8 percent) and doctoral-granting universities (39 percent) and Comprehensive I (35.3 percent) and Comprehensive II (33.3 percent) Colleges and Universities were minor. There was a noticeable difference in the rates of liberal arts colleges ranging from 47.9 percent persistence in Liberal Arts I to 27.7 percent in Liberal Arts II colleges. Liberal Arts Colleges I was the classification with greatest overall student persistence emphasizing differences in their selection of a student body. With the large number of applications these colleges typically receive, they can limit their admissions to only the most highly qualified.

Personal Characteristics

In general blacks persisted at significantly lower rates in research, doctoral, and Comprehensive I and II colleges and universities but persisted at slightly higher rates in both categories of liberal arts institutions. Overall, whites persisted at a 10

percentage point advantage over blacks (37.7 percent white and 27.5 percent black). In addition, persistence rates for black students as they transfer to other categories of institutions increased at only half the rate of white students.

Statistical significance was found at the .01 level indicating that there were racial differences among the number of persisters in the six categories of institutions. This illustrated the imbalance of black students in certain college classifications. Blacks tended to enroll and persist in the largest numbers in Comprehensive Colleges and Universities I as compared to only five black persisters in the Liberal Arts Colleges I, and only 24 of 649 persisting students in research and doctoral universities were black.

In examining persistence within each classification to determine if a student's college attendance pattern was independent of race, persistence in four classifications was found to be independent of race, and in two it was not. The college attendance pattern was found dependent on race in research universities and Comprehensive Universities and Colleges I.

There was nearly no difference between males and females in overall persistence rates. One notable difference was discovered in the breakdown of Liberal Arts Colleges I where male persistence rates were higher, 57 percent compared to a 41.4 percent for women. This led to the conclusion that although fewer men attend the prestigious liberal arts colleges, once there they had a better chance to persist than women.

Males composed the largest number of persisters in research/doctoral-granting universities. Females composed the largest numbers of persisters in the comprehensive and liberal arts colleges. Among the six Carnegie classifications of four-year institutions used, men and women showed no significant difference concerning persisting, transferring, and dropping out.

Religious orientations of persisters was of considerable importance. Jewish students persisted at a higher overall rate (47.9 percent) than either Protestants or Catholics (38.4 percent). This difference even increased as students transferred to other classifications. Jews persisted at a higher rate in every classification except doctoral-granting universities, and they were especially strong in Liberal Arts Colleges I.

There was an association between religion and persistence in certain types of institutions. There was a pronounced clustering of the Jewish persisters in the professionally oriented research universities. On the other hand, a student's college attendance pattern was found independent of the religious variable in all but the Liberal Arts II Colleges due in part to the low persistence rates and high transfer rates of Catholics in this category.

Environmental Characteristics

The analysis of socioeconomic status disclosed that overall persistence rates increased (30.4 percent to 40.2 percent) as SES increased from low to high. With the exception of liberal arts colleges, the individual classifications showed the same pattern. Although

fewer low-SES students enrolled in Liberal Arts I Colleges, the ones who did had a better chance of persisting than in the remaining categories.

High-SES students have a greater opportunity for institutional mobility by transferring into other classifications and then persisting in larger proportions than low- or medium- SES students. This mobility among the high-SES students was reflected in the overall persistence rates in every institutional classification.

The distribution of persisters among the Carnegie classifications was associated with socioeconomic status. Low-SES persisting students were found mainly in Comprehensive I Universities and Colleges, and high-SES persisting students were concentrated in the research/doctoral-granting institutions.

A student's college attendance pattern was dependent of SES in every classification except Liberal Arts Colleges I. This indicated for the five remaining classifications that as the socioeconomic status became lower, there was less opportunity for the students to select, transfer, or persist.

As parental educational levels increased so did the persistence rates of their children. This pattern was shown even more when transfers to other classifications were included. There, overall persistence rates increased from 47.6 percent for students of parents with less than a high-school education to 63 percent for offspring of parents with a master's or a doctor's degree. Students with parents having an advanced degree showed more institutional mobility followed by successful persistence than those whose parents had less education.

