INFORMATION TO USERS

This reproduction was made from a copy of a document sent to us for microfilming. While the most advanced technology has been used to photograph and reproduce this document, the quality of the reproduction is heavily dependent upon the quality of the material submitted.

The following explanation of techniques is provided to help clarify markings or notations which may appear on this reproduction.

1. The sign or "target" for pages apparently lacking from the document photographed is "Missing Page(s)". If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting through an image and duplicating adjacent pages to assure complete continuity.

2. When an image on the film is obliterated with a round black mark, it is an indication of either blurred copy because of movement during exposure, duplicate copy, or copyrighted materials that should not have been filmed. For blurred pages, a good image of the page can be found in the adjacent frame. If copyrighted materials were deleted, a target note will appear listing the pages in the adjacent frame.

3. When a map, drawing or chart, etc., is part of the material being photographed, a definite method of "sectioning" the material has been followed. It is customary to begin filming at the upper left hand corner of a large sheet and to continue from left to right in equal sections with small overlaps. If necessary, sectioning is continued again—beginning below the first row and continuing on until complete.

4. For illustrations that cannot be satisfactorily reproduced by xerographic means, photographic prints can be purchased at additional cost and inserted into your xerographic copy. These prints are available upon request from the Dissertations Customer Services Department.

5. Some pages in any document may have indistinct print. In all cases the best available copy has been filmed.

University Microfilms International
300 N. Zeeb Road
Ann Arbor, MI 48106

McNamara, Patricia Porter

AMERICAN INDIANS IN HIGHER EDUCATION: A LONGITUDINAL STUDY OF PROGRESS AND ATTAINMENT

University of California, Los Angeles PH.D. 1982

UNIVERSITY OF CALIFORNIA

Los Angeles

American Indians in Higher Education: A Longitudinal Study of Progress and Attainment

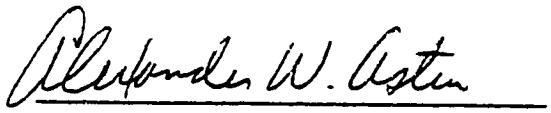
A dissertation submitted in partial satisfaction of the requirements for the degree Doctor of Philosophy in Education

by

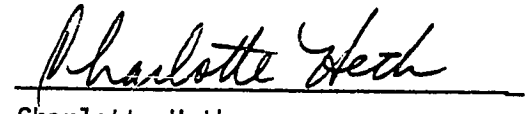
Patricia Porter McNamara

1982

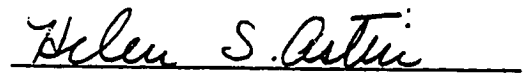
The dissertation of Patricia Porter McNamara is approved.



Alexander W. Astin



Charlotte Heth



Helen S. Astin, Committee Chair

University of California, Los Angeles

1982

Table of Contents

List of Tables

Acknowledgments

I would like to thank Lena Astin with whom I have worked as a colleague and student since I first arrived at UCLA for all that she has taught me over the years, for the confidence she has always shown in me, and, most especially, for her friendship. I was indeed fortunate in having had the opportunity to work with her and with Sandy Astin, who has been equally supportive and who has, patiently and less patiently, explained the mysteries of deciphering multiple regression printouts. I would also like to express my appreciation to Art Cohen, Charlotte Heth, and Bill Zumeta for serving on my committee and for their interest in my progress. I especially appreciate Charlotte Heth's patience, flexibility, and generosity in the face of my panic and impatience during the final days of this process.

I received guidance and encouragement from the members of the Commission on the Higher Education of Minorities--Frank Bonilla, Cecilia Preciado Burciaga, Yvonne Brathwaite Burke, Albert Hastorf, Calvin B. T. Lee, Alfonso Ortiz, and Stephen Wright--the Commission's chair, O. Meredith Wilson, and Fred Crossland of the Ford Foundation. As much as I learned from my experience working with the Commission, I most value having come to know each of its individual members, who were unfailingly kind to me. I am particularly indebted to Mr. Ortiz who, uncomplainingly, took on the task of educating me to the issues and introducing me to the literature and to his wide range of acquaintances who provided assistance over the course of this project. I am, of course, grateful to the Ford Foundation for their support of the Commission's work.

I would like to thank Dean Chavers, past president of Bacone College, who has always found the time to help me with my work and who has always been supportive and interested in my progress. I am also grateful to Pat Cross, who conducted the data analyses, for her help and friendship, and to my colleagues on the Commission staff, Ernesto Ballesteros, Lettie Diaz, Casey Green, Laura Kent, Margo King, Rita Scherrei, and Melanie Williams.

Finally, I would like to thank Meghan Clancy-Hepburn, who is a wise and silly person and very astute at knowing when to administer hugs, and Ken Hepburn, for telling me that I could quit even though he didn't mean it.

VITA

February 17, 1949--Born, Frankfurt, Germany

1971--B.A., Principia College

1976--M.A., University of California, Los Angeles

1974-1976--Research Assistant, Graduate School of Education, University of California, Los Angeles

1977-1978--Public Administrative Analyst, Division of Vocational Education, University of California, Los Angeles

1978-1982--Research Analyst, Higher Education Research Institute, Los Angeles

PUBLICATIONS

McNamara, P. P. and R. A. Scherrei. College Women Pursuing Careers in Science, Mathematics, and Engineering in the 1970s. Final report to the National Science Foundation. Los Angeles: Higher Education Research Institute, 1982.

Astin, A. W., H. S. Astin, K. C. Green, L. Kent, P. P. McNamara and M. R. Williams. Minorities in American Higher Education. San Francisco: Jossey-Bass, 1982.

Astin, H. S. and P. P. McNamara. Educational and career progress of Chicana and Native-American college women. In P. J. Perun (ed) The Undergraduate Woman: Issues in Educational Equity. Lexington, MA: Lexington Books, 1982, 205-227.

McNamara, P. P.. Indian higher education--ideas from research. In T. J. Stauffer (ed) Beyond the Falling Sky: Surmounting the Pressures on Higher Education. Washington: American Council on Education, 1981, 155-169.

McCaslin, B. S. and P. P. McNamara. Be Your Own Boss: A Woman's Guide to Planning and Running her Business. Englewood Cliffs, NJ: Prentice-Hall, 1980.

McNamara, P. P.. Women business owners: some policy issues and questions from an observer's perspective. In S. Hentzell (ed) Regional Research Reports: The Environment for Small Business and Entrepreneurship--Region 9. Final report to the U.S. Small Business Administration. Stanford, CA: SRI International, 1979, 319-342. (NTIS P381 157521)

McNamara, P. P.. Business ownership: a new career option for women. In B. Gutek (ed) Enhancing Women's Career Development. (New Directions for Education, Work, and Careers series, no. 8) San Francisco: Jossey-Bass, 1979, 71-82.

Astin, A. W. and P. P. McNamara. Student characteristics and development. In D. K. Halstead (ed) Higher Education Planning: A Bibliographic Handbook, Vol. 1. Washington: U.S. Government Printing Office, 1979, 443-466.

Fuller, B. and P. P. McNamara. Defining and assessing disadvantagement. In A. W. Astin, B. Fuller and K. C. Green (eds) Admitting and Assisting Students After Bakke. (New Directions for Higher Education series, no. 23) San Francisco: Jossey-Bass, 1978, 61-73.

Fuller, B., P. P. McNamara and K. C. Green. Alternative admissions programs. In A. W. Astin, B. Fuller and K. C. Green (eds) Admitting and Assisting Students After Bakke. (New Directions for Higher Education series, no. 23) San Francisco: Jossey-Bass, 1978, 1-27.

Green, K. C. and P. P. McNamara. The student experience. In A. W. Astin, B. Fuller and K. C. Green (eds) Admitting and Assisting Students After Bakke. (New Directions for Higher Education series, no. 23) San Francisco: Jossey-Bass, 1978, 29-40.

Astin, H. S., M. Harway and P. P. McNamara. Sex Discrimination in Education: Access to Postsecondary Education. Final report (in 3 vols.) to the National Center for Education Statistics. Los Angeles: Higher Education Research Institute, 1976. (ERIC Documents 132 966-967)

ABSTRACT OF THE DISSERTATION

American Indians in Higher Education:
A Longitudinal Study of Progress and Attainment

by

Patricia Porter McNamara
Doctor of Philosophy in Education
University of California, Los Angeles, 1982
Professor Helen S. Astin, Chair

This study was conducted to contribute to our knowledge of American Indian college students, with particular attention to differences within this population and to factors that influence Indian students' persistence in college and level of educational attainment. The longitudinal data base covers a critical eight-year period in the educational and occupational development of young adults, from college entry in fall 1971 to early 1980. Baseline survey questionnaire data were collected by the Cooperative Institutional Research Program from a national sample of 675 college freshmen who identified themselves as American Indian in 1971. Follow-up data were collected from each subject by survey questionnaire or telephone interview in 1980, as part of a Ford Foundation-supported study conducted by the Higher Education Research Institute. Of the 675 freshmen who identified themselves as Indian on the 1971 survey, which permitted multiple responses to the race-ethnicity question,

only 234 reidentified themselves as Indian in 1980, when instructed to indicate only their primary racial-ethnic identity.

The descriptive phase of this study profiles statistically significant differences between Indian respondents and respondents who identified themselves as Indian only in 1971 ("nonIndians"); between Indians from urban and rural backgrounds; between Indian men and women; and between Indian respondents who had achieved their undergraduate degree objectives and those who had not. These comparisons identified a number of important differences in personal and academic background, self-concept, values, attitudes, college choice behavior, college experiences, educational and occupational aspirations and outcomes, underscoring the importance of carefully screening students who identify themselves as American Indian and distinguishing between urban and rural Indians.

Factors influencing Indian students' persistence in college and level of educational attainment were examined using step-wise linear multiple regression analysis. Precollegiate educational preparation was one of the most important factors contributing to college achievement. The level of students' involvement and interest in their high school education was especially important in explaining their subsequent level of educational attainment.

Chapter One

Introduction to the Study

Recent reports on the social and economic status of Native Americans[1] document that they are indisputably a disadvantaged population (American Indian Policy Review Commission, 1977; U.S. Commission on Civil Rights, 1978). Statistical indicators used to assess social conditions --that is, level of well-being, as reflected in employment, income, health, housing, and educational status--show that Indian people consistently rank among the populations clustered at the lowest ends of these measures. To some extent, these statistics reflect limited employment opportunities in many Indian communities but, to a far greater degree, they reflect the effects of low levels of educational and occupational training. The depressed levels of educational attainment among Indians are the historical legacy of Federal government Indian education policies and practices. The education and training that contemporary Indian youth receive, as well as the educational opportunities made available to adults, affect individual futures and also the economic growth and development of Indian communities. Skilled professional manpower is needed to provide education, health care, housing, and other social services within Indian communities and also to develop and manage the wealth of reservation natural resources.

The nation's schools are charged with developing society's greatest

---

[1] The terms Native American, American Indian, and Indian are used interchangeably in this report and are meant to include Alaskan Natives, Aleuts, and Eskimos.

resource, the potential of each individual. Their track record of service to the Indian people is not impressive: Compared with their majority peers, Indian students drop out of high school at higher rates; Indian high school graduates have lower rates of college attendance; and those who do enter college withdraw at a significantly higher rate. A review of past research studies suggests that a number of problems have been identified as contributing to the high college dropout rate of Indian students. These barriers to educational attainment include: poor educational preparation for the academic demands of college; financial difficulties and family responsibilities; lack of a clear sense of purpose and direction, especially in regard to educational and career goals, a problem compounded by the paucity of Indian professionals whose achievements students can emulate; and emotional and social adjustment problems caused by culture conflicts between the Indian student's values, attitudes, and beliefs and those governing behavior and expectations in the college environment and, for some students, strains created by the decision to go to college between the student and his or her home community.

Although past research has identified and described the kinds of problems that Indian students may encounter, we know little about how critical these problems are or how important they are relative to one another; which students experience what kinds of barriers to educational achievement; what effects these problems have on various college outcomes; how these problems can be successfully addressed or about the facilitators of educational achievement and persistence among Indian college students. Institutional evaluations of particular programs pro-

grams providing college orientation, counseling, or academic assistance tend to show that Indian participants benefit (General Accounting Office, 1977; Norris, 1971; Special Subcommittee, 1969); however, students who elect to participate in these programs may be a select group who would have persisted at higher rates and earned better grades whether these services were available or not. Indeed, Norris (1971) reports that the lower attrition among participants in an academic program for Indian students was not related to the number of counseling-tutoring sessions attended.

A relatively small number of studies, principally dissertation studies, have sought to determine what distinguishes successful or satisfied Indian college students from their unsuccessful or dissatisfied peers. These studies are based on small samples drawn from one or a small number of higher education institutions or from a particular state. In some cases the sample consists of students who entered an institution over an extended period of time: for example, Jeanotte (1982) studied Indian students who had enrolled at the University of North Dakota during the academic years 1970-1979. Typically, these studies select one dependent measure (college grade point average, persistence, or satisfaction) and use basic correlational techniques to examine the relationship between each of a small number of independent variables and the dependent measure. Important independent variables, including college characteristics, are often excluded from consideration and the complex interrelationships among independent variables are ignored. It is, therefore, difficult to piece together a picture of the dynamics and influences affecting Indian college students from

these studies. The sometimes conflicting, inconclusive, and unidimensional research findings do indicate the complexity of these dynamics, but they offer little guidance for educational policy and practice or for students facing decisions about their educational futures.

Purpose of the Study

The purpose of this study was to learn more about the characteristics, undergraduate experiences and achievements, and subsequent pursuits of American Indian college students. To this end, two research objectives were established: first, to provide a descriptive profile of a national cohort of Indian students who entered college in 1971 and who provided follow-up information about their college experiences and postcollege activities in early 1980; and, second, to identify student and institutional characteristics associated with college success, as measured by persistence in college and level of educational attainment.

The study examines data collected from Native American participants in a longitudinal study conducted in 1980-1981 by the Higher Education Research Institute and supported by the Ford Foundation. It differs from past studies of American Indian college students in one or more of four important regards: (1) it is longitudinal and covers a period of over eight years, from fall 1971, when subjects entered college, to early 1980, when the follow-up data were collected; (2) it has a national sample rather than a sample drawn from one or a small number of institutions or from a particular state; (3) inclusion in the sample is not contingent on tribal enrollment, federal recognition, or receipt of a grant from the Bureau of Indian Affairs (BIA) or from the U.S. Department of Education's Office of Indian Education; and (4) the data base

includes over 400 variables, providing extensive demographic and affective information for each subject, including information about the college attended in 1971.

Because the sample for this study was selected on the basis of self-identification as American Indian at two distinct and relatively distant points in time, 1971 and 1980, data are available to explore the phenomenon of misclassification as American Indian. The National Board on Graduate Education (1976) reports a tendency among college-age youth to identify themselves as Indian even though their Indian heritage may be very distant. The presence or absence of various racial-ethnic response categories on survey instruments, as well as the use of ambiguous, undefined categories, also appears to contribute to unintentional errors in self-classification. There is evidence to suggest that considerable misclassification as Indian does occur among college students. Astin (1977) found that student self-reports of racial-ethnic identity were highly consistent over time, with the exception of "American Indian" responses: Fewer than one-fourth of the respondents who, as college freshmen in 1968, reported that they were American Indian selected this response in a 1972 follow-up survey. Almost three-fourths of the 1968 "American Indians" reclassified themselves as White on the 1972 survey. Chavers (1979c) and Webster, Sedlacek, and Miyares (1977) also report substantial losses from self-reported American Indian populations when follow ups or cross-checks are made to verify these students racial-ethnic identity.

The consequence of misclassification as Indian is inflated national statistics on Indian enrollment in higher education and on degrees

awarded to Native Americans, suggesting that this population has achieved educational equity. Chavers observes: "A simple estimation of the current total population of Indian college students is extremely difficult and time-consuming because of the lack of reliable information, and because of the varying definitions of 'Indian' or 'Native American' used by various agencies" (1979, p. 6). Similarly, studies which rely on unverified student self-identification as Indian can produce findings that suggest that Indian students are neither socioeconomically nor academically disadvantaged. For example, a longitudinal study of the effects of financial aid on college persistence that relied on freshman self-identification as Indian (Astin and Cross, 1979) found that 36 percent of the American Indian students came from homes where family income exceeded $20,000 a year, compared with 37 percent of white students, and that almost as large a proportion of Indian students as white students had fathers who were college graduates (33 versus 37 percent, respectively). Census data on the Native American population offer scant support for accepting such findings at face value. More importantly, they do not improve our understanding of the socioeconomic status of Indian students or provide insights into their need for financial aid and the role it plays in their persistence.

However, because misclassification does occur and creates the impression that this population has achieved educational equity or distorts research findings that might otherwise contribute to our knowledge of this population, it is important to understand how students who do misclassify themselves as Indian differ from Indian students. Thus, one goal of this study was to distinguish students who identified themselves

as Indian in 1971 but not in 1980, when the follow-up data were collected, from those who consistently identified themselves as Indian and to compare these two groups.

A second research objective was to explore differences among Indian students on the basis of home environment (urban versus rural) and gender. One of the underlying assumptions of this study is that knowledge of a student population is essential to efficient delivery of effective educational services and, subsequently, to improved performance and persistence by these students. The more educators know about a student population--their backgrounds, goals, values, problems, and concerns--the more able they are to respond constructively and supportively to these students' needs, be they for academic services, financial aid, psychological support, or for assistance in clarifying career goals. Although past research has tried to identify differences between successful and unsuccessful Indian students and between those who were satisfied or dissatisfied with their college experiences, it has not investigated differences between students from urban and rural backgrounds or between Indian men and women. Although the literature suggests that there are important differences between urban and rural Indians (McDonald, 1978; Sorkin, 1978; Task Force Eight of the American Indian Policy Review Commission, 1976), past research on Indian college students has not distinguished between students from urban and rural backgrounds. Thus, this study sought to determine if and how rural and urban students differ in personal and academic background, interests, values, attitudes, and aspirations and what the educational implications of these differences might be. Past research has also found that gender is related to

college students' self-concept, values, attitudes, behaviors, academic achievement, persistence, and level of educational attainment (Astin, 1977b). Therefore, a parallel comparison of Indian men and women was conducted.

The final phase of the study focused on two outcome measures: persistence in college and level of educational attainment. It includes a descriptive comparison of persisting and nonpersisting students and, using stepwise linear multiple regression to control for individual differences and covariance among the variables, it examines those student and college characteristics that influence college persistence and level of educational attainment.

In summary, this study was designed to contribute to our knowledge of Indian college students by:

1. Comparing students who indicate a tendency to misclassify themselves as American Indian with Indian students to get a sense of why misclassification occurs and of how it affects data on Indian students beyond simply inflating their numbers;

2. Comparing Indian college students who come from urban and rural backgrounds to determine if and how they differ in personal and academic background, interests, values, attitudes, college choice behavior, educational and career aspirations and outcomes and, thus, in need for educational services and assistance;

3. Comparing male and female Indian college students to determine if and how they differ in personal and academic background, interests, values, attitudes, college choice behavior, educational and career aspirations and outcomes and, thus, in need for educational services and

assistance.

4. Examining differences between persisting and nonpersisting Indian college students, with particular attention to predictors of college persistence; and

5. Examining variables that are significantly related to level of educational attainment, with particular attention to predictors of high achievement.

This study is both descriptive and analytic, examining the characteristics of a cohort of Indian college students who entered college in 1971, and following their progress over a period of eight years.

The review of the literature, presented in Chapter 2, provides a context for this study. It includes a brief demographic profile of the American Indian population and discusses a number of barriers to educational achievement that Indian students may encounter. Chapter 3 describes the design of this study, including data sources and instruments, the sample, operational definitions of key variables, data analyses, and limitations of the study. Differences between Indian students and students who indicate a tendency to misclassify themselves as Indian are discussed in Chapter 4. Chapter 5 presents the results of the comparison of Indian students from urban and rural backgrounds, while Chapter 6 describes differences between male and female Indian college students. The descriptive profiles are presented in six sections: (1) personal background; (2) precollegiate education; (3) aspirations, self-concept, values, and attitudes; (4) reasons for going to college and college expectations; (5) college choices and experiences; and (6) college outcomes. The seventh chapter focuses on the two college outcomes of

interest in this study: persistence and level of educational attainment. Differences between persisting and nonpersisting students are described and the predictors of each educational outcome are discussed. The study's research findings are summarized and discussed in Chapter 8, with particular attention to their implications for educators, policymakers, Indian students, parents, and tribal organizations. Recommendations for future research are presented.

Chapter Two

Review of the Literature

What reason do we have to believe that Indian students are different from any other student population or that they might have special or unique educational needs? American Indians are an economically and educationally disadvantaged population. In their final report, the American Indian Policy Review Commission states:

> From the standpoint of personal well-being, the Indian of America ranks at the bottom of virtually every social statistical indicator. On the average, he has the highest infant mortality rate, the lowest longevity rate, the lowest level of educational attainment, the lowest per capita income and the poorest housing and transportation in the land. (1977, p. 7)

Whether the American Indian population ranks at the bottom of these key social statistical indicators, as the Commission contends, or clusters at the lowest end of these scales, exchanging last place with the black, Puerto Rican, and Chicano populations as other sources suggest (Almquist and Wehrle-Einhorn, 1978; U.S. Commission on Civil Rights, 1978), their disadvantaged status is indisputable.

The 1980 census counted 1.4 million Native Americans, accounting for 0.62 percent of the nation's population and representing a 71 percent increase over the previous decennial census (Nelson, 1981). The Indian population is young: the median age in 1980 was 23 years, as compared with 31.3 years for Whites, 24.9 years for Blacks, and 23.2 years for persons of Spanish origin (U.S. Bureau of the Census, 1981). Although Indians live in every state of the nation, over three-fourths

live west of the Mississippi River, and six states--California, Oklahoma, Arizona, New Mexico, North Carolina, and Alaska--account for over half (53 percent) of the total Indian population (U.S. Bureau of the Census, 1981). The Native American population is less urban than than the general population: in 1970, 73.5 percent of the nation's population lived in urban areas, as compared with 44 percent of the Indian population (U.S. Bureau of the Census, 1973). Dorris (1981) and Sorkin (1978) estimate that the 1980 census will find that about half of the Indian population now lives in urban settings.

Relative to their rural counterparts, urban Indians have higher levels of educational attainment, lower levels of unemployment, and higher incomes. In 1970, urban Indians age 25 and over had completed an average of 11.2 years of schooling, as compared with 8.7 years for rural Indians in this age group and 12.1 years for Whites (Almquist and Wehrle-Einhorn, 1978; Sorkin, 1978). In this same year, 4 percent of white men were unemployed, as were 9 percent of urban Indian men and 41 percent of Indian men living on reservations (Sorkin, 1978). The 1970 census found that 15 percent of the total U.S. population, 34 percent of the Indian population, and 68 percent of rural Indians earned an annual income of $4,000 or less (U.S. Bureau of the Census, 1973).

Although the proportion of Indian families living in poverty declined from over one-third (36 percent) in 1969 to about one-fourth (26 percent) in 1975, Indian families were almost three times as likely to be living in poverty as were majority-headed families in 1975 (U.S. Commission on Civil Rights, 1978).

In 1970, only one-third of the total Indian population age 25 and

above had completed high school, compared with over half (55 percent) of the white population. Only 11 percent of the Indian population over the age of 24 reported ever having attended college, and only 12,195 people (4 percent) had been enrolled for four or more years (U.S. Bureau of the Census, 1973). Educational attainment is inversely related to age among Indians: that is, the younger the age cohort examined, the higher the level of schooling completed. Thus, in 1970, 57 percent of the men and 58 percent of the women ages 20-24 had graduated from high school in contrast to 27 percent of the men and 28 percent of the women ages 45 to 64 (U.S. Bureau of the Census, 1973). Nonetheless, the 1976 high school nonattendance rates of 15-to-17 year-old youth (14 percent of Indian boys and 15 percent of the girls) are approximately three times those of white males (U.S. Commission on Civil Rights, 1978). The high school dropout rate of American Indian youth--variously estimated at 40 to 60 percent, versus 16 percent for the total population--remains a matter of serious concern. In 1975, Parsons reported that, although an estimated 90 percent of school-age Indian children attend school, only 50 percent complete twelth grade, only 17 percent enter college, and, of those students, only 4 percent graduate.