The number of children in the student's family is apparently not associated with changes in persistence rates. Both persister's institutional classification and college attendance patterns were found independent of family size.

Academic Characteristics

As the aptitude level increased, so did the persistence rate. This pattern held true in the overall and in every classification except Comprehensive II Universities and Colleges. Low-aptitude students were much less likely to attend four-year institutions, transfer to other categories, and persist in any form than medium- or high-aptitude students. The distribution of persisters in the six classifications was strongly associated with aptitude. Significance was found in the way students transfer, persist, and drop out in research/doctoral and comprehensive institutions according to aptitude. Aptitude proved to be a powerful variable for predicting persistence or successful mobility to other classifications.

A and B students have similar overall persistence rates (44.9 percent and 42.4 percent) which were much higher than C range students (28 percent). A students persisted in the greatest number in Research Universities I and II, and C students persisted in the greatest number in Comprehensive I Universities and Colleges. Significant differences were found between a student's college attendance pattern and high-school grades in four classifications: research, doctoral-granting, Comprehensive I, and Liberal Arts II.

High-school size had little association with overall persistence rates. However, differences in rates were apparent at the different institutional types. More students from smaller high schools enrolled in Comprehensive II and Liberal Arts II Colleges, and these persisted at higher rates than students from large high schools. On the other hand, students from larger high schools placed more persisters in research universities. A student's college attendance pattern was found independent of high-school size in every classification except Liberal Arts I. Students from larger high schools attending Liberal Arts I Colleges were more likely to transfer successfully to other classifications and less likely to drop out than students from smaller high schools.

Finally, a great diversity of persistence rates among high-school programs was discovered. Students from academic programs were more mobile in transferring and persisting in every category. General-program students persisted in much lower numbers, and there were only a few persisters from vocational/technical programs in each category.

Recommendations

General

The ensuing recommendations have been developed with the expressed purpose of suggesting programmatic guidelines to students, high-school counselors, college admission committees, and college and university administrators concerning persistence in different types of institutions. These recommendations are based on the composition of the high-school graduating class of 1972. Subsequent changes in the

composition of the high-school graduating class may affect these recommendations. Several general suggestions can be made based on this study of persistence. They are as follow:

1. Research and doctoral-granting universities should develop or improve their support mechanisms for the recruitment and retention of black students.
2. Women interested in persisting in Liberal Arts I Colleges should be better screened by admissions offices and more carefully advised at the high-school level since they are less likely to persist than males in that category.
3. Roman Catholic students interested in attending Comprehensive I Universities and Colleges should be better screened and advised at the high-school level.
4. Institutional mobility, the ability to transfer from one classification to another, should be a factor in the formation of college, state, and national financial-aid policy in order to improve persistence for students from low- and medium-socioeconomic statuses.
5. The trend toward adult education at all levels should be continued in order to increase parental education which is associated with better persistence.

6. Low-aptitude students should be better directed toward developmental or self-paced programs during pre-admission phase of college since they have extremely poor rates of persistence and almost no improvement in persistence by transferring to other four-year institutions.
7. High-school students with A grades in high school should be encouraged to attend research universities and Liberal Arts I Colleges since they have over a 50 percent chance of persisting in these classifications.
8. College-bound students with vocational/technical high-school programs should be strongly advised that a weak academic background will not suffice in most institutions. They should be directed especially from enrolling in Comprehensive II and Liberal Arts II Colleges where they have little or no chance of persisting.

Suggestions for Further Study

This study provided an opportunity to bring together a national data base of students and a recognized classification of institutions of higher education into a new, effective approach for an examination of persistence. This approach appears viable as a descriptive model for further work in persistence. The data generated by this study suggest promising directions for future research.

It should be emphasized that the design of this study involved only a small number of student characteristics. Also, those characteristics were examined individually. Further research would benefit from an analysis of interaction among the variables.

The data for the study encompassed the period 1972 to 1976. Further research with later data would be valuable. This would provide comparative data in identifying what is happening to persistence and how it may be changing.

This examination was limited to questions asked by the NLS. Studies without this limitation might explore other variables such as family structure, lack of proper college orientation, uncertain educational and vocational goals, and academic support services.

Future studies may investigate a more extensive coverage of the Carnegie classifications to include all categories and sub-categories of institutions. Additional time and resources might allow, for example, a focus on the differences between Research Universities I and II.

This study was limited to students enrolling over a four-year period. Alternative levels of analysis could include persistence in the areas of graduate and professional programs using a similar design.

Two other possible avenues for research investigations may be of additional value. First, a breakdown of persistence rates among institutional classification by region of the United States would provide more localized data. Second, a division between public and private institutional control would be of interest.

A final recommendation for further research lies with individual institutions. Their use of the characteristics examined here in the development of interdisciplinary, experimental, and innovative college student-personnel programs directed toward persistence would aid their own institutions as well as the body of persistence research. The success of any research in persistence lies in the extent it is used to explain the realities of a changing world in terms of the diversity of American higher education. The future of many institutions today depends upon their ability to identify their students' needs and characteristics and act in new directions to increase their persistence.

APPENDIX A

The Carnegie Classification: A Classification of Institutions of Higher Education

At an early stage in its work, the Carnegie Commission on Higher Education recognized the need for a classification of institutions of higher education that would be more useful for purposes of analysis than existing classifications. They sought to identify categories of colleges and universities that would be relatively homogeneous with respect to the functions of the institutions as well as with respect to characteristics of students and faculty members.

The Carnegie Commission's classification of institutions of higher education, first published in 1973, has been used increasingly for research and analysis relating to higher education by many organizations and individuals. Developed several years in advance of publication for use in the Commission's work, it was based on 1970 data. In the years since 1970, new institutions have appeared, old institutions have disappeared, and many institutions have undergone changes that have called for their reclassification.

This classification includes all institutions listed in the U.S. National Center for Education Statistics' Education Directory: Colleges and Universities, 1976-77. When a campus of a multicampus institution is listed separately, it is included as a separate institution in our classification. In a few instances, the NCES directory

includes all campuses of an institution in a single listing (for example, the University of Kentucky Community College System), and in such cases the institution is treated as a single entry in our classification.

Our classification divides institutions into six main categories and a number of subcategories, or 19 categories in all. They are as follow:

1. Doctorate-Granting Institutions

1.1 Research Universities I

The 50 leading universities in terms of federal financial support of academic science in at least two of the three academic years, 1972-73, 1973-74, and 1974-75, provided they awarded at least 50 Ph.D.s (plus M.D.s if a medical school was on the same campus) in 1973-74. Rockefeller University was included because of the high quality of its research and doctoral training, even though it did not meet these criteria.

1.2 Research Universities II

These universities were on the list of the 100 leading institutions in terms of federal financial support in at least two out of the above three years and awarded at least 50 Ph.D.s (plus M.D.s if a medical school was on the same campus) in 1973-74. At least 25 of these degrees must have been Ph.D.s. Alternatively, the institution was among the leading 60 institutions in terms of the total number of Ph.D.s awarded during the years from 1965-66 to 1974-75. In addition, a few

institutions that did not quite meet these criteria but that have graduate programs of high quality and with impressive promise for future development have been included in 1.2.

1.3 Doctorate-Granting Universities I

These institutions awarded 40 or more Ph.D.s in at least five fields in 1973-74 (plus M.D.s if on the same campus) or received at least $3 million in total federal support in either 1973-74 or 1974-75. No institution is included that granted less than 20 Ph.D.s (plus M.D.s if on the same campus) in at least five fields regardless of the amount of federal financial support it received.

1.4 Doctorate-Granting Universities II

These institutions awarded at least 20 Ph.D.s in 1973-74 without regard to field or 10 Ph.D.s in at least three fields. In addition, we include a few doctorate-granting institutions that may be expected to increase the number of Ph.D.s awarded within a few years.

2. Comprehensive Universities and Colleges

2.1 Comprehensive Universities and Colleges I

This group includes institutions that offered a liberal arts program as well as several other programs, such as engineering and business administration. Many of them offered master's degrees, but all lacked a doctoral program or had an extremely limited doctoral program. All institutions in this group had at least two professional or occupational programs and enrolled at least 2,000 students in 1976.

If an institution's enrollment was smaller than this, it was not considered very comprehensive.