In general, it appears that about half the nation's high school graduates go on to attend college. At the time of the Project TALENT five-year follow-up, about half their sample of 1960 and 1961 high school seniors had attended college (in Astin, El-Khawas, and Bisconti, 1973). A 1967 follow-up of SCOPE's four-state sample of 33,879 high school seniors of 1966 found 61 percent of the whites and 40 percent of the minority students (including 30 percent of the Indians, the lowest

rate of any minority group) had entered some form of postsecondary education in the fall after high school graduation (Cross, 1976). The second follow-up of a more recent cohort of high school seniors, the class of 1972, found 49 percent of the nationally representative sample entered college within two years, most (44 percent) immediately after completing high school (Fetters, 1977). This study also found that the proportion of white high school seniors subsequently entering college (53 percent of the men and 47 percent of the women) was greater than the proportions of their minority peer groups (40 percent of black and 45 percent of Hispanic men and 42 percent of black and 37 percent of Hispanic women). Cross observes:

> Race has been and continues to be one of the major barriers to higher education. Membership in an ethnic minority group, frequently coupled with low family income, low parental occupational and educational status, poor school achievement, and low test scores, has posed a near insurmountable barrier to college for thousands of young people. (1976, p. 114)

The AAAS Project on Native Americans in Science (1977) reports that, by 1972, 35 percent of American Indian high school graduates, as compared with 53 percent of Whites and 43 percent of Blacks, were enrolling in some form of postsecondary education. Thus, it appears that about one-third of all Indian high school graduates, a group whose ranks have been reduced by steady attrition throughout secondary school, enter some form of postsecondary education. We do not know what proportion of these youth seek vocational or technical training rather than entering an academic college program, nor do we know to what extent college-going rates vary within the Indian population by region, tribe, or urban versus rural home environment. That such differences exist is illustrated

by a state of New Mexico analysis that indicates that 2 percent of Pueblo high school graduates matriculate at college and, of these, only 3 percent will go on to earn degrees (in Gabriel, 1979).

Barriers to Educational Progress and Attainment

The available literature and data indicate that those Indian youth who have entered college during the past decade have not had an easy time of it. Green lists some of the attitudinal, cultural, institutional, technical, and skills-related barriers that Indian youth pursuing a general education may encounter:

> ...poor or no counseling; bad, unskilled teachers; a negative image of science and scientists; no role models; lack of money for college; fear of failure; poor preparation in basic skills; lack of community priority for collegiate education; parental, family, or marital problems; culture conflicts; and poor study habits; all contributed to retard educational progress. (1978, pp. 1-2)

These problems can be classified into four general categories for closer examination: (1) nature and quality of past education; (2) finances; (3) lack of role models; and (4) culture conflicts (a) related to the home community and (b) related to the college environment.

Past Education

Poor preparation in basic skills; poor study habits; bad, unskilled teachers; poor or no counseling; and, to some extent, fear of failure and a negative image of science and scientists are all related to students' precollegiate educational experiences. In a newspaper interview (Adler, 1979), the director of an federally-funded Indian service center in Los Angeles recalled attempting--and utterly failing--coursework in one of the city's community colleges. The experience was, he reported,

a disaster because his academic background, acquired primarily in reservation schools, was just not comparable to that of his classmates.

Coombs reviewed the literature for a 1970 paper on Indian educational disadvantages and concluded: "These researchers found not only that Indian students achieved well below white students but that they fell further behind as the higher grades were reached" (in Antell, 1977). Bass (1971) followed his sample of high school students from fall 1966 to spring 1970 and found that, although their achievement test scores improved progressively from grade nine to twelve, their status vis-a-vis the national norms steadily worsened: Entering ninth grade, Indian mean scores were only one year below the national norms but, by the time these students were about to graduate, their mean scores indicated that they had fallen two and a half years behind the national average high school student. A more recent Review of the Literature on Educational Needs and Problems of American Indians and Alaskan Natives: 1971 to 1976 found no improvement: "According to the common measures of scholastic achievement, Indian students generally do not perform as well as whites" (1977, p. 156).

As Ross (1979) notes, this tendency among Indian students to perform poorly on standardized measures of academic achievement cannot be attributed to a lack of aptitude for intellectual pursuits. A nationwide test of first-graders in 1965 found that Indian students' mean scores on nonverbal intelligence tests were slightly above the national mean score for all students and only about one-quarter of a standard deviation below the mean score for Whites (findings from the Coleman Supplement cited in Ross, 1979).

Cross (1976) reports that when a sample of junior college students (13th-graders) from 45 schools were tested on verbal and grammatical skills in 1969, as part of the Comparative Guidance and Placement Program, 29 percent of the Whites and 54 percent of the American Indians (a smaller proportion than any of the other minority groups) scored in the lowest two-fifths of the total population. In interviews with an unspecified number of Indian college students and 26 Indian college dropouts about the basic causes of high college attrition among Indians, McDonald found that poor education was high on everyone's list:

> ...previous education is a major stumbling block to successful higher education for many Indian students.... The students and other interviewees from the reservation perspective were in almost unanimous agreement that they were not prepared to compete with university students. (1978, p. 74)

The two problems most frequently reported by respondents to a survey completed by 2,736 Indian students receiving financial assistance for college from the BIA were poor study habits (26 percent) and inadequate preparation for college (23 percent) (Indian Education Resources Center, 1973).

The government is aware of this problem, although progress in addressing it appears to be slow:

> ...the magnitude of the Indian education problems and the complexity of the problems make it essential for the BIA to have a well-organized and managed program specifically designed to meet the needs of Indian students....
>
> ...the major national goal established by the Congress to provide the quantity and quality of educational services and opportunities which will permit Indian children to compete in the careers of their choice is no nearer to being achieved than it was four years ago. (U.S. General Accounting Office, 1977, p. 19)

Falling (1979), formerly the BIA's higher education assistance specialist, believes that Indian college students' biggest barrier to success is their lack of secondary school preparation to compete, especially in mathematics and the sciences.

Poor academic training and low skills in mathematics and the sciences have been specifically mentioned by other researchers who have studied the problems encountered by Indian college students (Artichoker and Palmer, 1959; Picotte, 1974; Review of the Literature, 1977; U.S. General Accounting Office, 1977b). A report from the Conference on Mathematics in American Indian Education concludes:

> Conferees felt, in general, that the low achievements of most Indian students in mathematics and math-related fields is due largely to the lack of good training rather than to any factor mitigating against math competence inherent in tribal cultures.
> (Green, Brown, and Long, 1978, p. 2)

Furthermore, they attribute this lack of good training to a prevalent feeling among teachers, counselors, and administrators that "a more-than-rudimentary mathematics competence is beyond and/or irrelevant to Indian needs" (p. 3), an assumption that they consider both racist and educationally erroneous. A college counselor reports: "The main problem areas for Native American students at New Mexico State University are in math and science; physics, biology, chemistry, and computer sciences" (Evaluation Report of Indian College Student Counseling Program, 1976, p. 24).

Are Indian students who enter college with a stronger academic background more successful? Patton (1973) found high school rank was positively associated with persistence in college, and Jeanotte (1982) reports that Indian students who persisted at the University of North

Dakota had higher high school grade point averages and ACT composite scores than nonpersisters. A survey of BIA-supported students attending seven colleges and universities conducted by the U.S. General Accounting Office (GAO, 1977b) found that students with higher ACT scores tended to earn better college grades. However, the average ACT composite scores of 313 freshmen (13), 300 undergraduates (14), and 105 graduates (14) were almost identical, all falling within the range considered to be indicative of a restricted educational development background. Kohout and Kleinfeld (1974) report that Indian, Eskimo, and Aleut students entering the University of Alaska with high levels of academic preparation were succeeding at a much lower rate than their majority peers and that their rate of success had not increased from 1962 to 1973. They also found that the continuing high attrition rates for Native students could not be attributed to academic failure: The proportion of Native students dismissed for academic reasons had declined from 57 percent in 1963-64 to eight percent in 1971-72.

The extent and effects of academic difficulties can be compounded by inadequate counseling and remedial or tutorial services. Although 80 percent of 328 Pueblo elementary or secondary school dropouts ages 16-21 reported that they had had academic problems, most often with math and science, only 29 percent said that a special teacher or tutor had been available to work with them (All Indian Pueblo Council, circa 1978). Lawrence (1974) surveyed 137 Indian college students in North Dakota in the early seventies and found that 75 percent of them felt that Indians entered college without knowledge of what college life was like and the work college required. A study of 106 Indian college students and grad-

uates living in Oregon concluded: "There is a deficiency in practical preparation for college available to Indian students in the majority of their high schools" (Picotte, 1974, p. 93). In addition to the need for better preparation in basic skills, Picotte points out the special need for high school counseling. Indian parents often cannot advise their children about educational decisions and college-attenders appeared to lack a realistic view of college requirements and clearly defined personal goals.

Encouragement, support, and guidance from teachers and counselors can enable students to make informed decisions. An awareness or even a belief that they have received poor precollegiate training may lead to a fear of failure and a lack of self-confidence that further handicap Indian students. About one-fifth (22 percent) of Picotte's sample said that this psychological barrier had complicated their adjustment to college. Fear of failure can also discourage students from applying to more selective colleges with reputations for academic excellence. Often these are the schools that have more educational resources and services available to assist educationally disadvantaged students.

In sum, Indian students appear to encounter academic problems and to receive a generally poorer education in elementary and secondary school more often than their majority peers. In general, Indian students who enter college are less well prepared academically and appear to be less knowledgeable about the academic demands and requirements of college than majority students. The quality of their precollegiate education is related to their academic performance in college and poses one not insignificant barrier to their achievement and persistence in college.

Finances

Indian college students are eligible for federal and state financial aid programs--some of which are specifically designed to serve Native American students--and, in some instances, for scholarships or loans from their tribes or pan-Indian organizations. However, eligibility for and even receipt of financial aid does not provide immunity to financial difficulties. The direct and indirect costs of attending college, including foregone earnings, may make a college education prohibitively expensive.

The Bureau of Indian Affairs' Higher Education Grant Program provides aid primarily to Indian undergraduates. To be eligible for assistance through this program, a student must be: (1) an enrolled member of a recognized Indian tribe; (2) at least one-fourth Indian blood; (3) attending or admitted to an accredited college or university that offers a program leading to a bachelor's degree, either a four-year program or a two-year transfer program; and (4) able to demonstrate financial need. The student submits his or her applications for admission and aid to the institution and the financial aid office develops an individual aid package. BIA grants are intended to supplement funds available through other student assistance programs; they are applied first toward the student's unmet need, after which they may replace the loan and then the work-study portion of the aid package. The student receives no money from a BIA grant until he or she arrives on campus to register and must, therefore, advance money for fees, deposits, or transportation costs payable prior to the beginning of school from personal resources.

Sufficient funds are not available to award grants to all eligible

applicants and, typically, it is the smaller tribes that have insufficient funds to meet demand for aid. In fiscal 1979, the BIA (Leading Fighter, 1981) awarded almost 15,000 grants and the Bureau's scholarship officer estimated that 5-6,000 eligible applicants were refused aid either for lack of funds or because their applications were incomplete. The average grant was for $1,526, meeting half the average college cost of $3,046. Half (51 percent) of the grant-recipients were freshmen, about one-fifth (22 percent) were sophomores, 15 percent were juniors, 11 percent were seniors, and 2 percent were graduate students. Given that the numbers of students receiving grants in the four preceding years were even larger, this distribution by class level suggests substantial undergraduate attrition.

To maintain their eligibility, undergraduates must complete at least twelve quarter or semester hours per term, maintaining a 1.5 grade point average (GPA), if they are freshmen, or a 2.0 GPA, if they are classified as sophomores, juniors, or seniors. These minimum eligibility requirement were instituted in 1978, although the GAO (1977b) study had found that only about one-fourth (24 percent) of 430 Indian undergraduates at seven colleges and universities were meeting them. These students appeared to be more successful at meeting the GPA than the courseload requirement. The average GPA of 203 Indian baccalaureate-recipients was 2.7, well above the minimum GPA, but their average time-to-degree was twelve semesters. Based on their study, the GAO estimated that Indian undergraduates needed 13 semesters to complete a bachelor's degree program. Maximum undergraduate grant eligibility is five academic years: 10 semesters or 15 quarters.

An earlier GAO (1975) investigation into the functioning of the financial aid process as it affected Indian students found that, in some instances, BIA grants had been used instead of rather than as a supplement to other government student aid programs. The study also found that Indian students often reduced their chances of obtaining assistance from other aid programs by submitting late financial aid applications. The GAO report attributed this tendency to submit late applications to (1) delayed or last minute decisions to attend college; (2) poor high school counseling about how to apply for financial aid; and (3) the application process itself which involves completing a number of forms, many of them complicated and confusing. Because students often do not receive all the types of aid for which they are eligible, BIA grant funds must meet a larger portion of their need and, thus, fewer students can be awarded grants.

The Department of Education's Office of Indian Education offers fellowships to undergraduates and graduate students in business administration, engineering, natural resources and related fields, and to graduate students in the fields of education, law and medicine. About 700 persons applied for fellowships for academic year 1980-81; 223 received them and the average award was $6,700. Eligibility for these fellowships is not dependent on blood quantum or tribal enrollment. The Office of Indian Education also manages the Educational Personnel Development Program (EPD) which supports students indirectly through grants to higher education institutions, tribes, or Indian organizations who provide aid to students enrolled in the programs supported by the grants.

The Indian Health Care Improvement Act of 1976 (PL94-437) provides

Health Professional Preparatory Scholarships and Health Professions Scholarships. The preparatory scholarships support compensatory preprofessional training so that recipients will be able to enter degree programs at accredited institutions; in recent years about 120 students have participated annually. The Health Professions Scholarships are awarded to students in degree programs; there were about 330 recipients in fiscal year 1978.

Indian students are, of course, eligible for federal student aid programs. Pell Grants, formerly called Basic Educational Opportunity Grants (BEOGs), are available only to students who are attending college on at least a part-time basis. Loans are not an especially attractive form of assistance to low-income students. The Indian students interviewed by the GAO staff (1975) said they much preferred supplemental grants to either work-study support or loans; some said that they would refuse aid in the form of work-study or loan commitments. Although National Direct Student Loans (NDSLs) were formerly excused if persons undertook repayment through public service, such as working on a reservation, this option is no longer available. The Indian student's prospects of obtaining a loan from a commercial lender through the Guaranteed Student Loan Program (GSLP) are slim, even if the student was willing to assume the liability of a debt that might equal or exceed his or her parents' annual income. The BIA does make loans available to students who cannot find another source of financing their education and who are otherwise ineligible for loans from a credit association. However, students are advised to apply for a minimal amount--unless special circumstances prevail, these loans are limited to $500 per school year--

since these funds are reserved for Indians interested in starting a small business and competition for them is stiff (Career Development Opportunities for Native Americans, undated).

Within their home states, Indian students are eligible for any state higher education aid programs that are open to all state residents. Some states have special provisions for Indian assistance. The BIA's Career Development Opportunities booklet which appears to date from the mid-seventies cites programs in Alaska, Arizona, Florida, Minnesota, Montana, Nebraska, and New York for state residents, some only for students of at least one-fourth degree Indian blood. In Montana, this aid takes the form of waiving tuition in public colleges and universities. McDonald reports of the Montana system:

> The rhetoric looks good, but in actuality the program is close to being a deliberate and distorted lie. In the first place, Montana does not charge tuition as such. Rather, a complex fee system is put upon the student. The student ends up paying as much in fees as the so-called fee waiver. (1978, p. 76)

In 1981, the BIA scholarship officer reported that Montana, South Dakota and Wisconsin were either greatly reducing or eliminating tuition waiver or scholarship programs for Indian students (Standing Elk, 1981).

Sheer bureaucratic inertia can create another problem for Indian college students: delayed receipt of awards. All of the interviewees at two New Mexico public, four-year institutions agreed that scholarship grants accounted for a major part of the problem students faced: "The uncertainty of when and how much money each student is to receive from their scholarship program has been a constant worry for students as well as the counselor" (Evaluation Report on Indian College Student Counseling Program, 1976, p. 4). McDonald (1978) points out that the late

receipt of fee waivers can lead to a situation where students must delay registering for classes and may end up having to pay the college's maximum late registration fee. Nonetheless, it is more likely the psychological stress and uncertainty rather than the financial expense that is the primary "cost" engendered by this situation.

In the survey of Indian students receiving aid through the BIA Higher Education Assistance Program, 15 percent of the respondents cited "lack of finances" as a problem. Three-fourths of all respondents said that they received no financial support from their parents, and another 21 percent indicated that they received $300 or less from this source. Respondents who had dropped out were asked to indicate the one primary reason that they had withdrawn from college: One-fifth reported "lack of funds" and almost as large a proportion (18 percent) said they left school in order to go to work, a response which may reflect financial problems (Indian Education Resources Center, 1973). It appears that few Indian students can expect to receive substantial financial assistance from their families, a traditional source of support for most college students. Furthermore, given the demographics of the Indian population, especially the rural population, it is likely that many families badly need financial assistance from their college-age offspring.

An Indian higher education counselor on an Arizona reservation reported that he found students' inexperience in managing money and budgeting resources was often a more serious problem than lack of aid (Noriega, 1981). He found that when students received their stipend for the academic term, many simply overestimated their ability to meet their educational and living expenses. When they found they had exhausted

their funds long before the next check was due, they left school. Picotte (1974) reports that 31 (55 percent) of the 56 Indian students and graduates she interviewed said they had had no training in budgeting money and felt it would have helped them. Nonpersisters were especially likely to indicate this need. Similarly, Jeanotte (1982) found that dropouts did not differ from persisters in their perceptions of the adequacy of their aid but were more likely to rate themselves poorly on financial aid management.

By virtue of their educational, socioeconomic, and cultural backgrounds, many Indian students feel like outsiders when they arrive on campus. Their often tenuous financial situation provides a not-so-subtle reminder than they don't really belong there and certainly cannot afford many of the amenities of college life enjoyed by their majority peers. McDonald describes the situation that many Indian students find themselves in:

> ...the Indian student does not have the kind of assistance that is necessary for survival in a college town. He ends up with virtually no spending money, money for clothes and other things that are essential for the development of high morale and peace of mind. He seldom has money for transportation, and thus becomes easily discouraged. This discouragement naturally generalizes to the total academic environment. (1978, p. 77)

Picotte found inadequate financing created problems for Indian students, but these problems were not major obstacles hindering school achievement: "In many cases the financial aspect was one of many causes or was one of the indirect causes of hindrance to school achievement" (1974, p. 61).

Despite efforts to eliminate financial barriers to higher education for Indian students, meeting the costs of a college education does appear to pose significant problems for many Native Americans. Two-

fifths (41 percent) of the 87 Indian educators who responded to a survey conducted by the Higher Education Research Institute (McNamara, forthcoming) ranked financial difficulties, including problems created by having to work during the school year, among the top three barriers to educational achievement for Indian undergraduates.

Lack of Role Models

Familiarity with role models, older friends or adults who have pursued and achieved educational and career goals, can expand and raise students' degree, field of study, and career aspirations, as well as strengthening their motivation to complete their educational program. Students from impoverished communities with high unemployment may have very restricted knowledge of career alternatives and limited occupational aspirations, since they know few adults who have graduated from college and entered and achieved in professional fields, such as law, medicine, engineering, or microbiology. Bass (1971) studied Indian students in 23 high schools in five areas of the country and reported an evident lack of information about occupations, especially high-prestige occupations. He suggests that this information void may be attributable to the students' low socioeconomic background (less than 30 percent of their parents were high school graduates, and only half their fathers and one-fifth of their mothers were regularly employed) and consequent lack of first-hand acquaintance with many higher status occupations. The researchers who reviewed the literature of Indian students educational needs and problems concluded that their expectations were affected by the career levels that they had seen their parents and peers obtain (Review of the Literature, 1977).

One-third of the Indian educators who responded to the Higher Education Research Institute's survey cited "lack of role models in their home communities and among college faculty" as one of the top three barriers to educational achievement among young Indian men; one-fourth felt this was as significant a barrier for young Indian women (McNamara, forthcoming). The small numbers of Indians in many professional fields have been documented by Chavers (1979), Green (1978), and Greenbaum, Becenti, Cole, and Wishkeno (1980). When one hears of dramatic improvements in Indian higher education participation and degree attainment rates, it is important to remember how very low the bases for these comparisons were as recently as ten years ago. There may be over four times as many Indian attorneys today as there were ten years ago, but the absolute number is still only about 150 (Chavers, 1979) to "over 200" (Falling, 1979) in a population of 1.4 million. How many Indian youth are likely to know an Indian attorney and, thus, to see law as one of their career alternatives?

Many Indian children do not come from homes where higher education is considered to be an inevitable phase in a child's preparation for entering the adult and work worlds. Furthermore, many cannot turn to their families or friends for information about higher education institutions and options or for advice about career alternatives and the prerequisite training to enter various occupations. Nevertheless, parental encouragement does appear to be critically important to their children's decision to enter and remain in college. Kidwell reports: "Parental support and encouragement seem to be the greatest factors in motivating Indian students to complete high school and go to college" (1976, p. 31).

Quimby (1963) found parental attitudes toward education were the most important background characteristic differentiating persisting and non-persisting Indian students. Lawrence (1974) reports that, although neither parental education nor income were related to Indian students' college satisfaction, parental encouragement did appear to play an important role. Three-fifths of the Indian educators who responded to the Higher Education Research Institute survey (McNamara, forthcoming) said that the support or encouragement of their family or of a particular family member had been critical to their completion of a bachelor's degree.

The absence of parental support, on the other hand, can have a chilling effect on college persistence. Dr. Annie D. Wauneka, the only woman member of the Navajo Tribal Council at the time she was interviewed and a member for the past 25 years, spoke of the college dropout problem among the Navajo:

> The Navajo parents themselves don't motivate their younger generation to keep on going to school. Once the child writes a letter back and says, "I'm lonesome, I want money, I want this," the parent says, "come home," so they come home. I think that's one of the basic problems we have.
>
> (Indian Problems, 1976, p. 76)

Parents whose own educational experiences were characterized by academic failure, alienation, and personal unhappiness will certainly feel mixed emotions about encouraging their children to pursue an education, especially if the child seems to be reluctant to do so.

In sum, Indian students may be handicapped by their limited familiarity with persons from backgrounds similar to their own who have completed undergraduate or advanced degrees and who have pursued profess-

ional careers. Although the encouragement and support of their families can be critical to their educational achievements, family members often lack the experience and background that would enable them to advise and guide their children's educational and occupational decisions.

Culture Conflicts

Native Americans also encounter unique difficulties related to the "fit" between their history, culture, and values and those of the dominant society. An obvious example is the adjustment that children from homes where an Indian language is spoken[2] must make when they enter a school where English is the language of instruction. Their first academic experience is characterized by "not belonging," confusion, and failure. By the time they can do school work in English, they have fallen behind the modal grade for their age cohort or have been relegated to the class's slow-learners group.

Historically, education has been used as a tool in efforts to assimilate American Indians into the larger society and to relieve the federal government of its treaty-established responsibilities and obligations to the tribes. Indians who value their tribal and cultural identity are--and have every reason to be, from an historical perspective--concerned and skeptical about participating or encouraging their children to participate in educational institutions controlled by Whites. Dumont and

2. While the proportion of children who enter school speaking a Native language is not known, the 1970 census (1973) found 32 percent of all Indians and 58 percent of those living on reservations reported an Indian mother tongue. Fuchs and Havighurst (1972) report a BIA estimate that two-thirds of the children attending its schools speak another language. Bass' (1971) sample of high schools was more diverse, including both federal and public school located on and off reservations, yet he too found two-thirds of the students reported their principal home language was a Native one.

Wax, who observed Cherokee children in the classroom in northeastern Oklahoma, described the classroom as the "arena for an unequal clash of cultures" (1976, p. 207). They state:

> Forced to attend school, the Indian children there must face educators who derive their financial support, their training and ideology, their professional affiliation and bureaucratic status, from a complex of agencies and institutions based far outside the local Indian community. The process is designed to be unidirectional; the children are to be "educated" and the Indian communities thus to be transformed. Meanwhile, neither the educator nor the agencies for which he is a representative are presumed to be altered--at least by the learning process. (reprinted in 1976, pp. 207-208)

Witt (1980) points out that children may find it very difficult to live and operate effectively in two cultures, often their self-concept suffers. The Office of Indian Education (1976) describes the conflict between the social priorities and cultural values of the Indian community and those of the school system as placing Indian children between two opposing forces and contributing to their poor academic success.

The Indian youth can experience conflict about attending college that is created by the values, demands, and priorities of the home community, as well as by conflict on campus as a result of tension between or misunderstanding of his values, attitudes, beliefs, and behavior and their incongruence with those expected on campus. In some Indian communities, there is indeed the "lack of community priority for collegiate education" cited by Green. In fact, the young person who elects to attend college may be seen as lost to the community, as deserting it for "the white man's ways." Gabriel, searching to identify why so few Pueblo high school graduates went on to college, concludes: "The resistance to college is cultural and the most often cited cultural barrier

is the inviolability of the Pueblo family, which may make it impossible for even grown men and women to leave the reservation" (1979, p. 59).

While each Indian tribe or band has its own distinct identity and culture, in most Native American cultures, the survival and well-being of the tribe and of one's extended family take precedence over individual desires and objectives. Falling says: "Indians will take care of their cultural problems and responsibilities first and then, if they can fit it in, they'll go after an education" (1979, personal communication). Young people in the Pueblo community, where the importance of education is not emphasized and incomes are low, feel obligated to help their families out. Gabriel reports the case of a young man who left college, after his father was killed in an accident, to help care for the maiden aunt who had helped to raise him. The one primary reason most frequently cited to explain their departure from college by BIA-assisted students who had dropped out of college was "family obligations," cited by 21 percent (Indian Education Resources Center, 1973). Of the 56 Indian college students and graduates interviewed by Picotte (1974), 26 (46 percent) reported that they had had an obligation to support other persons while they were students.

In the more traditional Indian communities, important religious and cultural ceremonies are attended by the entire community; it is expected that people who are away from home will return for these events. Individuals care for, aid, and share their personal resources freely with other members of the community. McDonald notes: "...in many cases the principle of higher education and the credentialing process is hard to incorporate into the sharing concept because it is seen as individual

and personal gain, with little applicability to other people" (1978, p. 83). Even when tribal scholarship funds for higher education have been established and education is an articulated priority of the tribal leadership, as is the case in the Navajo tribe, the community and parents may not share or communicate this valuing of education to their young people, as Dr. Wauneka reports.

The Indian student who does enter college often encounters a strange and alien environment and may experience another kind of culture conflict as he or she attempts to live in or to live with the values and behavioral expectations of two cultures. Dartmouth College's recommitment to Indian education provides an excellent example of an encounter with a well-intentioned but, to Indian students, offensively racist environment:

> Kemeny (Dartmouth's president) did not give much thought to the fact that the Indians would arrive that fall to find an Indian head painted on the basketball floor and a student in body paint and feathers running around on the football field. To the extent that the subject entered his mind, he later said, it occurred to him that the Indian students might take a measure of pride in their college having as a symbol a strong and heroic Indian brave. He was mistaken.
>
> The Indians hated the symbol. Politically aware young Indians bitterly resent the tendency of most Americans to view Indian history through the eyes of a Hollywood director--a tendency that can cause a demonstration on serious issues to be dismissed with some lame jokes about the redskins being on the warpath again. The Indians who came to Dartmouth were appalled at the sight of a cheerleader in body paint and feathers. They were angered by the implication that a college that was supposedly founded to educate Indians but had managed to graduate only a dozen of them in two hundred years had some legitimate claim on an Indian tradition. The Indian head worn on Dartmouth jerseys struck them not as a reminder of Indian strength and pride but as a reminder of how white Americans continued celebrating a heroic stereotype of the people they had reduced to an existence

> dominated by poverty and alcoholism and suicide. Indian students hated the song of Eleazar Wheelock's journey to the Wah-Hoo-Wahs with five hundred gallons of New England rum, and they hated even more some murals in a faculty dining room called the Hovey Grill which depicted the song partly through paintings of half-naked Indian women and a boozy brave trying to catch the last drop of rum from Wheelock's keg. In a policy statement in 1971, the Indians at Dartmouth asked that all manifestations of the Indian symbol be removed from the campus. (Trillin, 1979, p. 132)

This demand met with concerted resistance from the Dartmouth alumni, and it took a number of years before the Alumni Council and people on campus understood and appreciated why the symbol was inappropriate and offensive to the Indian students. An incident which occurred as late as fall 1978 showed that this issue and the antagonism surrounding it were still not resolved. In June 1981, students still had not agreed on a symbol to replace the Indian warrior.

For the rural Indian, arriving on a college campus can create profound culture shock. Emmett Hunt, a native of the Laguna Pueblo who works as the cross-country coach at the Laguna-Acoma High School in New Mexico, explains that he counseled a promising young runner to attend Eastern New Mexico State University rather than accept an offer from Villanova because, if he had gone to Villanova, he would have been home in a week:

> ...these kids aren't like other kids. You take them off the reservation and they're lost. Suddenly they have to do everything for themselves, instead of relying on their family and tribe. A lot of times people have to do things for them that would be common knowledge for any Anglo or black. An Indian who needs a pair of pants will go into a store and won't know how to explain to a salesperson exactly what he wants. He'd rather buy something and be dissatisfied with it later than ask for help. It's the same way with education. If he were flunking out, he wouldn't ask for

help, simply because he'd be afraid or ashamed.
(in Gabriel, 1979, p. 59)

The student did go to Eastern New Mexico where he was the top runner on the cross-country team for a couple of months and, then, he dropped out. The strangeness of an unknown world, the attractiveness of a $9-hour job in the uranium mine, and the responsibility he felt to care for his girlfriend and his son, who was born when he was sixteen, brought him home to the reservation.

With academic survival itself a struggle, the Indian student who has few or no Indian peers on campus and who lacks access to an effective support system is virtually destined to become an attrition statistic. The Indian dropout rate at Dartmouth was high in the early years of the college's effort to attract and enroll more Indian students. However, once a "critical mass" had enrolled, a support program and a Native American House were founded, and an area-studies program built around the Indian experience in North America was established, with support from an Indian faculty member, the dropout rate for Indians began to more closely resemble that of the institution's total student body. Ross (1979) found the dropout rate of Yakima college students who attended Haskell Institute, a predominantly Indian two-year college, was considerably lower and much closer to the national average for two-year students than was the rate for students who attended other, predominantly majority, two-year institutions.

In her study, Ross identified a number of sources of potential conflict for the Indian student in a predominantly white college environment. She describes culture conflict as:

> ...the result of situations in which behavior that is perceived as unintelligible or misleading by members of one cultural group is at the same time seen by members of another cultural group as acceptable or expected behavior arising from a coherent conceptualization of life. (1979, pp. 47-48)

The traits she identified are recognized, she believes, only covertly--if at all--by Yakima students and college personnel, yet she explains how each of them may create conflict, tension, or misunderstanding between the Yakima Indian college student and his or her majority peers, instructors, and administrative staff.

A review of the literature suggests that some, if not all, of these traits are descriptive, at least to some extent, of many Indian cultures and therefore merit attention. Table 1 briefly summarizes and paraphrases a lengthy and insightful chapter discussing each trait and how it may conflict with the expectations and values of the college campus. By tracing each trait back to its source within the Yakima culture, Ross explains why it is "acceptable and expected behavior arising from a coherent conceptualization of life."

Speech, communication behavior, and cognitive style of Indians from English-speaking homes may reflect the traditional Native language. Ross (1979) notes that the concepts learned in the home culture are usually not more than one generation removed from and are affected by the Native language. In her study, she found evidence that a subtly distinctive form of English was spoken by the Yakima, a form of English that reflected traits of the Sahaptin language, as well as characteristics of rural, nonstandard English. Witt (1980) points out that dialect or vocabulary differences can be as much a language barrier for Indian children as not speaking English. Unless these children and college

Table 1

Yakima Indian Cultural Traits Identified by Ross (1979) Contrasted with Expected Values and Behaviors of most Predominantly White Campuses

Yakima Traits	Campus Expectations
Linguistic Signal System	
3 clusters of speech behavior traits related to pronunciation, usage, and vocabulary: students speak a distinctive form of English	Students will use standard English in oral and written work; correct use of English will be a criteria for evaluating student work
Linguistic Function System	
Waiting for others to speak up first	Students will express views in class and participate in group discussions
Omitting English courtesy phrases	Students will use English courtesy phrases in interactions with others
Maintaining quiet and distance in uncertain relationships	Relationships are developed through verbal exchange
Traits from Yakima Nonlinguistic System	
Expressing one's beliefs only to one's people, if at all	Instructors will assist students to articulate and evaluate their values; students will be self-disclosing
Expecting as few words as possible to be sufficient	Students will develop verbal fluency; minimum length specifications may be established for essay exam responses and written class assignments; students will clearly explain and develop their theme
Expecting mutual assistance rather than task assignment in group endeavors	Work to be accomplished by a group will be divided and assigned to various individuals for maximum efficiency
Expecting a sizable time lapse in any personal decisionmaking	Students will make decisions within the time allotted; they will meet deadlines set by instructors and by campus regulations
Expecting consensus and freedom of expression to be considered more valuable than efficient group decisionmaking	After a brief discussion period, decisions will be made by vote; the majority vote is binding for all group members

Table 1 (continued)

Yakima Indian Cultural Traits Identified by Ross (1979) Contrasted with Expected Values and Behaviors of most Predominantly White Campuses

Yakima Traits	Campus Expectations
Expecting a person's mistakes or contradicting another to be avoided at all costs	The instructor will assist the student to recognize his or her errors or shortcomings and this may be accomplished by correcting the student in class
Expecting mention of family problems outside the family circle to be avoided at all costs	The student who does not fulfill an assigned responsibility on time will provide an acceptable reason or explanation to the instructor
Expecting withdrawal from a very stressful situation to be considered as acceptable coping behavior	The student should stick it out, making every effort to complete assignments even in the face of adversity
Presumed Primary Motivations and Support System	
Being motivated and supported by one's extended family	The student will function as an independent, self-directed learner
Being motivated and supported by loyalty to family as expressed by such things as attending funerals	College policy and regulations may not allow 3-4 day absences from campus and classes; late submission of assignments and make-up exams with penalty, if at all
Being motivated and supported in attaining benefits for one's family and not just for one's self	Student achievement is fostered by individual competition among students
Being motivated and supported by commitment to preserving the Indian way	Explanations of how subject matter is relevant to or technologies can be adapted to cultural continuity are unnecessary
Preferences in Ways of Doing Things	
Preferring to see something demonstrated rather than hearing it described before attempting it	Students like discovery learning methods and learning by trial-and-error exploration
Preferring to verbalize knowledge only when it is needed to solve a problem at hand	Students want to present themselves in the best possible light and will volunteer information in class and oral exams

Table 1 (continued)

Yakima Indian Cultural Traits Identified by Ross (1979) Contrasted with Expected Values and Behaviors of most Predominantly White Campuses

Yakima Traits	Campus Expectations
Preferring to situate any discussion within the context of one's Indian heritage	It is inappropriate to recognize and speak about a student's ethnicity or racial background
Preferring, in dealing with bureaucracies, to contact acquaintances rather than to deal with established procedures	All students will abide by established rules, regulations, and policies
Preferring to regain peace-of-mind by spending time alone on the reservation	Students will not absent themselves from campus, ignoring academic commitments; they will use the campus counseling services
Preferring to maintain calmness of mind rather than to become anxious or irritated when a time commitment is not met	Students who fail to meet deadlines, especially those who do not seem troubled by it, should be dealt with firmly in order to maintain academic standards

students edit both their speech and their written work to conform to standard English, their teachers and nonIndian peers will perceive them as uneducated and/or incompetent. On the other hand, if their instructors and classmates respond with an exhibition of special concern, the Indian student may also feel inadequate.

Ross identifies three cultural traits associated with the linguistic function system that could result in misunderstanding in the classroom: waiting for others to speak up first and hesitancy about expressing one's views; the omission of courtesy phrases, such as "please" and "thank you;" and maintaining quiet and distance in uncertain relationships. The Yakima are very aware of and responsive to nonverbal cues and communication and expect that using as few words as possible in communicating is sufficient. Dumont and Wax (1976) report similar behavior from their observations of Cherokee children in the classroom. These children have been taught at home that restraint and caution are the proper mode of relating to others, yet they can communicate among themselves with a gesture, voice inflection, or eye movement that the teacher fails to notice at all. If tension rises in the classroom, silence becomes the students' form of passive resistance. Witt (1980) observes that for many Indian children to "look up and speak up," as the teacher instructs, would be disrespectful behavior, especially toward a person of authority. While reticence and brevity may win the teacher's heart, they will rarely gain his or her attention.

Ross suggests that Indians may be more likely to have a relational or field-dependent learning style, while classroom learning is generally structured to an analytical cognitive learning style. This discrepancy

may cause Indian students to feel uncomfortable in the classroom or may cause them to have considerable difficulty assimilating information that is presented in school. Dumont and Wax found that among Cherokee children the "art of relating to other persons so that learning, or other cooperative efforts, may proceed fruitfully and without friction becomes more important to them than the mastery of particular scholastic tasks" (1976, p. 210). Witt (1980) identifies Indian students' lack of response to efforts to make them competitive as a cultural trait that leads to school adjustment problems.

Nonetheless, educators believe that the way to spur children on to achievement is by pitting them against one another in competitive tasks, by praising the student with the right answer and the high achiever in front of his or her peers, and by posting exam scores, grades, and the honor roll, thus singling out and rank-ordering pupils. For students from cultures in which group dependencies and loyalties are powerful and in which cooperative behavior and group well-being are valued, these techniques may not only be ineffective, they may be counterproductive. Indeed, research suggests that competitive and individualistic instruction may be less effective than cooperative learning experiences for all students. Johnson compared the three approaches and found the cooperative goal structure was the "most effective in promoting supportive peer relationships as well as the achievement, healthy development and effective socialization of students" (1981, p. 9).

Although Indian children do appear to like school and to value education (Bass, 1971; Dumont and Wax, 1976; Wax, 1976), the cumulative effects of curricular materials and teaching styles that are irrelevant

or inappropriate and of school personnel who don't understand the cultural structure and values of their students takes its toll. Cherokee children did not reject the assignments and subject matter required by the school or state system educational administration:

> ...pupils proceed with their usual patient intensity to labor at assignments that can have no bearing on their tradition or experience. The fact that they are unable to relate these materials meaningfully to life within the Cherokee community acts as an increasing barrier to their mastery of them. (Dumont and Wax, 1976, p. 211)

Over half (55 percent) of the elementary and secondary school dropouts surveyed by the All Indian Pueblo Council (circa 1978) reported that they left school because their classes were boring and they couldn't see the value of staying in school.

Both Ross (1979) and McDonald (1978) feel that Indian students especially need to understand how or why his or her studies are relevant. Based on his study of Indian students at the University of New Mexico, Norris concluded:

> The course of study at the university did not reflect the needs of the Indian communities to which the students belong. The Indian student decided on a course of study depending upon what sounded good or what the advisor felt would be a credit to the Indian people. In short, the education received bore no resemblance to the type of work that was available or needed on the reservation. (1971, p. 47)

Almost one-fifth (18 percent) of the respondents to the survey of BIA-assisted college students reported that lack of motivation to study was a problem for them and 14 percent of the dropouts said the lack of application or relevance of their coursework was their primary reason for leaving college (Indian Education Resources Center, 1973).

Indian students undoubtedly value education and they may be inter-

ested in the subject matter taught in their college courses, but they also come to college to receive training that will lead to employment in jobs where they can better their financial situation and be of service to their people. Almost one-third of the Indian educators surveyed by the Higher Education Research Institute (McNamara, forthcoming) listed "community service--to acquire training that would enable me to better serve my people and Indian communities" among the top three factors that had encouraged them to complete an undergraduate degree. The authors of the Review of the Literature report: "Helping other Indians is a factor of particular importance in determining career choice" (1977, p. 142). Picotte concludes from interviewing Indians who had pursued higher education:

> Education was viewed as a tool for self-improvement. These participants further stated that learning new skills was regarded as a valuable asset in helping improve conditions for other Indian people on reservations and in urban areas. A strong motivating force was the need for highly qualified Indians who understand the workings of this society. (1974, p. 93)

Lower-division general education requirements may seem so theoretical and unrelated to occupational outcomes that Indian students lose interest in pursuing a college degree.

Cultural concerns, values, and priorities can create conflict and difficulties that affect the educational achievement of Indian students. Many of these cultural barriers are subtle. They may be difficult for college and university faculty and staff members to recognize and appreciate. Students are expected to conform to the rules, standards, values and expectations of the academic community and failure to do so is usually interpreted as emotional immaturity or lack of academic commit-

ment. Educating the educators will not eliminate cultural differences, but it can clarify misunderstandings, promote awareness of ways in which the institution is unintentionally creating stressful situations, and encourage efforts designed to reduce barriers to academic progress that are caused by cultural conflict.

Summary

Any college student who found himself or herself confronted by and having to cope with any one of these problems--poor educational preparation for the academic demands of college, financial difficulties, no role models to emulate, or culture conflicts with his or her home community or college campus--would find it difficult to remain motivated and focused on an educational objective. The literature suggests that many Indian students must deal with several, if not all, of these problems.

Most educational institutions have failed to recognize and respond to the needs and problems of Indian students. Instead, they tend to dismiss their failures by saying that the student just wasn't academically or emotionally equipped for college life and continue their search for the mythic "qualified" student. The attrition rate of Indian college students reflects this institutional tendency to put the burden of adjustment on the student. Dropout rates for Indians are extraordinarily high, far greater than those of majority or all college students. Sorkin (1978) puts the college dropout rate for Indians at 75 percent, McDonald (1978) at 79 to 93 percent, and Chavers (1979) at 85 percent.

Estimates are, that among all college students, just under half (46 percent) will fail to earn a degree (Chavers, 1979; HEW estimate

cited in GAO, 1977). Among those students seeking a four-year degree, it appears that about 70 percent will eventually earn their objective (Astin and Panos, 1969; Pantages and Creedon, 1978), although it may take more than four years. Astin (1975) found Chicanos and American Indians had the highest dropout rates of any student populations in his study. When he looked at attrition rates for four-year institutions only, each groups's dropout rate declined, yet the dropout rate for American Indian students showed the least change of any group, decreasing only slightly, and was the highest of all the groups. In a more recent study that traced the progress of the entering freshman class of 1971 over an eight year period, Astin et al (1982) found that about 56 percent of the white students had completed a bachelor's degree, as compared with 39 percent of the American Indians. Again, this study found that Chicanos and American Indians had the lowest degree completion rates of any student population, and that degree completion rates were lowest among students who matriculated at community colleges. About 73 percent of the Whites who began their college education at universities and four-year colleges had completed baccalaureates, as had 59 percent of the Indian students who attended four-year colleges and 46 percent of those who attended universities. Among students who entered two-year colleges their freshmen year, 29 percent of the Whites and 23 percent of the Indians had managed to transfer to a four-year college and earn a baccalaureate.

The weight of the evidence suggests that Indian students who--against the odds--have completed high school and gone on to pursue a college degree, enter an environment where their difficulties and/or

discomfort are so great that, in the majority of cases, they will withdraw from school without obtaining a degree.

Chapter Three

Methodology

This study utilizes data that were collected for a longitudinal analysis conducted by the Higher Education Research Institute (HERI) and supported by the Ford Foundation. The HERI study followed up some 48,000 students selected from respondents to the 1971 Cooperative Institutional Research Program (CIRP) annual survey of entering college freshmen (CIRP is described on page 51). The CIRP questionnaire asks respondents to describe their racial-ethnic background by marking all of seven categories that apply, including "American Indian." All freshmen who checked the American Indian response option in 1971 were selected for inclusion in the longitudinal study and were sent follow-up surveys in winter 1980.

The Sample

Of the 288,526 students entering 487 colleges and universities who completed the CIRP survey form in 1971, 2528 (0.88 percent) identified themselves as "American Indian," and 585 of them (0.2 percent of all respondents) marked only this racial-ethnic category. The 196 freshmen who identified themselves as Black and Indian or who marked all response options were classified as Black, reducing the size of the Indian sample to 2,332. (It should be noted that none of the persons so excluded for whom follow-up information was obtained identified themselves as Indian in 1980.) Outdated addresses further reduced the size of the Indian sample: 693 questionnaires were returned as nondeliverable. Thus, the

Indian sample size is reduced to 1,639 when we subtract sample members whose questionnaires could not be delivered.

Follow-up information was obtained for 690 (42 percent) of these 1,639 sample members: 474 (29 percent) returned questionnaires and 216 (13 percent) participated in telephone interviews. However, inclusion in the sample for this study was dependent on corroboration of sample members' classification as Indian. Because the CIRP questionnaire permitted multiple responses to the race-ethnicity item, the follow-up questionnaire and the telephone interview protocol were designed to ascertain primary racial-ethnic identity. The questionnaire asked respondents to select one of seven racial-ethnic response options and, if they chose "American Indian or Alaskan Native" to write in the name of their tribe or band. The telephone interviewer asked if the respondent's classification as American Indian was correct.

Looking first at the 474 questionnaire respondents, we find that 312 (66 percent) identified themselves as White in 1980, 100 (21 percent) identified themselves as American Indian or Alaskan Native, 13 (3 percent) as "Other," 8 (2 percent) as Chicano, 5 (1 percent) as Black, 1 (0.2 percent) as Puerto-Rican American, and 35 (7 percent) did not respond to this question. Close examination of the questionnaires returned by persons who skipped the race-ethnicity item and of the specific responses of persons who chose the "other" category led to the reclassification of seventeen as Indian: nine were "unknowns" whose responses indicated that they were Indian (e.g., they reported participating in a BIA program) and eight were "others" who had written in the name of an Indian tribe, usually specifying their blood quantum. Thus,

117 (25 percent) of the questionnaire respondents were classified as Indian. Only ten surveys were returned by persons who had not identified themselves as Indian in 1971 but who did so in 1980. Careful review of these questionnaires led us to add four of these respondents to the Indian sample, including two Aleuts who had classified themselves as "other" rather than choosing "American Indian" in 1971. Although survey data were obtained for 121 respondents who could be classified as American Indian or Alaskan Native, four returned questionnaires too late in the analysis phase of the project to have their 1971 and 1980 responses merged, reducing the number of persons for whom longitudinal survey data are available to 117.

Telephone interviews were completed with 337 members of the Indian sample and 178 (53 percent) said that our records indicating that they were American Indian were correct. However, our screening item was still too imprecise: Almost one-third (56) of these 178 respondents subsequently returned questionnaires and 33 (59 percent) identified themselves as nonIndian when forced to choose only one racial-ethnic response option. In conducting five of these interviews, the author discovered why this had occurred. An interviewee confirmed that our records classifying her as Indian were correct. When asked if she was an enrolled member of a tribe, she explained that her father was part Cherokee. Would she identify herself as Indian or White in a forced-choice situation such as that presented by our follow-up survey? "Probably as White." Thus, only 145 (43 percent) of the telephone respondents can be classified as Indian, and 23 returned questionnaires after being interviewed over the telephone.

Telephone follow-up information only was obtained for 122 survey nonrespondents who confirmed their classification as Indian. Due to technical difficulties, follow-up information for five subjects could not be merged with their freshman data, leaving us with longitudinal data files for an additional 117 members of the Indian sample. While the screening item used in the telephone interview was not as rigorous as one might like in retrospect, it did screen out over half of the persons who were interviewed and the remaining 117 persons do meet the sample inclusion criterion of identifying themselves as Indian in both 1971 and 1980.