2.2 Comprehensive Universities and Colleges II

This list includes state colleges and private colleges that offered a liberal arts program and at least one professional or occupational program, such as teacher training or nursing. Many of the institutions in this group are former teachers colleges that have broadened their programs to include a liberal arts curriculum. In general, private institutions with less than 1,500 students and public institutions with less than 1,000 students in 1976 were not included even though they offered a selection of programs because they were not regarded as comprehensive with such small enrollments. Such institutions are classified as liberal arts colleges. The enrollment differentiation between private and public institutions was made because public colleges with small enrollments are usually new institutions that can be expected to grow rapidly. However, some predominantly teachers colleges, especially in sparsely populated states, have been losing enrollment in recent years, and in such cases we have continued to classify them in the 2.2 group, even when their enrollment has fallen below the usual minimum.

3. Liberal Arts Colleges

3.1 Liberal Arts Colleges I

These colleges scored 1030 or more on a selectivity index developed by Alexander W. Astin or they were included among the 200

leading baccalaureate-granting institutions in terms of numbers of their graduates receiving Ph.D.s at 40 leading doctorate-granting institutions from 1920 to 1966 (National Academy of Sciences, Doctorate Recipients from United States Universities, 1958-1966, Washington, D.C. 1967, Appendix B).

The distinction between a liberal arts college and a comprehensive institution is not always clear-cut. Some of the institutions in this group have modest occupational programs but a strong liberal arts tradition. A good example is Oberlin, which we continue to classify as a liberal arts college. It awarded 76 Mus.B. degrees out of a total of 623 bachelor's degrees in 1974 and had an enrollment of 2,858 in 1976. Or, consider two Pennsylvania institutions, Lafayette and Swarthmore. Lafayette awarded 89 B.S. degrees in engineering in 1974 out of a total of 458 bachelor's degrees and have been included in our Comprehensive Universities and Colleges II group. Its enrollment in 1976 was 2,243. Swarthmore has an engineering program leading to a B.S. degree, but it awarded only 16 B.S. degrees out of a total of 280 bachelor's degrees in 1974 and had a 1976 enrollment of 1,223. Swarthmore has a strong liberal arts tradition and did not meet our minimum enrollment criterion for a private college to be classified as comprehensive, but our decisions in the cases of Oberlin and Lafayette had to be at least partly judgmental.

3.2 Liberal Arts Colleges II

These institutions include all the liberal arts colleges that did not meet our criteria for inclusion in the first group of liberal

arts colleges. Again, the distinction between "liberal arts" and "comprehensive" is not clear-cut for some of the larger colleges in this group and is necessarily partly a matter of judgment.

4. Two-Year Colleges and Institutes

5. Professional Schools and Other Specialized Institutions

6. Institutions for nontraditional study

LIST OF REFERENCES

A Classification of Institutions of Higher Education: A Technical Report. Sponsored by the Carnegie Commission on Higher Education. USA, 1973.

Anderson, L.O. "Small Rural High Schools and College Completion," in Journal of College Student Personnel. Vol. 15, 1974, pp. 191-193.

Astin, Alexander W. "Personal and Environmental Factors Associated with College Dropouts Among High Aptitude Students," in Journal of Educational Psychology. Vol. 55, 1964, pp. 219-227.

_____. "College Dropouts: A National Profile," in ACE Research Reports. Vol. 7, No. 1, 1972, pp. 1-71.

_____. "Student Persistence: Some Stay, Some Don't--Why?" College and University. Vol. 48, 1973, pp. 298-306.

_____. Preventing Students From Dropping Out. San Francisco: Jossey-Bass, Inc., 1975.

_____. Four Critical Years. San Francisco: Jossey-Bass, Inc., 1978.

Bowers, W.J., G.L. Pierce, C. Blitch, and A. Carr. Access to Post-secondary Education. Boston, Massachusetts: Russell B. Stern Center for Applied Social Research, Northeastern University, 1977.

Brubacher, John S. and Willis Rudy. Higher Education in Transition: A History of American Colleges and Universities 1636-1968. New York: Harper & Row, 1976.