The basic sample for the study consists of the 234 Indians for whom longitudinal data files are available: 117 questionnaire respondents and 117 telephone interview respondents. Longitudinal comparison data are available for 441 persons who identified themselves as American Indian in 1971 but not in 1980.

Data Bases

The longitudinal data base is comprised of (1) baseline data collected at the time of college entry, 1971, by CIRP, and (2) follow-up data collected in winter 1980 by questionnaire or telephone interview.

Baseline Data

The Cooperative Institutional Research Program (CIRP), jointly sponsored by the Laboratory for Research on Higher Education at UCLA and the American Council on Education, is directed by Alexander W. Astin. Each fall, beginning in 1966, the CIRP has surveyed first-time, full-time freshmen entering colleges and universities across the nation. An annual normative report, The American Freshman, is based on these data

(see Staff of the Office of Research, 1971; Astin, King, and Richardson, 1981, for a detailed description of sampling and weighting procedures used to produce this report). These freshman data provide the basis for trend analyses of changes over time in the characteristics, values, goals, and enrollment patterns of entering freshmen, as well as baseline data for longitudinal studies of the effects of college on students.

The CIRP data collection instrument is the Student Information Form (SIF), a four-page questionnaire that is revised somewhat each year to reflect current concerns of the academic community, researchers, and policymakers. The 1971 SIF (see Appendix A) includes 29 items "designed to elicit a wide range of biographic and demographic data, as well as data on the student's high school background, career plans, educational aspirations, financial arrangements, high school activities and behaviors, and current attitudes" (Staff of the Office of Research, 1971, p. 3). Students complete the SIF early in their postsecondary career--during registration, freshman orientation, or the first few weeks of college classes.

Follow-Up Data

The Follow-Up of 1971 Entering Freshmen (see Appendix B) is a 41-item questionnaire designed by the staff of the Higher Education Research Institute (HERI) for use in a major national assessment of the status and progress of minorities in American higher education. This two-and-a-half year research effort was directed by Alexander W. Astin, and the research staff worked in close cooperation with the project advisory board, the Commission on the Higher Education of Minorities.

In early October 1979, "Response," a newsletter reporting summary

data on the 1971 freshman class and describing the forthcoming study, was sent to all members of the CIRP follow-up sample. The purpose of this mailing was to alert recipients to the longitudinal study and to interest them in participating in it and, also, to update their 1971 home addresses.

The last week of December 1979, all CIRP sample members were sent the follow-up questionnaire accompanied by a letter reintroducing the study and encouraging their participation. This mailing was sent to the 1971 home address or to a more recent address, if "Response" had elicited an address update. Questionnaires were sent first-class mail to all persons for whom "Response" had been nondeliverable to insure that every effort was made to forward the questionnaire to its intended recipient.

In early March 1980, all nonrespondents whose questionnaires had not been returned as nondeliverable were sent a second copy of the follow-up survey. A roster of this sample was also created for a telephone interview follow-up effort. The telephone interviews were intended to determine if survey nonrespondents differed from respondents in any significant and systematic way, and to enlarge the sample size by obtaining information on outcome measures related to college persistence, degree attainment, and employment status. The interview protocol is included in Appendix C.

The data collection phase of the research project was concluded in June 1980. As noted earlier, follow-up information was obtained for 690 (42 percent) of the CIRP Indian sample members whose questionnaires were not returned as nondeliverable.

Data Analysis

This discussion of the analysis phase of the study includes operational definitions of key dependent variables, a list of independent variables, and descriptions of both the descriptive and multivariate analyses.

Dependent Variables

The key dependent measure in the descriptive phase of this study is racial-ethnic identification as American Indian or Alaskan Native. Subjects must have identified themselves as Indian in both 1971 and 1980 to be classified as Indian. The descriptive analyses also compare Indian respondents by home environment (urban or rural), gender (female or male), and college persistence to attainment of undergraduate degree objective (persister or nonpersister). The multivariate analyses have two dependent variables: (1) persistence in college to attainment of undergraduate degree objective, a dichotomous variable; and (2) level of educational attainment, a continuous variable. Operational definitions used to classify respondents on the basis of home environment, persistence, and level of educational attainment are provided below.

Home environment. Because no item on the data collection instrument asked about home environment, respondents were classified as coming from an urban or rural home environment on the basis of their 1971 home address. The size of each respondent's hometown was first determined using 1970 census population reports. In most cases, it was then necessary to locate the hometown in an atlas in order to determine whether or not it was a suburb of a larger community. Although most hometowns could be classified as urban or rural, there were some borderline cases

and it was decided to resolve this problem by classifying all towns with a population of 20,000 or more as urban. Appendix D lists respondents' hometowns and their classification status as urban or rural. While there is obviously room for error in a classification strategy based on 1971 home address, since people do not remain fixed in one location from birth to college entry, no better alternative was available.

Persistence. Respondents were classified as persisters or nonpersisters based on their educational aspirations in 1971 and their attainments in 1980. As Astin (1975) and Astin and Cross (1979) point out, it is inappropriate to label a student who entered college aspiring to an associate degree and who subsequently earned this degree and withdrew from school as a dropout. Item 10 on the 1971 questionnaire ("What is the highest academic degree that you intend to earn?") and the highest earned degree reported in 1980 (item 1a) were used to classify respondents as persisters or nonpersisters, with persistence defined as :

1971 Degree Goal	1980 Highest Earned Degree
"none" or "other"	any degree or certificate beyond a high school diploma
associate degree	associate or higher degree
bachelor's or higher degree	bachelor's or higher degree

We are assuming that persons who marked "none" or "other" as their degree goal at college entry did so because the 1971 questionnaire included no response option for persons whose educational objective was a vocational training certificate. Indian secondary education, at least in BIA schools, focused on vocational-technical training until the mid-sixties when postsecondary education, of either an academic or vocational nature, was encouraged. Thus, Indians have a history of participating

in vocational education and, in order to acquire skills necessary to earn a living, many Indians may continue to opt for postsecondary training leading to a vocational certificate.

For persons who aspired to a baccalaureate or higher degree, persistence was defined as having earned at least a bachelor's degree. Eight years after college entry, most people who have been enrolled with any degree of regularity should have completed a bachelor's degree, although they may not yet have had sufficient time to complete an advanced degree. While a number of studies have found that many students take more than four years to complete a four-year degree program (Astin, El-Khawas, and Bisconti, 1973; Astin and Panos, 1969; Pantages and Creedon, 1978) and the U.S. GAO study estimated that the average Indian student needed six and a half years to earn a baccalaureate (1977b), most students should have been able to complete the baccalaureate within eight years. Second, the focus of this study is on the undergraduate experience, and students aspiring to advanced or professional degrees must first earn a baccalaureate before applying to advanced degree programs. Furthermore, many students who have high initial degree aspirations at the time of college entry scale down their goals and expectations once they have attended college. For example, Astin, El-Khawas, and Bisconti (1973) found that 43 percent of the men with high aspirations as freshmen, in 1961, had earned no degree beyond the baccalaureate ten years later and, of the women with similarly high aspirations, 61 percent either had earned no degree or had earned no degree higher than the baccaulaureate.

Initially, we had planned to classify respondents who reported that they were still pursuing their freshman degree goal in 1980 as persis-

ters. However, our respondents had achieved such a high level of success that only 58 (32 percent) of the 183 subjects who provided information on their degree goals in 1971 and their degree attainments in 1980 could be classified as nonpersisters. If we had classified the 21 nonpersisters who were working toward degrees in 1980 as persisters, we would have had too small a sample of nonpersisters to make comparisons between persisting and nonpersisting students. Furthermore, students who have still not achieved their freshman degree objective have obviously stopped out of school, and Astin reports: "By almost all indications, such students (stopouts) resemble dropouts more than persisters" (1975, pp. 154-155).

Level of educational attainment. This continuous variable has five categories and respondents are classified on the basis of the highest degree or certificate they reported holding in 1980:

high school diploma or vocational certificate = 1
associate degree = 2
bachelor's degree = 3
master's degree = 4
doctorate or advanced professional degree = 5

Independent Variables

The independent variables can be classified as follows:

Personal and Family Background[3].

from the 1971 survey:	sex(1), age (3), marital status (2), parental education (12), family income (15), religion (17)
from the 1980 survey:	number of children (4), marital status and when first married (7a,b), spouse's education

[3]. The number in parentheses after each variable indicate the item location on the survey instrument (see Appendices A and B).

(1d), income (26a)

High School Variables

from the 1971 survey: average grade (4), rank in class (5), perceived need for special tutorial or remedial assistance in selected subjects (26), high school accomplishments (9), high school behaviors (19)

from the 1980 survey: type of high school (2), type of high school curriculum (3), quality of preparation for college in selected subjects or skills (12)

Reasons for Going to College and College Expectations

from the 1971 survey: concern about college financing (13), sources of college financing (14), reasons for attending college (18), reasons for choosing this college (29), college expectations (25)

Aspirations, Values, Self-Concept, and Attitudes

from the 1971 survey: highest degree goal (10), career goal (21), political views (20), self-ratings (22), attitudes (23, 24), major field plans (27), life goals (28)

from the 1980 survey: self-ratings (34) and life goals (36)

College Choice

from the 1971 survey: distance from home to college (11)

descriptors of the college entered: selectivity, control (public or private), type (two-year, four-year, or university), single-sex or coeducational, region (east, midwest, south or west), enrollment size

College Outcomes

from the 1980 survey: highest earned degree (1a), degree working toward (1b), average undergraduate grade (13), last major (9), current employment status (20), current or most recent job (24)

The telephone survey focused on obtaining critical outcome information: highest earned degree, degree working toward (if any), current job, current employment status, and reasons for attrition if the respondent

had dropped out of college.

Descriptive Analyses

Cross-tabulations were run to produce descriptive profiles and to identify variables that differentiated the 234 Indian respondents from the 441 respondents who identified themselves as Indian in 1971 only; the 101 Indian men from the 133 Indian women; the 121 rural Indians from the 113 urban Indians; and the 125 persisting students from the 58 non-persisting students. The discussion of the cross-tabulation results focuses on variables that identified statistically significant differences between the comparison groups, using chi square as the test of significance.

In order to identify response patterns and to reduce the number of variables prior to the multivariate analyses, five items from the 1971 survey were factor-analyzed: item 19, high school behaviors was reduced from 36 response options to six factors; item 18, 11 reasons for deciding to attend college was reduced to four factors, as were the nine reasons for choosing the college entered in 1971 (item 29); the 21 self-ratings (item 22) and the 24 life goals (item 28) each yielded six factors. (Factor analysis results for each item are presented in Appendix E.) Factor scores were developed for each respondent and mean scores of rural and urban respondents, men and women, and persisters and non-persisters were compared, using *t* tests to identify statistically significant differences.

Tests of statistical significance were used to restrict the number of variables for which data would be reported by focusing the discussion of results on those variables that differentiated between the comparison

groups. These differences may not be important or meaningful.

Multivariate Analyses

Stepwise multiple regression was used to identify variables that were significant predictors of the two outcome measures of interest in this study: persistence in college to attainment of one's degree objective and level of educational attainment. The sample size for these two analyses was reduced to 183, the number of respondents who provided information on their highest earned degree in 1980. The independent variables were selected for one or both of two reasons: past research had identified them as critical predictors of these outcomes, or the cross-tabulations suggested that they differentiated persisting and non-persisting Indian respondents. To avoid further reducing the sample size, no measures of precollegiate education or of the college experience that were collected in 1980 from survey respondents only were included among the independent variables.

A five-stage stepwise linear multiple regression analysis was conducted controlling for (1) student characteristics, (2) high school background, (3) affective measures (goals, motivations, and expectations), and (4) financial plans for meeting college expenses, before attempting to assess the influence of (5) college environmental characteristics. At each stage, all variance due to the variables that are permitted to enter the analysis, either singly or through covariance with other variables, is accounted for, resulting in the most conservative attribution of variance to variables entering in subsequent stages. By controlling for measures of entering student characteristics before measures of the college environment are entered in the analysis, we are

statistically "matching" students who enter different college environments. The regression predicting persistence includes 59 independent variables; the level of educational attainment regression includes these same 59 variables plus a measure of freshman degree aspirations. The independent variables are listed and the coding of each variable is described in Appendix E.

Limitations of the Study

One of the real strengths of this study, its longitudinal data base, can also be perceived as a limitation. That is, the students in the sample entered college over a decade ago in 1971. No attempt has been made to ascertain the extent to which they or their collegiate experiences are similar to those of more recent cohorts of Indian college students. Therefore, we must exercise caution in generalizing from the research findings. This is not to say that the study is purely of historic interest. Our data enable us to compare students on the basis of their characteristics at college entry, their reports of their college experience, and college outcomes. They also allow us to examine the impact of student characteristics; precollegiate education; motivations, self-concept, and goals; financial resources; and college characteristics on college persistence and level of educational attainment. The study's findings do point to important differences within the Indian student population that have implications for educators who are concerned with improving their record of service to Indian students, for persons charged with allocating increasing scarce financial aid resources and for students making college decisions.

One major and very significant development in Indian higher education during the past decade is the establishment of tribally controlled community colleges. The recent founding of these institutions has undoubtedly affected access to and attitudes toward higher education in Indian communities and, hopefully, they are also positively affecting persistence rates and satisfaction with postsecondary education. This study cannot, however, examine their impacts because with one exception, Navajo Community College, none of these schools was established prior to 1971. Furthermore, neither Navajo Community College nor any other predominantly Indian college participated in the 1971 CIRP survey.

Finally, our respondents cannot and should not be construed as representative of the Native American freshman class of 1971. Half of these respondents returned questionnaires and past experience shows that persons who complete and return questionnaires tend to be more successful than their nonresponding peers. Using additional data provided by the colleges and universities the nonresponding sample members entered in 1971, Astin et al (1982) estimate that 39 percent of the Indian freshmen in the sample earned a baccalaureate. Of the 183 students in the sample for this study who reported their highest earned degree, 62 percent had earned a bachelor's degree. Thus, our descriptive analysis profiles an above-average group of Indian students, although this should not affect our ability to identify differences between urban and rural students, men and women, or persisting and nonpersisting students within our sample, nor should it affect the outcomes of the multivariate analyses.

Chapter Four

Student Misclassification as Indian

The accuracy of higher education statistics on American Indians is a topic of considerable debate. Kidwell observes: "If any assessment is to be made of higher education for Native American students...there will be a need for major evaluation of record-keeping and sources of statistics so that the numbers of those students can be accurately determined" (1976, p. 12). The 1970 census showed 14,191 Native Americans attending college; the Office for Civil Rights' (OCR) enrollment figures for fall 1974 showed 32,757; while the National Center for Education Statistics (NCES) reported American Indian and Alaskan Native college enrollments as 76,367 in 1976, and 77,871 in 1978. Chavers (1979) contends that the NCES enrollment figure for fall 1976 may be inflated by as much as 133 percent. The authors of a report to the Office of Indian Education (OIE) state: "NCES data are just about the only statistics that show American Indians being close to achieving parity with the dominant majority population" (Greenbaum, Becenti, Cole, and Wishkeno, 1980, p. 2). They report, for example, that NCES data on Native American enrollments in medical and dental school are about 33 percent higher than the enrollment figures reported by the national professional organizations in these fields and conclude that NCES data suffer from "systematic overinflation."

Despite the strong feeling among knowledgeable persons that statistics on Native American enrollments and degrees awarded to Native Americans are inflated, researchers have not attempted to identify and des-

cribe students who misclassify themselves as Indian or to determine what differentiates them from Indian students. This information would be useful in efforts to address the problem of student misclassification and to understand the extent and direction of bias in data on Indian students caused by the inclusion of persons who have no true Indian cultural or tribal affiliation. One of the research questions that this study was designed to examine is: How do respondents who identified themselves as Indian only on the freshman survey differ from respondents who indicated that they were Indian in both 1971 and 1980?

The ideal sample for studying the problem of misclassification would be screened more rigorously at college entry by asking students to select only one racial-ethnic response option rather than "all that apply." Nonetheless, while such an item would undoubtedly reduce the number of persons misclassifying themselves as Indian, the author believes that it would neither eliminate the problem of misclassification (the NCES surveys direct students to choose only one response option) nor affect the aggregate characteristics and response patterns of students misclassifying themselves as Indian.

Whites are disproportionately represented among students who identified themselves as Indian only on the freshman survey: Whites accounted for 92 percent of the 1971 freshman class and for 97 percent of the 190 telephone interview respondents who corrected their classification as Indian. Given that there is no historical evidence to suggest that Indians and Whites were more likely to intermarry than Indians and Blacks or Chicanos, this finding suggests that white students are more likely to misclassify themselves as Indian than are minority

students. Our data indicate neither gender nor age is significantly related to misclassification as Indian, although a somewhat larger proportion of Indian respondents were women (57 versus 53 percent of the students who misclassified themselves as Indian). Fifty-six percent of all white respondents were women. Indian freshmen also tended to be somewhat older than students who misclassified themselves as Indian: 28 percent of Indians, 22 percent of students who misclassified themselves as Indian (nonIndians), and 18 percent of Whites who responded to the follow-up survey were 19 or older when they entered college in 1971.

Cross-tabulations show that respondents who identified themselves as Indian only in 1971 differ significantly from Indian respondents on a number of the measures of family background, precollegiate education, aspirations, self-concept, attitudes, values. expectations, college choice behavior, and college experiences and outcomes. The following discussion is restricted to variables that identified statistically significant differences between these two groups, using chi square as the test of significance. For selected variables, corresponding data on 2,559 white respondents are available and are presented to provide an additional context for interpreting differences between Indian and non-Indian students. The data on this representative subsample of white survey respondents were analyzed for the larger study performed by the Higher Education Research Institute and are available only for selected variables.

Personal Background

Three measures of family background differentiated Indian from non-Indian freshmen: father's education, mother's education, and family

(parental) income. As Table 2 shows, Indian students' parents were far less likely to have completed high school than were the parents of non-Indians. Only one-third of the Indian students' parents had attended college, as compared with 44 percent of the nonIndian students' parents. Differences in parental education are most pronounced at the highest and lowest levels of parental education, especially maternal education. Similarly, Indian students report lower family incomes, with almost two-fifths (37 percent) reporting a family income below $8,000 in 1970, as compared with about one-fifth (21 percent) of nonIndians.

When we compare Indian respondents with white respondents, we find even greater discrepancies in these measures of socioeconomic status. Indian students are over twice as likely as white students to report that their fathers never completed high school and almost three times as likely to report that their mothers did not earn a high school diploma. About 2.6 times as many Indians as Whites reported a family income below $8,000. NonIndians tend to fall midway between Indians and Whites on these socioeconomic measures.

Although Indians were no more or less likely to be married than nonIndians in 1980, they married earlier and had larger families at the time of the follow-up survey. Of the 72 Indians who provided information in 1980 on when they had first married, 8 percent said before college and 42 percent said during college, as compared with 3 and 29 percent, respectively, of the nonIndians. Over six times as many Indian as nonIndian respondents said that they had three or more children in 1980 (12 versus 2 percent, respectively).

Table 2

Distribution of Respondents by Parental Education and Family Income in 1971

(in percentages)

Parental Education and Income	Indians (234)	NonIndians (441)	Whites (2559)
Father's Education			
Grammar school or less	18	10	6
Some high school	19	14	11
High school graduate	28	32	29
Some college	15	16	16
College graduate	12	16	21
Advanced degree	8	13	17
Mother's Education			
Grammar school or less	12	6	3
Some high school	19	11	8
High school graduate	35	39	41
Some college	18	22	18
College graduate	12	16	23
Advanced degree	3	6	6
Family Income in 1970			
Less than $8,000	37	21	14
$8,000-12,499	31	34	33
$12,500-19,999	23	26	26
$20,000-29,999	4	11	16
$30,000 and above	5	8	11

Note. Variables reported in this table significantly differentiated Indians from nonIndians, as indicated by chi squares at the .01 level of confidence or higher. Data on Whites are drawn from a separate analysis of a representative subsample of white respondents. All columns may not add to 100 percent due to rounding. Respondents who identified themselves as "American Indian" in 1971, but who indicated some other primary racial-ethnic identity in 1980 were classified as "NonIndians."

Precollegiate Education

As Table 3 shows, the measures of high school achievement that differentiated Indians from nonIndians relate to academic preparation, while the measures of behavior as a high school student suggest that nonIndians were more argumentative, perhaps more reflective, and certainly more activist than their Indian peers. Interestingly, we find that despite their socioeconomic disadvantages relative to Whites, nonIndians did as well in high school academically as Whites did and were somewhat more likely to report having won a Certificate of Merit or Letter of Commendation in the National Merit Scholarship Program.

Not only were nonIndians about one-third more likely than Indians to report having been in the top quarter of their high school class, they were significantly ($p < .01$) more likely to have had the benefit of a college preparatory curriculum: Of the 117 Indians who responded to the follow-up survey, only 42 percent were certain that they had participated in a college prep program during high school, as compared with 73 percent of 376 nonIndians. As college freshmen, Indians were more likely than nonIndians to anticipate needing special tutorial or remedial assistance in all six subjects listed on the survey, but mathematics and social studies were the two subjects in which Indians were significantly more concerned about their preparation. Responses to the 1980 survey suggest that Indian freshmen may have overestimated their preparation for college-level work. Asked to compare their preparation at college entry with that of most students at their college, Indian respondents were significantly more likely than nonIndians to respond "not as well prepared as most" in every area: 13 versus 7 percent in reading

Table 3

Distribution of Respondents on Measures of Precollegiate Education and High School Behaviors

(in percentages)

Precollegiate Education and Behaviors	Indians (234)	NonIndians (441)	Whites (2559)
Rank in High School Class			
Top quarter	45	60	61
Second quarter	24	27	26
Third quarter	27	11	12
Fourth quarter	4	2	1
Achievements			
National Merit recognition	8	18	14
Scholastic honor society member	28	38	39
Anticipated Need for Remedial Help in:			
Mathematics	47	32	30
Social studies	8	4	4
Frequent Behaviors as a High School Senior			
Argued with a teacher in class	8	16	
Discussed politics	17	36	
Worked in a school political campaign	9	17	
Read poetry not connected with a course	23	31	
Discussed religion	29	40	
Demonstrated for a change in some military policy	3	5	
Read about collegiate rights and responsibilities of students	11	18	
Played chess	7	10	
Smoked cigarettes	17	11	

Note. Variables reported in this table significantly differentiated Indians from nonIndians, as indicated by chi squares at the .05 level of confidence or higher. Data on Whites are drawn from a separate analysis of a representative subsample of white respondents, and are not available for high school behaviors. Sample members who identified themselves as "American Indian" in 1971, but who indicated some other primary racial-ethnic identity in 1980 were classified as "NonIndians."

and comprehension ($p < .01$); 23 versus 15 percent in writing ($p < .01$); 41 versus 25 percent in preparing research papers ($p < .01$); 28 versus 20 percent in natural sciences ($p < .01$); and 38 versus 25 percent in mathematics ($p < .05$). These data indicate that students who misclassified themselves as Indian entered college with a substantially stronger academic background than Indian students and with preparation that is indistinguishable from that of white students.

The 1971 questionnaire asked freshmen to indicate how frequently (frequently, occasionally, or not at all) they had engaged in 36 activities during the past year. While Indian students were no more or less likely to report having been involved in 27 of these activities that reflect a range of desirable and undesirable behaviors, the nine activities that did differentiate Indian and nonIndian students suggest that nonIndians were more inclined to question the status quo.

Aspirations, Self-Concept, Values, and Attitudes

NonIndians had higher degree aspirations than Indian freshmen and were more inclined toward liberal arts majors in the arts and humanities, social sciences, and natural sciences. Although nonIndians were as likely as Indians to indicate that they had made at least a tentative major field choice, they were twice as likely to describe themselves as undecided about their occupational goals. NonIndians rated themselves substantially higher than Indians on eleven of 21 personal traits and were much more likely to describe themselves as politically liberal. Their responses to a series of attitudinal items tend to substantiate their assessments of their political views.

Indian freshmen were twice as likely as nonIndian freshmen to report that they planned to earn less than a bachelor's degree, while nonIndians were 1.4 times more likely to aspire to advanced degree (see Table 4). Although equal proportions (5 percent, each) of Indian, non-Indian, and white freshmen hoped to earn law degrees, nonIndians were twice as likely as Indians and 1.33 times as likely as Whites to aspire to medical degrees (8, 4, and 6 percent, respectively). NonIndians tended to set somewhat higher educational goals for themselves than Whites: 56 percent of nonIndians and 52 percent of white freshmen hoped to earn advanced degrees, as did 41 percent of Indian freshmen.

Looking at students' major field plans at college entry, we find that nonIndians are more likely to express interest in the liberal arts: half plan to major in the arts and humanities, the social sciences, or the natural sciences, as compared with 38 percent of the Indian freshmen. When we distinguish between the theoretical (e.g., anthropology, economics, history, political science, and psychology) and the applied (social work and sociology) social sciences and between the biological and physical sciences, we find Indians are represented in the applied social sciences and in the biological sciences in the same or nearly the same proportions as nonIndians. NonIndians' greater expressed interest in earning medical degrees is reflected in their greater interest in premedical majors. Although Indians and nonIndians were equally interested in earning law degrees, Indians were almost twice as likely to indicate plans for a prelaw major. We suspect that the more sophisticated nonIndians knew that a liberal arts background is appropriate for law school applicants and that few colleges offer prelaw majors. If we

Table 4

Distribution of Respondents by Degree, Major Field, and Occupational Aspirations at College Entry

(in percentages)

Aspirations	Indians	NonIndians	Whites
Degree Aspirations	(234)	(441)	(2559)
None or other	12	5	6
Associate	7	4	4
Bachelor's	40	35	39
Master's	21	29	30
Doctorate or advanced professional	20	27	22
Probable College Major	(216)	(405)	
Arts and humanities	19	20	
Education	13	8	
Business	12	7	
Social sciences	8	21	
Natural sciences and mathematics	7	9	
Engineering	7	6	
Prelaw	7	4	
Premedicine	4	8	
Nursing	7	4	
Allied health fields	6	4	
Technical fields	3	1	
Other fields	8	8	
Occupational Aspirations	(209)	(417)	
Allied health	14	9	
Arts	10	7	
Business	7	5	
Clerical	5	2	
Elementary and secondary education	14	15	
Helping professions (clergy, clinical psychology, social work, counseling)	4	8	
Professions	19	18	
Other	20	21	
Homemaker	1	1	
Undecided	7	14	

Note. Variables reported in this table significantly differentiated Indians from nonIndians, as indicated by chi squares at the .05 level of confidence or higher. Data on Whites are drawn from a separate analysis of a representative subsample of white respondents, and are not available for major and career plans. All columns may not add to 100 percent due to rounding. Sample members who identified themselves as American Indian in 1971 but not in 1980 were classified as "NonIndians."

look at other fields where Indians are overrepresented as compared with nonIndians, we find that they are vocationally-oriented fields: technical majors, nursing, business, education, and allied health fields.

Profiles of the career goals of these two groups of freshmen also show differences: nonIndians are twice as likely to be undecided about their future career and to express interest in the "helping professions" (clergy, clinical psychologist, school counselor, or social worker). While elementary and secondary education and the professions (architect, dentist, engineer, lawyer, physician, and veterinarian) attract about equal proportions of each group, nonIndians are less likely to express interest in clerical, allied health, business, and arts-related careers.

As Table 5 shows, nonIndians are much more confident in their academic, mathematical, writing, and intellectual skills and abilities. They are also more likely to rate themselves highly on academic ability and intellectual self-confidence than white freshmen. Indian students see themselves as especially lacking in mathematical ability: 11 percent rate themselves in the lowest 10 percent of their age group, as compared with 6 percent of nonIndians and Whites. Although the discrepancies in self-ratings on interpersonal skills are less pronounced, nonIndians tend to rate themselves higher on leadership ability, social self-confidence, and understanding of others than Indians. They also perceive themselves as more original, stubborn, politically liberal, and skilled at public speaking.

The freshman survey asked respondents to indicate the personal importance of a series of 24 "life goals," using a four-point scale (not important, somewhat important, very important, or essential). The

Table 5

Distribution of Respondents by Self-Ratings and Life Goals at College Entry

(in percentages)

Self-Ratings and Life Goals	Indians (234)	NonIndians (441)	Whites (2559)
Self-Ratings: Above Average or Higher			
Academic ability	50	72	68
Mathematical ability	30	42	41
Writing ability	33	38	36
Intellectual self-confidence	36	52	43
Leadership ability	35	47	40
Public speaking ability	19	29	--
Social self-confidence	28	35	26
Understanding of others	61	70	--
Originality	36	50	--
Stubbornness	36	50	--
Political liberalism	22	33	--
Life Goals: Essential			
Becoming an authority in my field	18	23	
Influencing the political structure	3	7	
Influencing social values	6	10	
Keeping up to date with political affairs	12	16	
Developing a meaningful philosophy of life	30	45	
Having an active social life	7	15	
Never being obligated to people	8	9	

Note. Variables reported in this table significantly differentiated Indians from nonIndians, as indicated by chi squares at the .05 level of confidence or higher. Data on Whites are drawn from a separate analysis of a representative subsample of white respondents and are available only for selected self-ratings. Sample members who identified themselves as American Indian in 1971 but not in 1980 were classified as "NonIndians."

social awareness and political liberalism of nonIndians is reflected in their higher valuing of keeping up to date with political affairs and influencing both the political structure and social values. Three-fifths (63 percent) of the Indians and half of the nonIndians said that keeping up to date with political affairs was not important or only somewhat important to them, while 44 percent of the Indians and one-third of the nonIndians reported that influencing the political structure was not important to them. The lower ratings of these goals by Indian students may reflect, in part, alienation from the political system. Certainly, Indian peoples have a long history of disenfranchisement and of being unsuccessful in their attempts to influence the political structure.

NonIndians valued "developing a meaningful philosophy of life" much more highly than Indian freshmen did. This may reflect their more intellectual orientation and their apparently greater social awareness. It is possible that their interest in this goal is one of the characteristics that leads them to identify themselves as Indian: That is, they may feel that Native Americans have developed a philosophy of life that is consistent with their values and concerns. On the other hand, "becoming an authority in my field," a goal more consistent with the values of the dominant culture than with traditional Indian values systems, is more important to nonIndians than Indians.

Turning to Table 6, we find that nonIndians are considerably more likely than Indians to describe themselves as political liberals, and are less likely to say they are conservatives. These political differences are clearly reflected in freshman attitudes, with nonIndians

Table 6

Distribution of Respondents by Political Views and Attitudes at College Entry

(in percentages)

Political Views and Attitudes	Indians (234)	NonIndians (441)	Whites (2559)
Political Views			
Conservative or far right	16	10	16
Middle-of-the-road	51	40	45
Liberal or far left	33	50	39
Attitudes: Strongly Agree			
Federal government not doing enough to control environmental pollution	43	60	
Federal government not doing enough to protect consumers	18	29	
The death penalty should be abolished	31	44	
Women should receive the same salary and opportunities for advancement as men in comparable positions	55	71	
Parents should be discouraged from having large families	29	47	
There is no 'generation gap' blocking communication between me and my parents	64	52	
Faculty promotions should be based in part on student evaluations	10	18	
College officials have no right to regulate student behavior off campus	31	70	
Student publications should not be cleared by college officials	24	37	
Colleges would be improved if organized sports were deemphasized	3	9	
Students from disadvantaged social backgrounds should not be given preferential treatment in college admissions	19	25	
Open admissions should not be adopted by all publicly-supported colleges	18	25	

Note. Variables reported in this table significantly differentiated Indians from nonIndians, as indicated by chi squares at the .05 level of confidence or higher. Data on Whites are drawn from a separate analysis of a representative subsample of white respondents and are not available for attitudinal items. Sample members who identified themselves as American Indian in 1971, but not in 1980, were classified as "NonIndians."

espousing the more "liberal" position more often than Indians on all but two issues: preferential treatment in college admissions for students from disadvantaged backgrounds (44 percent of Indians and one-third of nonIndians expressed some to strong agreement with preferential admissions for disadvantaged students) and the adoption of open admissions by public colleges (favored somewhat or strongly by 42 percent of Indians and 34 percent of nonIndians). One "attitudinal" item is essentially a self-report on students' relationships with their parents and Indian students were much more likely than nonIndian students to report that they communicated well with their parents.

Reasons for Going to College and College Expectations

Both Indians and nonIndians ranked "to learn more about things that interest me" first among their very important reasons for going to college (77 percent, each), and "to be able to get a better job" was ranked second by both groups (69 percent of Indians and 65 percent of nonIndians). While both groups also ranked "to gain a general education and appreciation of ideas" third among their very important reasons for going to college, nonIndians were significantly more likely to cite this as a very important consideration (see Table 7). On the other hand, Indian students were far more likely to report that their parents' wanting them to go to college was a very important consideration in their decision to attend college, making this their seventh-ranked reason while nonIndians ranked it ninth. Less than one-fourth (23 percent) of the Indians, as compared with 30 percent of the nonIndians said that their parents wishes were not a factor in their decision to continue their education.

Table 7

Distribution of Respondents by Reasons for Going to College and for Choosing this College and College Expectations, 1971

(in percentages)

Reasons and Expectations	Indians (234)	NonIndians (441)
Very Important Reasons for Going to College		
My parents wanted me to go	31	20
To gain a general education and appreciation of ideas	51	63
Very Important Reasons for Choosing this College		
My guidance counselor advised me to come here	13	4
Most of my friends were coming here	6	3
My relatives wanted me to come here	9	5
Major Sources for College Financing		
Part-time or summer work	22	30
Savings from full-time employment	4	8
Parental or family aid or gifts	43	63
Scholarships and grants	50	28
College Expectations: Very Good Chance of		
Graduating with honors	5	8
Being elected to an academic honor society	4	6
Enrolling in honors courses	5	11
Authoring or coauthoring a published article	3	10
Changing major fields	10	20
Changing career choice	10	19
Being elected to a student office	2	3
Having to work at an outside job	29	40

Note. Variables reported in this table significantly differentiated Indians from nonIndians, as indicated by chi squares at the .05 level of confidence or higher. Sample members who identified themselves as American Indian in 1971, but not in 1980, were classified as "NonIndians."

In choosing the college they entered in 1971, nonIndians were less likely than Indians to follow their guidance counselor's advice, their friends' choices, and their relatives' wishes. Past research (Astin, Harway, and McNamara, 1976) has found that minority students are more likely than majority students to act on their counselor's advice. Our data indicate that Indian students are less likely to question established authorities, and guidance counselors are supposed to be authorities on college choice. Furthermore, Indian students are less likely to have parents who have attended college to whom they can turn for advice in choosing a college. Indian students are twice as likely as nonIndians to report that their friends' college choices were a very important influence on their decision about where to go to college. Certainly, having a peer support group can ease an Indian student's adjustment to a predominantly white campus. Indian students greater likelihood of reporting that they chose their college based on their relatives' wishes is consistent with the importance they ascribe to their parents' wanting them to go to college and with the better intergenerational communication they report.

When we look at how these freshmen expect to meet their educational expenses, we find that nonIndians are substantially more likely to expect major assistance from their family. Furthermore, one-third of the Indian freshmen, but only 14 percent of the nonIndians, expected to receive no help whatsoever from their family. Given the fact that Indians were almost twice as likely to report family incomes below $8,000, this is not surprising. What is perhaps surprising is the implication that at least 4 percent of the Indian and 7 percent of the nonIndian

freshmen who came from families with an annual income of less than $8,000 expected to receive some financial help from their families.

Indian students were less likely than nonIndians to expect to meet a major portion of their college costs by working, but far more likely to rely on scholarship and grant support. In fact, over one-fifth of the Indian students (28 percent), but only 17 percent of the nonIndians, did not expect to meet any of their educational expenses by working part time or during the summer. This may reflect a realistic appraisal of their prospects for summer employment in Indian communities on the part of some rural Indians, coupled with a belief that their financial aid will be adequate to meet their expenses. Clearly, nonIndians were more likely to anticipate assuming responsibility for paying for college, and this is also reflected in the finding that two-fifths of the nonIndians, as compared with 29 percent of the Indians, rated their chances of having to work at an outside job during college as "very good." The substantially greater reliance on scholarship and grant support among Indian freshmen presumably reflects their eligibility for BIA higher education grants which would have been available to those who were registered with their tribe and had at least one-quarter degree Indian blood. (Two-fifths of the 117 Indians who responded to the follow-up survey reported that they had participated in a BIA program, which the author interprets as meaning that they had received BIA higher education grants.) Need-based federal aid programs were available in the early 1970s, and a larger proportion of the Indian than of the nonIndian freshmen would have been eligible for need-based aid and their awards would, on average, have been larger, judging by reported family incomes.

A number of the college expectations that differentiate Indian from nonIndian freshmen reflect nonIndians' stronger academic background (as shown in Table 3) and their greater academic self-confidence, as shown by their self-ratings (see Table 5). NonIndians appear to be less certain both about their major field and career choices, although this is not inconsistent with the finding that they were more likely to report that they were attending college to gain a general education.

College Choices and Experiences

As Table 8 shows, nonIndians were more likely to attend colleges in the eastern and southern states, and about half as likely as Indians to enroll in colleges in the western states; attended colleges closer to home; and entered more selective colleges and universities. Given the geographic concentration of Indians in the western and plains states, one would expect to find them at western and midwestern colleges. However, the fact that college location differentiates between Indians and non-Indians suggests that student misclassification is less likely to occur in the west and midwest where there is a significant Indian population than in the eastern and southern states. This impression is reinforced by an examination of the home addresses and racial-ethnic identification of nonrespondents from Alaska, Arizona, Montana and New Mexico, states with substantial Indian populations. Half of the 30 Montana nonrespondents, three-fifths of the 18 Alaska nonrespondents, 84 percent of the 58 New Mexico nonrespondents, and 93 percent of the 57 Arizona nonrespondents checked no racial-ethnic response option other than "American Indian" in 1971, as compared with 23 percent of the freshmen in our sample. Furthermore, 60 percent of the Montana and 72 percent of the

Table 8

Distribution of Respondents by College Region, Distance from Home to College, and Selectivity, 1971

(in percentages)

College Characteristics	Indians (234)	NonIndians (441)	Whites (2559)
College Region			
East	22	33	
Midwest	26	28	
South	11	19	
West	41	20	
Distance from Home to College			
10 miles or less	18	17	16
11-50 miles	15	25	20
51-100 miles	21	16	17
101-500 miles	30	31	34
501 or more miles	17	11	13
College Selectivity[a]			
Below 850	13	12	
850-925	27	17	
925-999	20	21	
1000-1074	23	22	
1075 and above	18	28	

[a] College selectivity is a measure of the average college admissions test score of an institution's entering student body. The higher the average test score, the more selective the institution.

Note. Variables reported in this table significantly differentiated Indians from nonIndians, as indicated by chi squares at the .05 level of confidence or higher. Data on Whites are drawn from a separate analysis of a representative subsample of white respondents and are not available for college region or selectivity. All columns may not add to 100 percent due to rounding. Sample members who identified themselves as American Indian in 1971, but not in 1980, were classified as "NonIndians."

New Mexico nonrespondents' home addresses were on Indian reservations. It appears that students who come from states where Indians constitute a visible (and socioeconomically disadvantaged) and, increasingly, politically active population are much less likely to misclassify themselves as Indian than are students from states where Indians represent more of a romantic past history than a current reality.

Indian students were somewhat more likely than nonIndians to report that the college they entered as freshmen was over 500 miles from home: 17 percent of Indian freshmen and 11 percent of nonIndian freshmen attended colleges that were more than 500 miles from home. Just over half (52 percent) of the Indian freshmen were classified as coming from rural backgrounds and their geographic isolation and, to a lesser extent, recruitment of Indian students undoubtedly explains their greater likelihood of enrolling at colleges that are further from home. It is interesting to note that distance from home to college is one of the few variables where we have data on Indian, nonIndian, and white students and find Indians resembling Whites more closely than nonIndians. We expect that the greater geographic mobility of white freshmen is related to their higher family incomes.

Selectivity is a measure of the average college admissions test scores of an institution's entering freshman class. NonIndian freshmen tend to enroll at more selective colleges and universities than their Indian peers, a finding that is consistent with nonIndians' stronger precollegiate education and higher academic self-confidence.

The follow-up survey provides information on the college experiences of respondents. Comparing Indians' and nonIndians' use of college

services and program participation, we find that career counseling was the only service that nonIndians reported using more often than Indians: 70 versus 62 percent, respectively. However, Indian students were significantly more likely to describe themselves as satisfied with the career counseling they had received: 61 versus 45 percent of the non-Indians ($p < .05$). Indian students were more likely than nonIndians to report having used financial aid services (74 versus 58 percent, respectively); tutoring (55 versus 39 percent); and personal counseling (64 versus 56 percent). These data do not suggest that Indian students are reluctant to seek the help of counselors or remedial academic assistance. Among students who did seek tutoring, nonIndians tended to describe themselves as either dissatisfied (41 percent) or very satisfied (26 percent) with the assistance they had received, while Indians tended to describe themselves as somewhat satisfied (60 percent). Indian students were also more likely to report having participated in ethnic studies programs (47 percent versus 29 percent of nonIndians) and in Educational Opportunity Programs (EOP) which are intended to improve the academic skills and self-confidence of disadvantaged students (39 percent versus 19 percent of nonIndians). About 70 percent of both groups had used campus health services, about half had used job placement services, and just over one-fourth had participated in women's studies.

NonIndians' higher expectations of being elected to an academic honor society were justified: 22 percent reported that they had belonged to a scholastic honor society during college, as compared with 11 percent of the Indians ($p < .01$). NonIndians were also significantly ($p < .01$) more likely to report having served on a university or departmental

committee (23 percent versus 12 percent of Indians) and having known at least one professor or administrator personally (74 versus 62 percent; $p < .05$). These findings suggest that Indian students made greater use of services for academically and financially disadvantaged students, were less successful academically, and were less likely to participate in academic life outside of the classroom.

College Outcomes

About 60 percent of all college freshmen eventually earn a bachelor's degree (Cope and Hannah, 1975), as do about 70 percent of those who enter college planning to complete a four-year degree program (Astin and Panos, 1969; Pantages and Creedon, 1978). Past research also shows that successful students are more likely to respond to follow-up surveys than are their nonsuccessful peers. Despite the fact that 9 percent of the nonIndians and 19 percent of the Indians in our sample had not entered college planning to earn a bachelor's degree, we find that 70 percent of the nonIndians and 62 percent of the Indians had succeeded in completing a baccalaureate by 1980. High achievers are evidently overrepresented among our follow-up respondents and, consequently, in our samples of nonIndians and Indians.

As Table 9 shows, nonIndians were far more likely than Indians to report having earned an average undergraduate grade of "C+" or better: 88 versus 71 percent, respectively. NonIndians had good reason to be more confident about their precollegiate preparation for college and about their academic abilities as freshmen. Furthermore, nonIndians were more likely to say that they were still pursuing their academic careers than were Indians: 44 percent of nonIndians and 29 percent of

Table 9

Distribution of Respondents by Average Undergraduate Grade, Last Major, Degree Currently Working Toward, and Current Employment Status

(in percentages)

College Outcomes	Indians	NonIndians
Average Undergraduate Grade	(112)	(369)
A	13	19
B+ or B	38	41
B- or C+	20	28
C	21	9
C- and below	9	3
Last College Major	(114)	(369)
Arts and humanities	12	20
Education	18	10
Business	14	10
Social sciences	21	30
Natural sciences and mathematics	8	10
Engineering	3	5
Premedicine	1	1
Nursing	9	5
Allied health fields	4	3
Technical fields	3	2
Other fields	8	4
Degree Currently Working Toward	(234)	(441)
None	71	56
Vocational certificate	3	2
Associate	5	3
Bachelor's	9	13
Master's	10	19
Doctorate or advanced professional	3	8
Current Employment Status	(228)	(421)
Employed full time	67	72
Employed part time	8	11
Unemployed, looking for work	4	5
Unemployed, not looking for work	21	13

Note. Variables reported in this table significantly differentiated Indians from nonIndians, as indicated by chi squares at the .05 level of confidence or higher. All columns may not equal 100 percent due to rounding. Sample sizes are smaller for average grade and last major because these data were only available for persons who returned the follow-up questionnaire in 1980. Sample members who identified themselves as American Indian in 1971, but not in 1980, were classified as "NonIndians".

Indians said that they were pursuing an academic degree in 1980. Of those respondents who were still pursuing their education, over three-fifths (61 percent) of the nonIndians were graduate or professional school students, as compared with 43 percent of the Indian respondents.

Looking at respondents' last college major, we find that nonIndians were more likely to major in the traditional liberal arts fields than Indians: Three-fifths of the nonIndians and about two-fifths of the Indians majored in the arts and humanities, the social sciences, and the natural sciences. On the other hand, Indians were substantially more likely to major in business, education, nursing, allied health and technical fields: 48 percent of the Indians, as compared with 30 percent of the nonIndians. When we separate the theoretical from the applied social sciences, we find nonIndians were over twice as likely as Indians to major in the theoretical social sciences (anthropology, economics, history, political science, and psychology), while Indians were twice as likely to major in the applied social science fields of sociology and social work. Comparing freshman major field plans with last college major, we find that the social sciences, education, business, and nursing tended to attract both Indians and nonIndians during the undergraduate years. Engineering, prelaw, premedicine, and the allied health fields lost prospective majors. Education was more attractive to Indian than nonIndian freshmen and recruited a larger proportion of Indian students during the college years. The arts and humanities accounted for one-fifth of the nonIndian freshmen and accounted for one-fifth of their last majors, while losing over one-third of their prospective Indian majors.

NonIndians were more likely than Indians to report that they were working full time at the time of the follow-up, while Indians were more likely than nonIndians to describe themselves as "unemployed and not looking for work." This is somewhat surprising, given that nonIndians were more likely to report that they were still pursuing their education and were only slightly more likely to be male. Two explanations for Indians' higher rate of unemployment offer themselves: first, Indian women in their late twenties are more likely to choose to become homemakers (as we noted earlier, Indian respondents married earlier and were more likely to report having at least three children by 1980) and, second, Indians are more likely to become discouraged workers, persons whose lack of success in finding employment leads them to quit looking for work. Certainly, unemployment rates on Indian reservations are exceedingly high. Lee (1981) estimates unemployment on the Navajo reservation at near 40 percent. The unemployment rate in the 19 Pueblos for March-April 1977 was reported as 36 percent, in contrast to 9 percent for the state of New Mexico and 7 percent for the nation (All Indian Pueblo Council, circa 1978). In 1981, unemployment was reported hovering near 50 percent on the Blackfeet reservation ("Chief Executive," 1981).

Eleven of the self-rating items, including seven that differentiated Indian and nonIndian freshmen, and nine of the life goals, including two that had differentiated among the two groups of freshmen, were repeated on the follow-up survey. As Table 10 shows, both nonIndians and Indians rated themselves higher on academic, writing, and leadership ability and on intellectual self-confidence in 1980 than in 1971. However, Indians

Table 10

Distribution of Respondents by Self-Ratings and Life Goals in 1980

(in percentages)

Self-Ratings and Life Goals	Indians (116)	NonIndians (373)
Self-Ratings: Above Average or Higher		
Academic ability	66	83
Writing ability	46	65
Intellectual self-confidence	62	79
Leadership ability	55	70
Artistic ability	38	45
Life Goals: Essential		
Participating in a community action program	6	3
Influencing social values	10	19
Raising a family	29	29
Being very well-off financially	20	9

Note. Variables reported in this table significantly differentiated Indians from nonIndians, as indicated by chi squares at the .05 level of confidence or higher. These data are available only for those persons who returned follow-up questionnaires in 1980, thus reducing the sample sizes. Sample members who identified themselves as American Indian in 1971, but not in 1980, were classified as "NonIndians".

continued to rate themselves significantly below their nonIndian peers. Although the significant differences in self-ratings on public speaking ability, social self-confidence, and mathematical ability that we found among freshmen are not reflected in their 1980 self-ratings, one significant difference did emerge: NonIndians were more likely to rate themselves highly on artistic ability.