Bucklin, R.W. and M.L. Bucklin. "The Psychological Characteristics of the College Persister and Leaver: A Review." 1970, ED 049 709.

Chickering, A.W. "Institutional Differences and Student Characteristics." 1966, ED 014 099.

Chickering, Arthur W., and William Hannah. "The Process of Withdrawal." Liberal Education. Vol. 55, 1969, pp. 551-558.

Clark, B. "The 'Cooling-out' Function in Higher Education." American Journal of Sociology. Vol. 65, 1960, pp. 569-576.

Coker, David L. "Diversity of Intellective and Non-intellective Characteristics Between Persisting and Non-Persisting Students Among Campuses." 1968, ED 033 645.

Cope, Robert G. and William Hannah. Revolving College Doors. New York: John Wiley & Sons, 1975.

Deever, R. Merwin, and J. Robert Hendricks. "The Relationship of College Admittance to the Attrition Rate of Male Freshman Students." College Education Publications. Bureau of Educational Research and Services: Arizona State University, 1970.

Demos, G. "Analysis of College Dropouts: Some Manifest and Covert Reasons." Personnel and Guidance Journal. Vol. 46, 1968, pp. 681-684.

Duryea, E.D. "Evolution of University Organization," in James A. Perkins (Ed.), The University as an Organization. New York: McGraw-Hill, 1973, pp. 30-31.

Eckland, B.K. "College Dropouts Who Came Back." Harvard Educational Review. Vol. 34, 1964, pp. 402-420.

_____. "Social Class and College Graduation: Some Misconceptions Corrected." American Journal of Sociology. 1965: Vol. 70, pp. 36-50.

Farnsworth, D.S. "We're Wasting Brainpower." National Education Association Journal. Vol. 48, 1959, pp. 42-44.

Feldman, Kenneth A. and Theodore N. Newcomb. The Impact of College on Students. San Francisco: Jossey-Bass, 1969.

Ferguson, George A. Statistical Analysis in Psychology and Education. New York: McGraw-Hill Inc., 1976.

Fetters, William B. National Longitudinal Study of the High School Class of 1972: A Capsule Description of High School Seniors in the Base Year Survey. (OE 74-11116), Washington, D.C.: U.S. Government Printing Office, 1974.

_____. Withdrawal From Institutions of Higher Education. (NCES 77-264), Washington, D.C.: U.S. Government Printing Office, 1977.

Gekowski, N. and S. Schwartz. "Student Mortality and Related Factors." Journal of Educational Research. No. 54, 1961, pp. 192-194.

Hannah, W. "Withdrawal from College." The Journal of College Student Personnel. Vol. 10, 1969, pp. 397-402.

Haskins, Charles H. The Rise of Universities. New York: Cornell University Press, 1957.

Iffert, Robert E. Retention and Withdrawal of College Students. Washington, D.C.: U.S. Government Printing Office, 1957.

Kamens, David H. "The College 'Charter' and College Size: Effects on Occupational Choice and College Attrition." Sociology of Education. Vol. 44, 1971, pp. 270-296.

Kapur, R.L. "Student Wastage at Edinburgh University: Factors Related to Failure and Dropout." Universities Quarterly. Vol. 26, 1972, pp. 353-377.

Kerr, Clark. The Uses of the University. New York: Harper & Row, 1963.

Knoell, Dorothy M. "Institutional Research on Retention and Withdrawal," in Hall Sprague (ed.), Research on College Students, Boulder, Colorado: Western Interstate Commission for Higher Education, 1960, pp. 41-65.

_____. "A Critical Review of Research on the College Dropout." The College Dropout and Utilization of Talent. Lawrence Pervin, (ed.). Princeton, New Jersey: Princeton University Press, 1966, pp. 63-81.

Kowalski, Cash. The Impact of College on Persisting and Non-Persisting Students. New York: Philosophical Library, 1977.

Leslie, Larry, Arthur Grant, and Kenneth Brown. Patterns of Enrollment in Higher Education 1965 to 1977: Liberal Arts Colleges. Center for the Study of Higher Education, University of Arizona, Tucson, Arizona, 1981.