While nonIndians were still significantly more concerned than Indians about influencing social values in 1980, we find that the proportions of each group describing this as "essential" have increased over time. Furthermore, we no longer find that Indians are significantly less likely to be concerned about influencing the political structure. Three life goals that did not differentiate between these groups in 1971 did so in 1980: 36 percent of the Indians and 22 percent of the nonIndians said that participating in a community action program was very important or essential to them. Indian respondents are more likely to contribute considerable importance to being very well-off financially: half said this was very important or essential to them, as compared with 37 percent of the nonIndians. It is difficult to interpret what respondents may mean by or consider being very well-off financially to be, but it is not particularly surprising to find that persons who tend to come from poorer families attach greater importance to achieving financial security. NonIndians, who were more likely to describe themselves as liberals as college freshmen, may also find it difficult to reconcile their political views with attaching great importance to financial well-being. Finally, while as large a proportion of non-Indians as Indians consider raising a family to be "essential," 17 per-

cent of the nonIndians and only 6 percent of the Indians said that this was not at all important to them.

Summary and Discussion

These profiles describe two very different populations with different educational needs and goals. When students who misclassify themselves as Indian are counted as Indian in student surveys, it affects not only estimates of Indian enrollments and degree attainment, it affects estimates of representation by field of study, masking the need for special efforts to recruit and retain Indian students in fields where they are seriously underrepresented. It can also lead colleges and universities to underestimate Indian students' needs for academic and financial assistance, as well as for programs and services that provide psychological and social support. Institutions need to exercise caution in accepting student self-identification as Indian, if they are to understand and respond to Indian students' needs and interests. The experience of this research project suggests that one way to screen students fairly effectively is, first, to instruct them to choose only one racial-ethnic category to identify themselves and, for those who choose the American Indian or Alaskan Native category, to ask that they write in the name of their tribe, band, or Indian community.

Students who tend to identify themselves as Indian inappropriately appear, on average, to be far more liberal in their political views and social views and attitudes than either Indian or white freshmen. Indeed, this may be the critical factor in understanding their tendency to misclassify themselves as Indian. First of all, there is little question

that Native Americans are this country's most romanticized disadvantaged population. In a time of social activism, such as the late sixties and early seventies, one would expect young people with a liberal orientation to be attracted to this movement and to identify with peoples who are struggling for social justice. Furthermore, these young people were undoubtedly attracted to a culture that they perceived as environmentally oriented, spiritually and philosophically rich, and valuing cooperation and interdependence over competition for wealth and status. The non-Indian freshmen were especially skeptical about the status quo, questioned established authority, wanted to influence social values and the political structure, and felt a need to establish a philosophy of life.

Our data also suggest that students who came from states or who attended colleges and universities where there was a substantial and visible Indian population were less likely to misclassify themselves as Indian. Although only 23 percent of the freshmen in the Indian sample chose no racial-ethnic response option except American Indian in 1971, the majority of sample members from four states with sizeable Indian populations--Alaska, Arizona, Montana, and New Mexico--chose no response other than American Indian as freshmen. Similarly, 91 percent of the 154 sample members from 18 states who attended Brigham Young University, a school with a substantial and visible Indian student body, identified themselves as American Indian their freshman year without marking any additional racial-ethnic categories. This reinforces our impression that students who identified themselves as Indian inappropriately were prompted to do so by a kind of liberal romanticism.

Over 90 percent of the students who misclassified themselves as

Indian later reclassified themselves as White, yet they differed from white survey respondents in a number of respects. They had less well educated parents and came from less affluent families; their relative disadvantagement vis-a-vis white freshmen may contribute to their tendency to identify with a minority population. NonIndians fell midway between Indian and white freshmen on these measures of socioeconomic status. Despite their less advantaged family backgrounds, nonIndians were as academically successful in high school as Whites, had somewhat higher degree aspirations, and tended to rate themselves higher on intellectual self-confidence, academic ability, leadership ability, and social self-confidence. Students who identified themselves as American Indian only as college freshmen were evidently bright, confident, liberal in their political views and social attitudes, and somewhat less advantaged in their family background than Whites.

Compared with Indian students, freshmen who misclassified themselves as Indian had better educated parents, came from more affluent families, were somewhat younger, and were less likely to be married during their undergraduate years. NonIndians were much more likely than Indians to expect that their families would be a major resource in meeting their college expenses and were also more likely to anticipate using their own earnings to meet their college costs. Indian students, on the other hand, were far more reliant on scholarships and grants and, given their lower expectations of working and receiving parental aid and their greater likelihood of marriage before college completion, were perhaps unrealistically optimistic about the adequacy of such support.

Freshmen who misclassified themselves as Indian entered college

with a much stronger academic background, on average, than Indian students, with substantially higher degree aspirations, and expressing greater self-confidence in their academic skills and prospects for continued academic success in college. While nonIndians gravitated toward majors in liberal arts fields, Indian students tended to plan on pursuing majors in more occupationally-oriented fields and did so. Indian students were also more likely to enter college with a career goal and were significantly less likely than nonIndians to anticipate changing either their career or major field plans. In light of their poorer academic preparation for college and the fact that they were as likely as nonIndians to aspire to professional careers, this apparent lack of flexibility about their major field and career choices may be somewhat unrealistic.

Compared with Indian freshmen, nonIndians were far more liberal in their political views and attitudes on social and educational issues and appeared to be more independent, outgoing, self-confident, and less influenced by others. They were significantly more likely than Indians to say that they had come to college in order "to gain a general education and appreciation of ideas," while Indian freshmen were far more likely to report that they were continuing their education because their parents wanted them to.

At the time of the follow-up survey, substantially more nonIndians than Indians were still pursuing their academic goals. Over three-fifths of the nonIndians who were still students were working toward graduate and professional degrees, as compared with only about two-fifths of the Indians. Indians were also more likely to be unemployed in 1980.

Chapter Five

Differences Between Urban and Rural Indian College Students

The review of the literature (Chapter 2) documented substantial differences between urban and rural Indians on measures of educational attainment, employment, and income. While the greater socioeconomic disadvantages of rural Indians suggest that students from rural homes may have to confront and overcome more barriers to attain a college education, several Indian educators with whom this study was discussed suggested that the differences between urban and rural Indian college students are not simply socioeconomic in nature. One, who had directed programs for Indian students at a university that served primarily urban Indians and also at a university that served a rural and reservation-based Indian student body, observed that the rural Indian students had a stronger and unambiguous sense of their Indian identity, clearer educational and occupational objectives, and looked to Indian studies programs for quite different services than urban Indians. Another educator contended that the often difficult college adjustment and high attrition rates of Indian students were due to conflict between the values and attitudes of a rural population and those of the academic environment. Whether the rural student was an Indian or a "cowboy" was irrelevant in his opinion. Regardless of the explanations and interpretations they offered, these educators agreed that there were very important differences between Indian students from urban and rural backgrounds that educators and researchers needed to examine if colleges and universities were to understand and respond to Indian students' educational needs,

interests, and concerns.

Just over half (52 percent) of the Indians in our sample were classified as coming from a rural home environment, using the classification criteria described in Chapter 3. The distribution of urban and rural sample members by gender was almost identical: 52 percent of the women and 51.5 percent of the men were classified as coming from rural homes.

The cross-tabulations comparing urban and rural respondents identified a number of significant differences between these two groups, using chi square as the test of significance. A number of the variables that differentiated Indians from students who misclassified themselves as Indian, including parental education, family income, degree aspirations, political views, and distance from home to college, also distinguished urban from rural Indians. Thus, our aggregate profile of Indian students underestimated the differences between rural freshmen and nonIndians on some variables, while overestimating the differences between urban freshmen and nonIndians. For example, 20 percent of all Indians, 12 percent of rural Indians, and 30 percent of urban Indians reported that their fathers had completed college, as compared with 29 percent of the nonIndians. This finding underscores the importance of examining differences among Indian students from urban and rural backgrounds. The following discussion focuses on variables that identified statistically significant differences between urban and rural Indian students.

Personal Background

Urban Indian college students had significantly better educated parents and came from more affluent families than rural Indians (see Table 11). Urban Indians' parents were as well educated as nonIndian students'

Table 11

Distribution of Rural and Urban Indians by Parental Education, Family Income and Religious Upbringing in 1971

(in percentages)

Parental Education, Income, and Religion	Rural (121)	Urban (113)
Father's Education		
Grammer school or less	28	7
Some high school	22	16
High school graduate	27	28
Some college	11	20
College graduate	7	18
Advanced degree	5	12
Mother's Education		
Grammer school or less	18	6
Some high school	25	13
High school graduate	34	37
Some college	13	23
College graduate	7	17
Advanced degree	3	4
Family Income in 1970		
Less than $8,000	51	22
$8,000-12,499	30	33
$12,500-19,999	14	33
$20,000-29,999	4	4
$30,000 and above	2	9
Religious Upbringing	(117)	(108)
Protestant	41	57
Catholic	29	26
Other	18	13
None	12	4

Note. Variables reported in this table significantly differentiated rural from urban Indian students, as indicated by chi squares at the .05 level of confidence or higher. All columns may not add to 100 percent due to rounding.

parents, and urban freshmen were no more likely to come from families whose annual income was below $12,500 than were nonIndians. Rural Indian freshmen, on the other hand, were far more disadvantaged than our earlier profile of Indian students led us to suspect: half reported that their fathers had never completed high school, 43 percent said their mothers were not high school graduates, and half came from families that had an income of less than $8,000 the previous year. As dramatic as the differences between urban and rural Indians are on these measures of socioeconomic status, compared with census reports on educational attainment and income, both groups in our sample appear to be more advantaged than the general populations of rural and urban Indians.

Indian freshmen from rural backgrounds were three times more likely than urban freshmen to report having been brought up without any religious affiliation or training: 12 versus 4 percent, respectively. Over half (57 percent) of the urban Indians and about two-fifths of the rural Indians were brought up in a protestant church. Rural freshmen were somewhat more likely to report having been raised as Catholics or in some "other" religion.

Precollegiate Education

Despite the socioeconomic similarities between urban Indians and students who misclassified themselves as Indian, the measures of high school achievement and precollegiate academic preparation that differentiated between Indian and nonIndian freshmen did not identify significant differences between rural and urban freshmen. As Table 12 shows, the only measure of precollegiate education from the 1971 survey that

Table 12

Distribution of Rural and Urban Indians on Measures of Precollegiate Education and High School Behaviors

(in percentages)

Precollegiate Education and Behaviors	Rural (121)	Urban (113)
Anticipated Need for Remedial Help in:		
Social studies	13	3
Frequent Behaviors as a High School Senior		
Overslept and missed a class or appointment	--	5
Argued with a teacher in class	4	12
Did extra (unassigned) reading for a course	16	27
Discussed religion	22	36
Discussed politics	12	23
Demonstrated for a change in some military polity	1	6
Worked in a local, state, or national political campaign	--	7
Visited an art gallery or museum	5	12

Note. Variables reported in this table significantly differentiated rural from urban Indian students, as indicated by chi squares at the .05 level of confidence or higher.

distinguished rural from urban freshmen was anticipated need for help in social studies: like nonIndians, urban freshmen rarely expect to need such assistance.

Four of the nine high school behaviors that identified significant differences between Indians and nonIndians also differentiated urban from rural freshmen. Urban Indians resembled nonIndians much more closely than their rural peers in the frequency with which they discussed religion, argued with a teacher in class, and demonstrated for a change in some military policy. While urban freshmen were more likely to discuss politics frequently than their rural Indian peers, they were considerably less likely to do so than nonIndians. Differences in the frequency with which students reported getting involved in arguments with their teachers, demonstrations, and discussions about religion and politics appear to be more strongly related to environment than to race-ethnicity. Urban Indian freshmen appear to be more argumentative, more politically aware and involved, and more likely to do unassigned reading for their courses.

When we look beyond individual behaviors to dimensions of high school behavior identified by the factor analysis, we find that urban Indians had significantly higher mean factor scores than rural Indians on two of the six dimensions of high school behavior: Involvement ($p < .01$) and Activism ($p < .01$). Involvement reflects the frequency with which students reported having engaged in a series of behaviors indicating an interest in issues and activities that are commonly considered to be desirable in a prospective college student and predictive of college success: read about civil rights and liberties; discussed

politics; read about collegiate rights and responsibilities of students; did extra reading for a course; typed a homework assignment; discussed religion; worked in a school political campaign; and read poetry not connected with a course. Urban students were also more likely to report having been engaged in political and social Activism during high school: demonstrated for a change in some racial or ethnic policy, in some military policy, in some high school administrative policy, and worked in a local, state, or national political campaign. These findings suggest that urban Indian freshmen were more questionning, more argumentative, more politically aware, and more sophisticated than their rural peers.

Additional insights into differences in precollegiate background are provided by the follow-up survey responses of 72 rural and 45 urban Indians. Rural Indians were significantly more likely to be graduates of public high schools: 96 percent versus 82 percent of urban students ($p < .05$). Unfortunately, the follow-up survey did not distinguish between federally-supported (BIA) and local public high schools. Eleven percent of the rural respondents, but none of the urban Indians, had participated in Upward Bound, a federally-funded program designed to provide disadvantaged students with academic and psychological support to encourage college attendance. Rural Indians also felt that they had entered college with significantly weaker preparation in two areas: 51 percent of rural and 27 percent of urban Indians said they were not as well prepared to write research papers as most students at their college ($p < .01$), and 38 percent of rural and 13 percent of urban students felt that they had entered college with poorer preparation in the natural sciences than most students ($p < .01$).

The most striking finding of these comparisons between urban and rural Indian freshmen is the absence of significant differences on measures of high school achievement and on most measures of precollegiate academic background, especially given the socioeconomic similarities between urban and nonIndian freshmen and the finding that socioeconomic differences are even more pronounced between urban and rural Indians than between Indians and nonIndians. Differences in high school behaviors appear to reflect a greater range of opportunities and resources and a greater tolerance of nonconforming behavior in urban environments. They also suggest that urban Indian freshmen are more sophisticated than their rural peers and more involved in behaviors that we would expect to be predictive of college success.

Aspirations, Self-Concept, Values, and Attitudes

Urban Indian freshmen had higher academic aspirations, were more likely to plan on majoring in traditional liberal arts fields, and expressed greater interest in careers in the arts, education, and the helping professions than rural Indian freshmen. Rural freshmen, on the other hand, were more likely to enter college planning to pursue careers in allied health, clerical, and professional fields. The self-ratings and life goals of these two student groups reflect some differences but far fewer than were found in our comparison between Indians and nonIndians. Indians from urban backgrounds were more likely to describe themselves as politically liberal than rural Indians were, and their views on social and educational issues tend to reflect more liberal attitudes.

Urban Indians entered college with much higher academic aspirations than rural Indians. As Table 13 shows, over half (52 percent) of the

Table 13

Distribution of Rural and Urban Indians by Degree, Major Field and Occupational Aspirations at College Entry

(in percentages)

Aspirations	Rural	Urban
Degree Aspirations	(121)	(113)
None or other	14	9
Associate	7	7
Bachelor's	48	32
Master's	18	24
Doctorate or advanced professional	12	28
Probable College Major	(112)	(104)
Arts and humanities	13	25
Education	14	12
Business	17	6
Social sciences	7	10
Natural sciences and mathematics	7	8
Engineering	8	5
Prelaw	5	8
Premedicine	3	5
Nursing	9	6
Allied health fields	7	4
Technical fields	2	4
Agriculture and forestry	5	2
Other fields	3	8
Occupational Aspirations	(102)	(107)
Allied health	18	10
Arts	7	12
Business	8	6
Clerical	9	2
Elementary and secondary education	11	17
Helping professions (clergy, clinical psychology, social work, counseling)	3	6
Professions	22	17
Other	15	24
Homemaker	1	1
Undecided	8	6

Note. Variables reported in this table significantly differentiated rural from urban Indian freshmen, as indicated by chi squares at the .05 level of confidence or higher. All columns may not equal 100 percent due to rounding.

urban Indian freshmen hoped to earn advanced degrees, as compared with 30 percent of the rural freshmen. The urban Indians' academic aspirations are only marginally lower than those of nonIndians, although our data suggest that urban Indians have a substantially weaker academic background to assist them in achieving their degree goals. While urban Indians were no more likely to express interest in earning a medical degree than rural Indians (4 percent, each) they were twice as likely to plan on pursuing legal training (7 percent of urban and 3 percent of rural freshmen hoped to earn law degrees) and over three times as likely to aspire to earning a doctorate (17 versus 5 percent, respectively). The fact that urban Indians find the doctorate such an attractive educational objective is somewhat curious and, given the lack of evidence of any substantially stronger academic background, probably somewhat unrealistic.

The aggregate profile of Indian students' major field plans masked differences between urban and rural freshmen. Although the proportion of urban Indians intending to major in traditional liberal arts fields (43 percent) is not as high as that of nonIndians (50 percent), it is higher than that of all Indians (38 percent) and substantially higher than the proportion of rural Indian freshmen (27 percent). Similarly, we find that urban Indians express interest in the theoretical social sciences, while rural Indians prefer the more applied social sciences: Of the ten percent of urban freshmen planning to major in a social science, 8 percent planned to major in a theoretical one (anthropology, economics, history, political science, or psychology), while 6 of the 7 percent of rural freshmen interested in a social science planned to

major in sociology or social work. Rural freshmen expressed greater interest in vocationally-relevant undergraduate majors in business, nursing, allied health fields, and engineering than urban freshmen. Education attracted a slightly larger proportion of rural than urban Indians and considerably more Indian freshmen from both home environments than nonIndians.

Regardless of their background, Indian students were more willing to indicate a tentative career choice than nonIndians. Rural freshmen expressed more interest than urban Indian freshmen in careers at the extremes of the occupational spectrum, in terms of status and the amount of training required to enter the field: the professions (architect, dentist, engineer, lawyer, physician, and veterinarian) at the high end of the spectrum and allied health and clerical jobs at the low end. Urban Indians expressed considerably more interest than their rural peers in the "helping professions," in education, arts-related, and other careers.

Only five self-ratings identified significant differences between urban and rural Indian students (see Table 14). At least twice as many urban as rural freshmen ranked themselves in the top ten percent of their age group on academic ability, drive to achieve, athletic ability, political liberalism, and stubbornness. When we compare urban and rural Indians' mean factor scores on the six dimensions of self-concept identified by the factor analysis of these 21 self-ratings, we find that urban freshmen had significantly ($p < .05$) higher Academic Self-Esteem (a factor comprised of self-ratings on academic ability, intellectual self-confidence, and mathematical ability); significantly ($p < .01$) higher

Table 14

Distribution of Rural and Urban Indians by Self-Ratings, Life Goals, and Political Views at College Entry

(in percentages)

Self-Ratings, Life Goals, and Political Views	Rural (121)	Urban (113)
Self-Ratings: Top Ten Percent		
Academic ability	6	17
Drive to achieve	7	18
Athletic ability	-	7
Political liberalism	3	6
Stubbornness	7	17
Life Goals: Very Important or Essential		
Being very well-off financially	46	28
Never being obligated to people	17	30
Helping others who are in difficulty	60	71
Political Views		
Conservative or far right	17	15
Middle-of-the-road	58	43
Liberal or far left	26	42

Note. Variables reported in this table significantly differentiated rural from urban Indian freshmen, as indicated by chi squares at the .05 level of confidence or higher. All columns may not equal 100 percent due to rounding.

belief in their abilites to express themselves and to understand others (Empathic-Expressive, a factor comprised of self-ratings on originality, understanding of others, writing ability, and artistic ability); and significantly ($p < .01$) higher self-ratings on Conviction, a factor reflecting self-ratings on political liberalism and stubbornness. Thus, while we find few differences between urban and rural Indian freshmen's self-ratings on individual traits, differences in self-concept do emerge when we compare the factor scores and suggest that urban freshmen see themselves as more academically able, as better able to express themselves, and as less easily influenced.

Only three of 24 life goals differentiated rural from urban freshmen: rural Indians valued "being very well-off financially" significantly more than their urban peers, while urban Indians valued "never being obligated to people" and "helping others who are in difficulty" more highly than rural students. The factor analysis of these life goals yielded six dimensions and urban Indians had a significantly ($p < .01$) higher mean factor score than rural Indians on their valuing of achieving Aesthetic goals (writing original works, creating artistic works, becoming accomplished in one of the performing arts, and developing a meaningful philosophy of life), while rural Indians placed significantly ($p < .01$) greater importance on achieving Quality of Life goals (having an active social life, having friends with different backgrounds and interests from their own, and being very well-off financially). The rural freshmen who come from less socioeconomically advantaged homes than urban freshmen were more concerned about achieving some measure of financial prosperity and its attendant social benefits. The more

affluent urban Indians are concerned with self-expression, accomplishment in artistic endeavors, being independent and, yet, helping others.

Political views is another variable where our aggregate profile of all Indian freshmen masked differences between rural and urban students. While the proportion of urban Indians describing their political views as liberal or far left (42 percent) is not as high as that of nonIndians (50 percent), it is higher than that of all Indians (33 percent) and substantially higher than that of rural Indians (26 percent). As Table 15 shows, differences in student attitudes on a number of social issues and on some educational issues are consistent with differences in political views; urban freshmen are more likely to espouse the more liberal position. However, we find urban students taking the more conservative position on several academic issues, suggesting that they are more likely to support traditional academic values. Consistent with their greater interest in vocationally-relevant major fields, rural freshmen were twice as likely as urban freshmen to express strong agreement with the statement: "The chief benefit of a college education is that it increases one's earning power."

Reasons for Going to College and College Expectations

It is not surprising to find that rural Indian freshmen ranked "to be able to get a better job" and "to be able to make more money" as very important reasons for going to college more often than their urban peers did, given the greater importance they ascribed to achieving Quality of Life goals and their significantly higher perception of college as an intermediary to increased earning power. However, as Table 16 shows, rural freshmen were also more likely to cite their interest in becoming

Table 15

Distribution of Rural and Urban Indians by Attitudes on Social and Educational Issues at College Entry

(in percentages)

Attitudinal Items	Rural (121)	Urban (113)
Attitudes: Strongly Agree		
Federal government is not doing enough to control environmental pollution	34	52
Federal government is not doing enough to protect consumers	10	26
There is not too much concern in the courts for the rights of criminals	11	22
The activities of married women are not best confined to the home and family	18	38
Parents should be discouraged from having large families	19	39
Women should receive the same salary and opportunities for advancement as men in comparable positions	46	65
College officials have no right to regulate student behavior off campus	44	63
The chief benefit of a college education is that it increases one's earning power	12	6
Student evaluations should play no part in faculty promotions	-	6
College officials have no right to ban persons with extreme views from speaking on campus	32	53
Most college officials have been too lax dealing with student protests on campus	7	14
Open admissions should be adopted by all publicly-supported colleges	6	13
Even if it employs open admissions, a college should use the same performance standards in awarding degrees to all students	24	35

Note. Variables reported in this table significantly differentiated rural from urban Indian freshmen, as indicated by chi squares at the .05 level of confidence or higher.

Table 16

Distribution of Rural and Urban Indians by Reasons for Going to College and for Choosing this College and College Expectations, 1971

(in percentages)

Reasons and Expectations	Rural (121)	Urban (113)
Very Important Reasons for Going to College		
My parents wanted me to go	37	25
To be able to contribute more to my community	28	29
To be able to get a better job	79	58
To make me a more cultured person	32	20
To be able to make more money	55	36
Reasons for Choosing this College		
My guidance counselor advised me to come here	48	28
Most of my friends were coming here	38	23
My relatives wanted me to come here	41	28
I wanted to live at home	12	25
Major Sources for College Financing		
Part-time or summer work	17	27
Parental or family aid	32	55
Scholarships or grants	68	31
College Expectations: Some to Very Good Chance of		
Being elected to an academic honor society	26	42
Enrolling in honors courses	24	42
Authoring or coauthoring a published article	15	27
Having to work at an outside job	64	72
Transferring to another college before graduating	37	43
Enlisting in the armed forces before graduating	12	4
Getting married within a year after college	55	65

Note. Variables reported in this table significantly differentiated rural from urban Indian freshmen, as indicated by chi squares at the .05 level of confidence or higher.