Levinsohn, Jay, Louise B. Henderson, John A. Riccobono, and R. Paul Moore. National Longitudinal Study Base Year, First, Second, and Third Follow-up Data File Users Manual. Triangle Research Institute, Triangle Research Park, North Carolina, January 1978.

Little, J.K. "The Persistence of Academically Talented Youth in University Studies." Educational Record. Vol. 40, 1959, pp. 237-241.

Marks, Edmond. "Student Perceptions of College Persistence and Their Intellective, Personality and Performance Correlater." Journal of Educational Psychology. Vol. 58, 1967, pp. 210-221.

Millett, John D. Higher Education Planning: A Report of Experience and a Forecast of Strategies for Change. Washington, D.C.: Academy for Educational Development, December 1978.

Morrisey, R.J. "Attrition in Probationary Freshmen." Journal of College Student Personnel. Vol. 12, 1971, pp. 279-285.

Nelson, A.G. "College Characteristics Associated with Freshman Attrition." Personnel and Guidance Journal. Vol. 44, 1966, pp. 1046-1050.

Newcomb, T.M. "Student Peer-Group Influence." The American College, New York: Wiley, 1962.

Nie, Norman H., C. Hadlai Hull, Jean G. Jenkins, Karin Steinbrenner, and Dale H. Bent. Statistical Package for the Social Sciences. 2nd ed. New York: McGraw-Hill Inc., 1975.

Panos, Robert J. and Alexander W. Astin. "Attrition Among College Students." American Educational Research Journal. Vol. 5, No. 1, January 1968, pp. 57-71.

Pantages, Timothy J. and Carol F. Creedon. "Studies of College Attrition: 1950-1975." Review of Educational Research. Vol. 48, No. 1, Winter 1978, pp. 49-101.

Peng, S.S. and W.B. Fetters. College Student Withdrawal: A Motivational Problem. Paper presented at the annual meeting of the American Research Association, New York, 1977.

Pervin, Lawrence. The College Dropout and the Utilization of Talent. Princeton, New Jersey: Princeton University Press, 1966.

Ryle, A. "Student Health and Student Wastage." Universities Quarterly. Vol. 25, Spring 1971, pp. 162-163.

Sandell, Sandra A. and Jack E. Rossman. "College Freshmen View Their Parents." Personnel and Guidance Journal. Vol. 49, 1971, pp. 821-826.

Schreiber, Daniel. Profile of the School Dropout. New York: Random House, 1967.

Sewell, W. and V. Shah. "Socioeconomic Status, Intelligence, and the Attainment of Higher Education." Sociology of Education. Vol. 40, 1967, pp. 1-23.

Spady, W.G. "Dropouts from Higher Education: An Inter-disciplinary Review and Synethsis." Interchange. Vol. 1, No. 72, April 1970.

Summerskill, John. "Dropouts from College." The American College, Nevitt Stanford (ed.). New York: John Wiley & Sons, Inc., 1962.

Tinto, Vincent. "Dropout from Higher Education: A Theoretical Synthesis of Recent Research." Review of Educational Research. Vol. 45, No. 1, Winter 1975, pp. 89-125.

Trent, James W. and Leland L. Medsker. "Beyond High School: A Study of 10,000 High School Graduates." 1968, ED 031 739.

Trent, James W. and Janet H. Ruyle. "Variations, Flows, and Patterns of College Attendance." College and University. Vol. 41, Fall 1965, pp. 61-76.

Turner, H.J., Jr. "The Half That Leaves: A Limited Survey of Attrition in Community Colleges." 1970, ED 038 607.

Van Dalen, Deobold B. Understanding Educational Research. New York: McGraw-Hill, 1966.

Verner, A.M. "College Education and Vocational Career." The College Student. 1965, pp. 108-116.

Walker, Marion and Mark Beach. Making it in College. New York: Mason Charter Publishers, 1976.

Waller, C. "Research Related to College Persistence: A Review of Some Research Concerning College Student Persistence and Withdrawal." College and University. Vol. 39, 1964, pp. 281-294.

Wegner, E. and W. Sewell. "Selection and Context as Factors Affecting the Probability of Graduation from College." American Journal of Sociology. Vol. 75, 1970, pp. 665-679.