"a more cultured person" as a very important reason for attending college. While almost equal proportions of rural and urban Indians ranked "to be able to contribute more to my community" among their very important reasons for going to college, far more rural (74 percent) than urban (57 percent) freshmen reported that this had been a consideration in their decision to continue their education. Rural students were also substantially more likely to report that their parents' wanting them to attend college had been an important factor in their decision to do so. The factor analysis of reasons for going to college yielded four dimensions, one of which differentiated between the groups: rural students were significantly ($p < .01$) more likely to relate their decision to attend college to Extrinsic motivators (to be able to make more money, to be able to get a better job, and their parents wishes).

In selecting the particular college they entered in 1971, rural students were influenced by the advice of guidance counselors, the behavior of friends, and the wishes of their relatives to a far greater extent than urban Indians. Our comparison of urban and rural freshmen's mean factor scores reinforces our impression that rural students were more likely to turn to others for advice about choosing a college: they were significantly ($p < .05$) more likely to rely upon Social influences in choosing a college (someone who had been here before advised me to go; most of my friends are going to this college; and my relative wanted me to come here). Urban Indians were more likely to say that wanting to live at home had been a consideration in choosing a college. Urban students were, of course, more likely to live within commuting distance of a college or university.

Over half (55 percent) of the urban Indian freshmen, but only about one-third of the rural Indian freshmen, expected to receive major financial assistance from their families in meeting their college costs. This is consistent with our earlier finding that urban students came from more affluent families. Urban freshmen were also more likely to anticipate that they would meet a major portion of their college expenses by working part time or during the summer. Rural freshmen were more likely to expect that scholarships or grants would serve as their primary source of college financing: 68 percent of rural freshmen and 31 percent of urban freshmen expected to receive major support from this source. The follow-up survey found that 51 percent of the rural respondents and only 22 percent of the urban students had participated in a BIA program ($p < .01$), presumably reflecting receipt of higher education grants. Urban Indians' expectations about how they would finance their college education were similar to the expectations of students who had misclassified themselves as Indian, while rural students expected to be more dependent on scholarships and grants and less reliant on their own earnings and parental help than all Indians.

Comparing the college expectations of urban and rural Indian freshmen, we find that urban students were more confident of their prospects for academic success and scholarly achievement, were less certain that would complete their undergraduate degree at the college they had entered as freshmen, and were more likely to anticipate having to work at an outside job during college.

College Choices and Experiences

Turning to Table 17, we find that half of the rural Indians

Table 17

Distribution of Rural and Urban Indians by College Type, Size, and Distance from Home, 1971

(in percentages)

College Characteristics	Rural (121)	Urban (113)
College Type		
University	51	35
Four-year college	33	41
Two-year college	16	25
College Enrollment		
Below 2,000	22	30
2,000-4,999	24	23
5,000-9,999	26	21
10,000-19,999	11	21
20,000 and above	17	4
Distance from Home to College		
10 miles or less	6	30
11-50 miles	14	17
51-100 miles	25	16
101-500 miles	35	24
501 or more miles	21	13

Note. Variables reported in this table significantly differentiated rural from urban Indian freshmen, as indicated by chi squares at the .05 level of confidence or higher. All columns may not equal 100 percent due to rounding.

matriculated at universities, compared with just over one-third of the urban Indians. While this finding is somewhat surprising considering urban students' generally higher degree goals and greater academic self-confidence, it may be related to their greater reliance on parental and personal resources in meeting their college expenses. That is, they may elect to attend four-year and two-year colleges because they tend to be less expensive than universities. Our earlier finding that urban freshmen were more likely to choose the college they entered in 1971 because they wanted to live at home is consistent with their greater concentration in two-year colleges, as is their significantly higher expectation of transferring to another college before graduation.

Urban students were more likely to enroll at colleges with fewer than 2,000 students, while rural students were more likely to attend schools with enrollments of 20,000 or more. This pattern is consistent with their distributions by type of institution: universities tend to have larger student bodies than either four-year or two-year colleges.

Urban freshmen were five times more likely than rural Indians to attend a college within ten miles of their home, while rural Indians were 1.5 times more likely to enroll at a college that was over 100 miles from their home. This finding is consistent with urban freshmen's greater expressed interest in living at home. Certainly, the urban Indian is far more likely to live within a ten-mile radius of a college or university than is the rural Indian. It is interesting to note that urban Indians were almost twice as likely to attend a college within ten miles of home as nonIndians, while rural Indians were one-third as likely to attend a college so close to home as were all Indians. We expect

that urban Indians' greater concentration at colleges close to home reflects practical considerations, such as the lower cost of enrolling as a commuter student, and their greater access to local colleges.

Among respondents to the follow-up survey, rural Indians reported making greater use of financial aid services (82 percent versus 60 percent of urban Indians), and were more likely to indicate having participated in ethnic studies programs (50 versus 42 percent of urban Indians) and in Educational Opportunity Programs (EOP) which focus on improving the skills of underprepared, disadvantaged college students (35 versus 24 percent of urban Indians). Rural Indians' higher participation in ethnic studies and EOP is probably an artifact of their greater representation in larger schools, particularly universities, since these are the institutions most likely to offer such services and programs.

College Outcomes

By 1980, only 49 percent of the rural Indians, but 78 percent of the urban Indians had earned a bachelor's degree (see Table 18). A larger proportion of urban Indians than of nonIndians (70 percent) had completed baccalaureates, despite the fact that students who misclassified themselves as Indian appeared to enter college with substantially stronger academic preparation and more impressive records of scholastic achievement. Urban Indians' high degree attainment rate is even more impressive when one takes into account the fact that, as freshmen, 16 percent had aspired to less than a baccalaureate (as compared with 9 percent of nonIndians and 21 percent of rural Indians) and the fact that they were the group most likely to enroll at two-year colleges. Research (Astin, 1975, 1977b, 1982; Cope and Hannah, 1975) has consistently shown

Table 18

Distribution of Rural and Urban Indians on College Outcomes
(in percentages)

College Outcomes	Rural	Urban
Highest Degree	(98)	(85)
None	28	6
Vocational certificate	16	7
Associate	7	9
Bachelor's	41	57
Master's	6	14
Doctorate or advanced professional	2	7
Persisted to Attainment of Freshman Degree Objective (or to Attainment of a Bachelor's Degree, if Freshman Objective was an Advanced Degree)	58	80
Self-Rating: Top Ten Percent	(71)	(45)
Writing ability	3	22
Life Goals: Not Important		
Influencing social values	7	24
Raising a family	1	13

Note. Variables reported in this table significantly differentiated rural from urban respondents, as indicated by chi squares at the .05 level of confidence or higher. Sample sizes for the self-ratings and life goals are smaller because these data are available only for those persons who completed the 1980 survey.

that students who begin their college careers at two-year colleges reduce their chances of completing a baccalaureate.

Not only were urban Indians substantially more likely than rural Indians to complete a bachelor's degree, they were 2.5 times more likely to report having completed a graduate or professional degree. On the other hand, 4.5 times more rural than urban Indians reported that they had received no postsecondary certificate or degree since entering college over eight years earlier. Even when we assess respondents' academic achievements against their freshman aspirations, we find significant differences between urban and rural Indians: 80 percent of the urban Indians had succeeded in earning the degree they planned to obtain at college entry or, for those who entered college aspiring to an advanced degree, the prerequisite baccalaureate, as compared with 58 percent of the rural Indians.

Despite their significantly higher levels of degree attainment and their higher persistence rate, urban Indians did not report having earned significantly higher college grades than rural Indians, nor was their distribution by last college major significantly different from that of rural Indians. Although our earlier examination of precollegiate preparation and achievement offered scant evidence to suggest that urban Indians entered college with a better educational background than rural Indians, our data does suggest that they were more likely to be graduates of private high schools and such measures as average grade in high school and rank in class are relative. That is, students who attend highly competitive high schools may graduate with the same average grade and rank in class as students who attend academically mediocre high schools,

although the former group has received a much stronger precollegiate education. Nonetheless, the finding that urban students did not earn significantly better grades in college suggests that they were not markedly better students than their rural peers. They were, quite simply, more persistent. Undoubtedly, their socioeconomic advantages, relative to rural students, contributed to their higher persistence. Their better educated parents may place a higher value on higher education, supporting and encouraging their children's academic aspirations. Their parents are also in a better financial position to help them meet their educational expenses and are less likely to need financial assistance from their children. Furthermore, as we review our earlier findings, we are left with the impression that urban Indian freshmen were more interested in academic life and issues, more sophisticated and, thus, better prepared to adapt to life on a college campus, and more self-confident about their prospects for college success. They had significantly higher Involvement scores on high school behaviors; expressed stronger interest in liberal arts, as opposed to vocational, major fields; had substantially higher academic aspirations; had significantly higher scores on Academic Self-Esteem, Empathic-Expressive, and Conviction; and were less likely to cite Extrinsic reasons as having influenced their decision to attend college. Urban respondents to the follow-up survey rated their writing ability significantly higher than rural respondents did, although it is difficult to say whether this contributed to or resulted from their higher rate of college persistence.

Summary and Discussion

Our findings indicate that rural Indians were significantly less

likely to persist in college than their urban peers, not necessarily because they were substantially less well prepared for the academic demands of college life, but because their past experiences, values, attitudes, and interests were less congruent with those of their student peers and of the academic environment in general; because they were less well prepared psychologically and socially for the transition to college, yet were more likely to attend very large schools further from their home; because they were less confident about their academic abilities and chances of being successful in college; and because they were more likely to come from families who were unfamiliar with higher education and, thus, unable to counsel them about college decisions or help them deal with the transition to college and who were less able to help them meet their college expenses. The less sophisticated rural Indians were more likely than urban Indians to attend large universities farther from their homes. Thus, their adjustment problems may have been compounded by the confusion of being on a campus that was much larger than their home community, by loneliness at being isolated from the support of friends and family, and by anxiety about having to deal with new and complicated situations.

Rural Indians were evidently concerned about the nonacademic benefits of a college education, although they shared the urban Indians' interest in such traditional academic benefits as "to gain a general education and appreciation of ideas." Rural freshmen were interested in fields of study that would provide them with occupationally-relevant education to a greater extent than urban freshmen, were more likely to report that they had come to college so that they would be able to make

money and get a better job, and they expressed a higher valuing of achieving Quality of Life goals. One cannot help wondering how comfortable and welcome these rural students felt in an academic community that has voiced its concern and dismay in recent years over the increasingly vocational and materialistic goals and attitudes of college students. How meaningful and relevant did general education requirements seem to these students who hoped to graduate with skills and training that would enable them to find employment?

In terms of socioeconomic background and academic orientation, urban Indians resembled students who misclassified themselves as Indian. They do not enter college with as strong an academic record of achievement, yet they are more likely to earn a baccalaureate. Perhaps, they enter college with a stronger sense of educational commitment and a clearer focus on achieving their educational objectives, motivated by awareness of the Indian communities need for college-educated professionals and leaders. The more liberal nonIndians may be distracted from their educational pursuits by opportunities to become involved with causes which seem more relevant than their college coursework. Our data offer no clear explanation for urban Indians' higher level of persistence than that of students who misclassify themselves as Indian.

These comparisons do indicate that rural and urban Indians enter college with different educational needs, interests, and concerns. Just as educators need to distinguish between Indian students and students who tend to misclassify themselves as Indian, they need to distinguish between rural and urban Indians in order to provide the kinds of academic programs and services, psychological support, and assistance with the transi-

tion to college that will meet these students' needs. Rural Indians are clearly more likely to face financial, attitudinal, social, and perhaps academic barriers to college success than urban Indians. Given the absence of significant differences on measures of high school achievement between these two groups, it seems apparent that rural Indians are not realizing their academic potential and a valuable resource is being lost to the Indian community.

Chapter Six

Gender Differences Among Indian College Students

Research on Indian college students has been so focused on trying to understand the dynamics of academic success that little attention has been paid to the issue of gender differences among these students. Perhaps this is due to the fact that gender has not been identified as a correlate or predictor of college success. However, if educators are to provide the kinds of services and programs that are needed to attract and retain Indian students and to promote their educational and occupational development, they cannot ignore gender differences. Research on college students (see, for example, Astin, 1977b) shows that gender is related to students' interests, attitudes, goals, self-concept, and accomplishments. This chapter discusses the results of analyses comparing the background characteristics, values, attitudes, interests, goals, and achievements of Indian men and women in our sample.

Women accounted for larger and almost identical proportions of the Indian (57 percent) and white (56 percent) respondents to the follow-up study. As noted in Chapter 5, the distribution of Indian men and women by home environment (urban or rural) was almost identical. There were no significant differences between Indian men and women on measures of family background. This finding suggests that Indian families value education as highly for their daughters as they value it for their sons. The cross-tabulations and the comparisons of mean factor scores did identify a number of significant differences between men and women that are described in the following discussion.

Precollegiate Education

Our analysis of high school achievements and behaviors identified few differences between men and women, although those it did identify were predictable from the research on gender differences. As Table 19 shows, four times more men than women reported having won a varsity letter in sports during high school, while twice as many women as men had edited a high school newspaper, yearbook or literary magazine.

Indian women did not appear to enter college with a substantially stronger record of academic achievement than their male peers and, in fact, appeared to be somewhat less confident about their preparation for college than men. Past research has consistently found that women earn better high school grades than men, and Indian women did tend to report a somewhat--but not significantly--higher average high school grade than their male peers: 41 percent of the women and 29 percent of the men reported an average grade of "B+" or better. Almost equal proportions of men (15 percent) and women (17 percent) said they had been "A" students in high school, and men were only slightly more likely than women to report an average grade of "C" or below: 13 versus 8 percent, respectively.

Although their grade point averages suggest that these students entered college with adequate to strong academic preparation, substantial proportions of both sexes expected to need special tutoring or remedial assistance in foreign languages, science, and, especially, mathematics. Not surprisingly, women were significantly more likely to anticipate needing remedial help in math and science, while men were significantly more likely to expect to need special assistance in

Table 19

Distribution of Men and Women on Measures of Precollegiate Education and High School Behaviors

(in percentages)

Precollegiate Education and Behaviors	Men (101)	Women (133)
Achievements		
Won a varsity letter (sports)	58	14
Edited a high school newspaper, yearbook, or literary magazine	10	21
Anticipated Need for Remedial Help in:		
Mathematics	38	53
Science	22	35
Foreign language	34	21
Social studies	3	12
Frequent Behaviors as a High School Senior		
Overslept and missed a class or appointment	5	1
Argued with a teacher in class	10	7
Discussed my future with my parents	27	42
Read poetry not connected with a course	11	32
Discussed religion	24	33
Played chess	11	5
Discussed sports	62	29
Drank beer	29	6

Note. Variables reported in this table significantly differentiated men from women, as indicated by chi squares at the .05 level of confidence or higher.

foreign languages. While women's lower self-confidence in their math and science skills and abilities is consistent with research on gender differences, they do not appear to have any compensating strengths. That is, women appear to be no more confident of their reading, English, and writing skills than their male peers, despite their significantly greater likelihood of reporting that they had edited a high school publication.

Looking at the high school behaviors that distinguished between Indian men and women, we find men trying out new behaviors and asserting their independence both at school (arguing with teachers and missing class or an appointment) and outside of school (discussing their future with their parents less often than women and drinking beer). Young men also reported discussing sports and playing chess with significantly greater frequency than women, while women were more likely than men to read poetry and discuss religion.

The comparison of mean factor scores on the six dimensions of high school behavior identified significant gender differences on Rebelliousness ($p < .01$) and Involvement ($p < .05$). Young men were more likely to report having engaged in a series of limits-testing behaviors: came late to class, stayed up all night, overslept and missed a class or appointment, argued with a teacher in class, failed to complete a homework assignment on time, smoked cigarettes, and drank beer. Astin (1977b) identified a similar cluster of behaviors, which he labeled Hedonism and also found to be more characteristic of men than women. Young women, on the other hand, were more likely to report having engaged in a series of "model student" behaviors: read about civil rights and liberties,

discussed politics, read about collegiate rights and responsibilities of students, did extra reading for a course, typed a homework assignment, discussed religion, worked in a school political campaign, and read poetry not connected with a course. Judging by these behavioral patterns, we would predict that young women would tend to be more successful in college than their male peers.

Aspirations, Self-Concept, Values, and Attitudes

Although our analysis identified no significant differences in the level of Indian men's and women's degree aspirations, they entered college expressing significantly different major field and occupational interests. Young women were attracted to traditionally female majors and careers, while men gravitated toward preprofessional and technical major fields and toward business and professional careers. Men's self-ratings, as college freshmen, reflect greater self-confidence and their rankings of life goals suggest that they are more concerned than women are about achieving recognition, status, and success. There are few differences in men's and women's attitudes on social and academic issues, with the exception primarily of items that are directly related to women's roles and relationships.

The major field plans of Indian freshmen reflect pronounced gender differences (Table 20). Young women expressed substantially greater interest than men in majors in nursing, allied health fields, education, and the arts and humanities. These four traditionally female fields accounted for the major field plans of 63 percent of the women and 22 percent of the men. Women were also more likely than men to enter college without having made a tentative major field choice: 10 percent

Table 20

Distribution of Men and Women by Major Field Plans and Occupational Aspirations at College Entry

(in percentages)

Major Field Plans and Occupational Goals	Men	Women
Probable College Major	(96)	(120)
Arts and humanities	15	23
Education	5	19
Business	12	12
Social sciences	9	8
Natural sciences and mathematics	9	6
Engineering	14	1
Prelaw	10	3
Premedicine	6	2
Nursing	-	13
Allied health fields	2	8
Technical fields	6	-
Agriculture and forestry	7	-
Other fields	4	6
Occupational Aspirations	(89)	(120)
Allied health	5	21
Arts	5	13
Business	14	2
Clerical	1	8
Elementary and secondary education	7	19
Helping professions (clergy, clinical psychology, social work, counseling)	5	4
Professions	34	8
Peace keeping and agriculture	8	-
Other	16	17
Homemaker	-	2
Undecided	8	6

Note. Variables reported in this table significantly differentiated men from women, as indicated by chi squares at the .05 level of confidence or higher. All columns may not total 100 percent due to rounding.

of the women and 5 percent of the men described themselves as undecided about what major they would pursue or failed to respond to this question. Compared with the major field plans of all entering college students (Staff of the Office of Research, 1971), Indian men and women expressed greater interest in majoring in the arts and humanities than their same-sex peers. Indian women also expressed greater interest in allied health and nursing majors than women-in-general. Thus, Indian women are even more concentrated in these traditionally female major fields than are freshmen women-in-general.

Indian men entered college expressing far greater interest than their female peers in such traditionally male fields as engineering, prelaw, agriculture and forestry, technical fields, premedicine, and natural sciences and mathematics. Over half (52 percent) of Indian men and only 12 percent of Indian women entered college planning to major in these fields. While the proportions of Indian women planning to pursue majors in agriculture and forestry, natural sciences and math, and preprofessional fields (including engineering) closely resembles that of all entering freshman women, Indian men expressed considerably greater interest in prelaw and premedical majors than all entering freshman men did.

Only two majors, business and the social sciences, attracted equal proportions of Indian men and women, accounting for about one-fifth of each group's major field plans. Both fields were more popular among freshman men and women-in-general than among Indian men and women, and business tends to attract more men than women, while the social sciences attract more women than men. With the exception of these two fields, the major field choices of Indian men and women who entered college in 1971

are similar to those of their same-sex peers among students-in-general only more so: that is, Indian women were even more likely to choose traditionally female fields and Indian men were even more likely to choose traditionally male fields.

Although Indian women were as career oriented as their male peers (only 2 percent of the women chose "housewife" as their probable future career), they aspired to traditionally female careers as allied health professionals, elementary and secondary school educators, clerical workers, and to careers in the arts. Although equal proportions of men and women entered college planning to pursue business majors, 14 percent of the men and only 2 percent of the women expressed interest in careers as business executives, owners, salesmen, buyers, or accountants. Men also expressed substantially greater interest than women in the professions: 34 percent of the men and 8 percent of the women hoped to pursue careers as architects, dentists, engineers, lawyers, physicians, or veterinarians. Careers in law enforcement, the military, farming, and ranching (peace keeping and agriculture) attracted 8 percent of the men and none of the women. Indian men and women were far more likely to indicate a tentative career choice than freshmen-in-general were: only 8 percent of the Indian men and 6 percent of the women said they were undecided as to their future career, as compared with 13 percent of all freshman men and 14 percent of all freshman women who entered college in 1971. Further comparisons between the career aspirations of Indian freshmen and all freshmen could not be made because of differences in career categories.

While we expect that the major field plans and occupational aspira-

tions of Indian men and women entering college today reflect less sex-role stereotyping and fewer preconceptions about what fields of study and careers are appropriate for men and women, our data indicate that Indian students who entered college ten years ago gravitated toward traditionally male and female fields of study even more than their same-sex peers in the general student population. They were more likely to enter college with a tentative career goal than were all freshman men and women, and these occupational aspirations also reflect strong gender differences. These findings may be related to higher valuing of role differentiation in Indian cultures, to the disproportionate (compared with all freshmen) representation of students from conservative rural backgrounds among Indian freshmen, or to a lack of career guidance and information and fewer role models for achievement. Whatever the explanation, they suggest that Indian students may be especially likely to restrict themselves unnecessarily to major fields and careers that they consider to be sex-appropriate.

The freshman self-ratings of Indian men and women, shown in Table 21, suggest that men are more academically and socially self-confident. Although their high school performance was no better than that of women, three times as many men (18 percent) as women (6 percent) rated their academic ability in the top ten percent, using the average student of their age as the basis for comparison. While it is hardly surprising to find more men than women rating themselves highly on mathematical, athletic, and mechanical ability, men were also more likely to rate themselves highly on leadership ability, popularity with the opposite sex, and artistic ability. They were also more likely to describe themselves as

Table 21

Distribution of Men and Women by Self-Ratings, Life Goals, and Attitudes at College Entry

(in percentages)

Self-Ratings, Life Goals, and Attitudes	Men (101)	Women (133)
Self-Ratings: Above Average or Higher		
Academic ability	52	48
Mathematical ability	37	10
Leadership ability	43	29
Athletic ability	51	20
Mechanical ability	37	10
Artistic ability	28	18
Popularity with the opposite sex	30	20
Defensiveness	31	20
Political conservatism	12	2
Life Goals: Very Important or Essential		
Becoming an authority in my field	70	53
Becoming an expert on finance and commerce	15	6
Making a theoretical contribution to science	9	7
Being very well-off financially	50	28
Being successful in a business of my own	53	32
Keeping up to date with political affairs	44	32
Attitudes: Strongly Agree		
There is too much concern in the courts for the rights of criminals	16	12
The activities of married women are <u>not</u> best confined to the home and family	11	41
There is no 'generation gap' blocking communication between me and my parents	55	71
Parents should be discouraged from having large families	32	26
Women should receive the same salary and opportunities for advancement as men in comparable positions	39	68
The chief benefit of a college education is that it increases one's earning power	14	5

<u>Note</u>. Variables reported in this table significantly differentiated men from women, as indicated by chi squares at the .05 level of confidence or higher.

defensive and politically conservative. Our impression that men are more confident of their academic abilities is reinforced by their significantly ($p < .01$) higher mean factor score on Academic Self-Esteem, a dimension that reflects self-ratings on academic ability, intellectual self-confidence, and mathematical ability. Men also had a significantly ($p < .01$) higher mean factor score on the Realistic dimension of self-concept, which reflected self-ratings on mechanical ability, political conservatism, and athletic ability.

When we look at the importance students ascribed to achieving a series of life goals, we find that men were much more concerned than women about achieving status, gaining recognition for their expertise and leadership, and being financially successful. While this pattern is evident in their ratings of individual life goals, it is even more apparent when one compares mean factor scores on the six life goals dimensions. Men have a significantly ($p < .01$) higher Status mean factor score, reflecting their higher valuing of obtaining recognition from colleagues for contributions in their special fields; becoming experts in finance and commerce; becoming authorities in their fields; being successful in their own businesses; making theoretical contributions to science; becoming community leaders; and having administrative responsibility for the work of others. In addition to their stronger need for status, men also were significantly ($p < .05$) more concerned about achieving Quality of Life goals, which reflect the importance students placed on having an active social life, having friends with different backgrounds and interests from their own, and being very well-off financially. Interestingly, women's mean factor scores on the more traditionally female life goals--

Aesthetic, Altruistic, and Family--are not significantly higher than those of their male peers. Thus, men seem to value a range of different kinds of involvements and achievements and do not appear to feel that personal success must come at the expense of other goals that they value.

Looking at the six statements that elicited significantly different responses from men and women, we find that women took a more liberal position than men on women's issues: about four times more women than men strongly feel that married women's activities are not best confined to the home and family, although most men and the majority of women appear to be comfortable with women assuming this traditional role. A substantial majority of the women (68 percent), but only 39 percent of the men, feel very strongly that women who work should receive the same salary and opportunities for advancement as men in comparable positions. Women also appear to feel that family size is a personal decision: a smaller proportion of women than men strongly agree that "parents should be discouraged from having large families," and over twice as many women (28 percent) as men (12 percent) strongly disagreed with this statement. Our earlier impression that women maintain better relationships with their parents than men do is reinforced by the finding that women were significantly less likely to feel that communication with their parents was hampered by a "generation gap." A far smaller proportion of women (5 percent) than men (14 percent) perceived increased earning power as the chief benefit of a college education.

Reasons for Going to College and College Expectations

Indian men were significantly more likely than Indian women to report that bettering their employment and economic prospects were very

important reasons for deciding to attend college (Table 22). Three-fourths of the men said that "to be able to get a better job" was a major consideration in their decision, making it their top-ranked reason for continuing their education, followed closely by "to learn more about things that interest me" (73 percent). Among women, the rankings of these two reasons were reversed: four-fifths said they had enrolled in college to learn more about things that interested them, and 64 percent said that improving their employment prospects was a very important reason for deciding to attend college. While a substantial majority of both sexes saw college as a route to improved job opportunities and said that this was a factor that had played a major role in their decision to attend college, women were significantly less likely than men to say that its potential for increasing their earning power was a very important reason for deciding to go to college. Men ranked "to be able to make more money" third among their very important reasons for continuing their education, while women ranked it sixth, behind "to gain a general education and appreciation of ideas," "to meet new and interesting people," and "to prepare myself for graduate or professional school." Men cited these three reasons in the same rank-order, but after rather than before "to be able to make more money." It is also interesting to note that a larger proportion of women (one-third) than men (23 percent) ranked "to be able to contribute more to my community" among their very important reasons for going to college.

Turning to their reasons for choosing the college that they entered as freshmen, we find women are more likely than men to rely on the advice of someone who had been at the school, although women were also more

Table 22

Distribution of Men and Women by Reasons for Going to College and for Choosing this College and College Expectations

(in percentages)

Reasons and Expectations	Men (101)	Women (133)
Very Important Reasons for Going to College		
To be able to get a better job	75	64
To be able to make more money	60	35
Very Important Reasons for Choosing this College		
Someone who had been here before advised me to go	17	23
I was not accepted anywhere else	1	2
Major Sources for College Financing		
Savings from full-time employment	8	2
College Expectations: Very Good Chance of		
Graduating with honors	7	4
Being elected to an academic honor society	8	1
Dropping out of college	3	-
Enlisting in the armed forces before graduating	3	1

Note. Variables reported in this table significantly differentiated men from women, as indicated by chi squares at the .05 level of confidence or higher.

likely to say that such advice had played no role in their decision (48 percent of the women versus 38 percent of the men). Women were also more likely than men to say they had not been accepted at another school. While ten percent of the women said that this was a reason for their college choice, only two percent cite it as a "very important" reason. Only two percent of the men cited it among their reasons, with only one percent ranking it as "very important." Most students who cite this as a reason for their college choice apparently only applied to one college and women were considerably more likely to so restrict their choice than men.

The only significant difference in men's and women's expectations about how they will meet their college expenses was that over twice as many men (21 percent) as women (8 percent) planned to use their savings from a full-time job. Furthermore, four times as many men as women expected their savings to be a major source for financing their college education.

Men's higher Academic Self-Esteem is reflected in their significantly higher expectations of being elected to an academic honor society and of graduating with honors. Women, on the other hand, appear to be more confident that they will persist in college: 3 percent of the men but none of the women rated their chances of dropping out of college as "very good," while 63 percent of the women but only about half of the men said that there was no chance of their dropping out.

College Choices and Experiences

Women were significantly ($p < .05$) more likely than men to enroll at private colleges: 42 percent of the freshman women and 29 percent of the men attended private colleges in 1971. Our sample's representation in

the private sector is atypically high: In fall 1978, 88 percent of all Indian college students attended public colleges and universities, and there is no evidence to suggest that women were more likely to enroll in private schools than men (Dearman and Plisko, 1980). Institutional control was, however, the only college characteristic that identified significant differences between the college choices of Indian men and women.

Although we have information about the college experiences of only 78 women and 39 men who completed follow-up surveys, their responses suggest that men were more likely to take advantage of campus services, especially career and personal counseling services. Both men (82 percent) and women (69 percent) reported using financial aid services more often than any of the other eight services and programs listed on the questionnaire. Over three-fourths of the men reported seeking career counseling (79 percent) and personal counseling (77 percent), as compared with 53 and 58 percent of the women, respectively. Men were also more likely to report having sought tutoring (51 versus 37 percent of the women) and having participated in Educational Opportunity Programs (36 versus 28 percent of the women). Men's greater use of these services may reflect greater assertiveness in seeking out assistance, greater need for guidance, financial assistance, and academic help, or some combination of assertiveness and need.

College Outcomes

Although the differences are not statistically significant, women had higher baccalaureate attainment and persistence rates than men: two-thirds of the women and 57 percent of the men had earned bachelor's degrees by 1980, and 71 percent of the women and 65 percent of the men

had succeeded in achieving the undergraduate degree objective that they had cited as entering freshmen. Among respondents to the follow-up survey, women did report having earned significantly higher college grades than male respondents, and their distributions by last college major also showed significant gender differences. Men and women had made significantly different occupational choices, although the jobs they had held were considerably different from those they aspired to as college freshmen. Furthermore, women were far less likely to be working than their male peers and than we would have expected given the fact that, as freshmen, only two percent of the women planned to become housewives.

As Table 23 shows, 59 percent of the women and only one-third of the men who completed the follow-up survey reported earning an average undergraduate grade of "B" or better. Three times more women than men reported "A" averages, although the proportions of men and women who were "A" students in high school were almost identical. While only 13 percent of the men and 8 percent of the women reported an average high school grade of "C" or below, 34 percent of the men and 28 percent of the women were "C" students, at best, in college. Men's college achievements do not appear to justify their higher academic self-esteem as entering freshmen. Of course, their higher academic self-confidence may have contributed to their downfall, by leading them to underestimate the amount of effort that they would have to invest in their college coursework. On the other hand, women's lower confidence in their preparation for college and prospects of academic success may have been a kind of advantage in that they would have entered college with more realistic expectations, anticipating the need for hard work. Furthermore, women's

Table 23

Distribution of Men and Women by Average Undergraduate Grade and Last Major

(in percentages)

Average Undergraduate Grade and Last Major	Men (39)	Women (78)
Average Undergraduate Grade		
A	5	16
B+ or B	28	43
B- or C+	33	12
C	18	23
C- and below	16	5
Last College Major		
Arts and humanities	5	16
Education	10	21
Business	15	13
Social sciences	23	20
Natural sciences and mathematics	18	3
Engineering	8	-
Premedicine	-	1
Nursing	-	13
Allied health fields	5	4
Technical fields	5	1
Other fields	10	7

Note. Variables reported in this table significantly differentiated men from women, as indicated by chi squares at the .05 level of confidence or higher. Sample sizes are reduced to those persons who responded to the follow-up survey in 1980. These questions were not asked in the telephone interview. All columns may not equal 100 percent due to rounding.

high school behaviors were much more consistent with those one would expect of a successful college student. Men's tendency to engage in limits-testing (being late to or missing class, arguing with teachers, and failing to complete assignments on time) and hedonistic (staying up all night and drinking beer) behaviors during high school do not foreshadow academic success, particularly not in an environment that is more academically demanding and less supervised than high school.

Gender differences in major field choices persist during the undergraduate years, despite changes in major field plans. To some extent, men's lower college grades may be due to their greater representation in academically exacting natural sciences, mathematics, and engineering majors: 26 percent of the men and 3 percent of the women majored in these fields. Fewer men earned degrees in engineering than had planned to do so as college freshmen. The natural sciences and math appear to attract men during the undergraduate years, while losing prospective female majors. Both men and women shifted out of arts and humanities majors, but these fields remained more popular with women, accounting for 16 percent of the last majors reported by women and 5 percent of those reported by men. Twice as many women (21 percent) as men (10 percent) majored in education, although larger proportions of both groups ended up majoring in education than had planned to at college entry. Nursing attracted no male majors, while maintaining its popularity among women. However, men and women ended up represented about equally in allied health fields. The two fields that attracted equal proportions of male and female freshmen, business and the social sciences, retained their unisex appeal and increased in popularity over time, accounting for 38 percent

of the men's and one-third of the women's last majors. The social sciences registered the greatest increase in popularity during the undergraduate years among both sexes. Interestingly, women's major field choices as college freshmen appear to be more stable over time than those of men.

Turning to Table 24, we find that 80 percent of the men and 56 percent of the women were working full time in early 1980. Eight percent of the men and almost one-third of the women said that they were neither working nor looking for work. A review of the questionnaires suggests that the men who used this category to describe their employment status were usually pursuing further education, while most of the women who did so were married and had children whom they were apparently staying home to raise. For a substantial proportion of these young women, who were still in their late twenties at the time of the follow-up survey, raising a family had taken precedence over pursuing a career. Undoubtedly, many of the women who were homemakers in 1980 will enter or reenter the labor force at some time in the future, while some of the women who were employed in 1980 will interrupt their careers to raise their families.

Although the actual jobs that our respondents held or had most recently held in 1980 were considerably different from those they had aspired to as college freshmen, the occupational patterns of men and women continue to reflect significant differences. More women than men were employed in the allied health fields, education, clerical work, and the "helping professions," all traditionally female fields that, with the addition of women who were homemakers, accounted for 65 percent of the current or most recent jobs held by women, as compared with 23 per-

Table 24

Distribution of Men and Women by Current Employment Status and Current or Most Recent Job

(in percentages)

Current Employment Status and Job	Men	Women
Current Employment Status	(100)	(128)
Employed full time	80	56
Employed part time	8	9
Unemployed, looking for work	4	4
Unemployed, not looking for work	8	31
Current or Most Recent Job	(100)	(133)
Allied health	4	14
Arts	-	3
Business	19	5
Clerical	9	15
Elementary or secondary education	5	11
Helping professions	3	8
Professions	7	3
Other professional	10	8
Technicians and craftsmen	26	4
Operatives and laborers	8	4
Other	7	8
Homemaker, student, or unemployed	2	17

Note. Variables reported in this table significantly differentiated men and women, as indicated by chi squares at the .05 level of confidence or higher. All columns may not equal 100 percent due to rounding.

cent of those reported by men. The more traditionally male fields of business, the professions, and the skilled trades (technicians and craftsmen) attracted 52 percent of the men and only 12 percent of the women. The two occupational categories where men and women were represented in about the same proportions are "other professional" and "other." The "other professional" category includes persons who held professional-level positions in the public and nonprofit sectors (e.g., urban planner, job developer, health administrator, assistant city manager, and director of a state youth involvement office), scientists and scientific researchers, and postsecondary educators, educational specialists, and program administrators. Ten percent of the men and eight percent of the women held such positions. The "other" category included a variety of jobs, few--if any--of which require a college education, including educational aide, cook, commercial fisherman, motel housekeeper, and police officer. Eight percent of the women and seven percent of the men held these kinds of jobs.

Comparing our respondents occupational aspirations at college entry with the jobs they reported holding at the time of the follow-up survey, we find evidence of what can only be described as a downward shift in career interests. To some extent, freshman career aspirations probably reflect wishful thinking and general interests as much as informed career planning and, certainly, we expect students' interests to change during the college years as they discover new fields of study, expand their knowledge of career opportunities, and develop and test their abilities and skills. Assuming that freshman occupational aspirations correspond to educational objectives, it is also evident that students who failed to realize or who lowered their educational aspirations would have to

reformulate their career plans as well.

Men's and women's interest in business careers apparently increased during the undergraduate years. About one-fifth of the men and five percent of the women were working in such jobs as buyer, sales representative, accountant, manager, copywriter, and insurance agent at the time of the follow-up survey. Far more men and women ended up holding clerical jobs than had planned on doing so: 15 percent of the women and 9 percent of the men were employed as secretaries, data entry operators, clerks, office workers, and data processors, although only 1 percent of the freshman men and 8 percent of the freshman women had expressed an interest in careers as clerical workers or computer programmers. On the other hand, fewer men and women were pursuing careers as professionals, as elementary and secondary school educators, as allied health professionals, and in the arts than had hoped to do so as college freshmen. Among men, attrition is most pronounced in the professions, which accounted for 34 percent of their freshman career goals but only 7 percent of their actual careers. Among women, we find these losses are distributed across all four fields, with artistic careers showing the most substantial loss. Fewer men but more women were pursuing careers in the "helping professions" than had planned to do so as freshmen: 3 percent of the men and 8 percent of the women were working as counselors, social workers, and psychologists in 1980. Obviously, far more women had become homemakers, at least temporarily, than the 2 percent of the freshman women who cited this as their probable future career.

Summary and Discussion

Indian college freshmen's reports on their high school behaviors,

self-ratings, interests, and aspirations reflect gender differences. Young men appear to be more rebellious, independent, self-confident, and ambitious than their female peers. Young women appear to get along better with their teachers and parents, to participate more actively in their education, to be more modest--or less confident--about their abilities, and to be less interested in attaining professional recognition and financial prosperity than their male peers. Looking at these students' major field plans and occupational aspirations, we find that each sex tends to gravitate toward the major fields and careers traditionally associated with their gender. Despite changes in major field and career interests during the undergraduate years, we continue to find statistically significant differences between men's and women's college majors and occupational choices reflected in their 1980 responses.

The freshman responses of both men and women suggest that expanding their job opportunities was an important reason for continuing their education. They expressed less interest in liberal arts majors than in fields that would provide vocationally-relevant education and training. Women were as likely as men to indicate that they planned to pursue careers. However, almost one-third of the women in this sample reported that they were neither working nor seeking employment in 1980. This finding and a number of other gender differences that emerged from these comparisons suggest that young men and women enter college with very different expectations about the role that work will play in their adult lives and, consequently, with different attitudes about college.

Unlike young men, whose major work-related decision has to do with what kind of employment or type of career they will pursue, young women

confront questions related to choices between work and family: e.g., Do I want to pursue professional training or do I want to develop skills that will enable me to find work when I want or need to be employed? Do I want to work when my children are small? How does my family--or more importantly, my boyfriend--feel about "career women" and woman's "place?" (Our data suggest that young Indian men tended to hold very conservative views about women's roles and about their rights in the work place.) While most young women struggle with these kinds of questions, Indian women are far more likely to grow up with few role models for professional achievement, to come from rural communities where attitudes about women have tended to change most slowly, and to be raised on reservations where unemployment is endemic but there is usually a need for teachers, nurses, allied health professionals, and clerical workers. Our data do suggest that Indian women were even more likely to indicate an interest in pursuing traditionally female careers than were freshman women in general. Furthermore, Indian women may feel a strong sense of commitment to and responsibility to their community and their culture. Indian women place high values on their roles as women, preserving and transmitting their culture in the face of pressures toward acculturation and assimilation into the dominant society, and on the extended family structure that characterizes tribal societies. Indeed, many Indian women feel that role differentiation and maintenance of family solidarity are critical to cultural survival and to the fight against oppression by the larger society. Green points out: "For Indian feminists, every woman's issue is framed in the larger context of Native American people" (1980, p. 264).

Thus, our impression is that young men enter college intent on what they hope to attain as a result of having gone to college: a career, professional recognition, status, and financial prosperity. They express confidence in their abilities to achieve their goals, but seem to be somewhat impatient with the educational process. Young women, on the other hand, appear to place a higher value on education for its own sake rather than as a means to desired ends. They express a greater willingness to become involved in the educational process and have more modest aspirations in life. These students' sex-stereotyped freshman aspirations and the discrepancies between these aspirations and their final majors and career choices suggest that both men and women could benefit from career guidance early in their undergraduate experience. While young men appear to need a firm, supportive environment that recognizes and responds to their strong vocational interests and concerns, young women appear to need a nurturing environment in which to develop self-confidence and raise their aspirations.

Chapter Seven

Academic Achievement among Indian College Students

This chapter examines the critical issues of persistence in college and level of educational attainment. It addresses such questions as: To what extent were these Indian students successful in achieving their undergraduate degree objectives? How do successful students (persisters) differ from those who, by 1980, had still not earned the vocational certificate, associate degree, or bachelor's degree that they had planned on earning when they entered college? What factors influence Indian students' persistence in college and level of educational attainment? The sample sizes for these analyses is reduced to the 183 respondents (78 percent of the sample) who provided information on their highest earned degree in 1980. The chapter is divided into three sections: (1) a descriptive comparison of persisting and nonpersisting respondents; (2) a discussion of the most important determinants of college persistence; and (3) an examination of the factors that influenced these students' level of educational attainment.

Of the 183 persons who provided information on their educational attainments in 1980, over two-thirds (68 percent) were classified as persisters, including 18 (82 percent) of the 22 freshmen who checked the "none" or "other" categories to describe their degree goals and who earned at least a vocational certificate, six (43 percent) of the 14 who said their goal was an associate degree and who achieved or surpassed their objective, and 101 (69 percent) of the 147 freshmen who aspired to

a bachelor's or higher degree and who had earned a baccalaureate by 1980. Our second outcome measure, level of educational attainment, is a continuous variable and respondents were classified according to their highest earned degree: (1) high school diploma or vocational certificate (30 percent), (2) associate degree (8 percent), (3) bachelor's degree (48 percent), (4) master's degree (10 percent), and (5) doctoral, law or medical degree (4 percent).

Descriptive Comparison of Persisters and Nonpersisters

Two-thirds (68 percent) of all 183 subjects, 65 percent of the men and 71 percent of the women, were classified as persisters. Neither parental education nor family income identified significant differences between persisting and nonpersisting students. The only measure of students' background that did differentiate between the two groups was home environment: 80 percent of the students from urban backgrounds were classified as persisters, as compared with only 58 percent of rural respondents ($p < .01$).

Precollegiate Education

As Table 25 shows, persistence was strongly related to academic performance in high school. Furthermore, this relationship is linear: 94 percent of the "A" students, 76 percent of the "B+" students, 69 percent of the "B" students, and only half of the students who reported an average high school grade of B-, C+, or C were persisters. This same pattern is reflected in persistence rates by rank in high school class. Four-fifths (81 percent) of the students who belonged to a scholastic honor society in high school realized their undergraduate degree goal.

Very few high school behaviors distinguished persisters from non-

Table 25

Distribution of Nonpersisters and Persisters on Measures of Precollegiate Education and High School Behaviors

(in percentages)

Precollegiate Education and Behaviors	Nonpersisters (58)	Persisters (125)	
Average High School Grade			
A	3	25	(94)[a]
B+	16	23	(76)
B	28	29	(69)
B-	26	12	(50)
C+ or C	28	11	(50)
Rank in High School Class			
Top quarter	29	57	(81)
Second quarter	29	23	(63)
Third quarter	36	18	(51)
Fourth quarter	5	2	(50)
Achievements			
Scholastic honor society member	19	37	(81)
Anticipated Need for Remedial Help in:			
Social studies	16	5	(44)
Frequent Behaviors as a High School Senior			
Played a musical instrument	14	35	(85)
Discussed religion	14	36	(85)
Overslept and missed a class or appointment	2	2	(50)
Missed school because of illness	9	4	(50)

[a]The figure in parentheses is the persistence rate of students making this response.

Note. Variables reported in this table significantly differentiated persisters from nonpersisters, as indicated by chi squares at the .05 level of confidence or higher. All columns may not equal 100 percent due to rounding.

persisters. Persisters were more likely to report having played a musical instrument and discussed religion, while nonpersisters were more likely to report that they had overslept and missed a class or appointment and had missed school because of illness. Persisters had significantly ($p < .05$) higher mean factor scores on Involvement, indicating that they were more likely to report having read about civil rights and liberties, discussed politics, read about collegiate rights and responsibilities of students, done extra reading for a course, typed a homework assignment, discussed religion, worked in a school political campaign, and read poetry not connected with a course. While one would certainly expect to find that such behaviors were more characteristic of persisting than nonpersisting students, it is interesting to note that Rebellious high school behaviors did not differentiate these two groups.

In sum, academic performance and high school behaviors that reflect interest and involvement in school and in thinking about and discussing religion, politics, civil rights, and the rights and responsibilities of students are positively associated with persistence. Academic performance may reflect the level of student educational involvement and interest as much as or more than student ability.

Aspirations, Self-Concept, Values, and Attitudes

Persistence was significantly related to freshman degree aspirations but was not related to either major field plans or occupational aspirations. Only three of a possible 21 self-ratings and four of a possible 24 life goals distinguished between persisting and nonpersisting students.

As Table 26 shows, freshmen who aspired to earning associate and bachelor's degrees had the lowest persistence rates (43 and 56 percent,

Table 26

Distribution of Nonpersisters and Persisters by Degree Aspirations, Self-Concept, Life Goals, and Attitudes at College Entry

(in percentages)

Affective Measures	Nonpersisters (58)	Persisters (125)	
Degree Aspirations			
None or other	7	14	(82)[a]
Associate	14	5	(43)
Bachelor's	53	32	(56)
Medical or law	10	10	(68)
Master's	9	23	(85)
Doctorate	7	15	(83)
Self-Ratings: Above Average or Higher			
Academic ability	36	57	(77)
Intellectual self-confidence	29	40	(75)
Popularity	35	23	(59)
Life Goals: Essential			
Obtaining recognition from my colleagues for contributions in my special field	2	8	(91)
Having an active social life	14	5	(43)
Being very well-off financially	5	10	(81)
Being successful in a business of my own	17	14	(63)
Attitudes: Strongly Disagree			
Open admissions should be adopted by all publicly-supported colleges	9	22	(84)
The activities of married women are best confined to the home and family	16	35	(83)

[a]The figure in parentheses is the persistence rate of students making this response.

Note. Variables reported in this table significantly differentiated persisters from nonpersisters, as indicated by chi squares at the .05 level of confidence or higher. All columns may not equal 100 percent due to rounding.

respectively), while students who entered college hoping to earn a master's or doctoral degree had the highest persistence rates (85 and 83 percent, respectively). Although 82 percent of the freshmen who said that they planned to earn no degree or some "other" degree were classified as persisters, they had to do very little to attain this classification status. It is interesting to note that freshmen who planned to earn medical or law degrees had a lower persistence rate (68 percent) than those who hoped to earn graduate degrees. If we ignore the students who entered college with no or "other" degree goals, we find a linear relationship between degree aspirations and persistence: students who aspired to associate degrees were least likely to attain their undergraduate degree goal, followed by students who aspired to the baccalaureate, to advanced professional degrees, and, finally, by those who hoped to earn graduate degrees.

Students who rated their academic ability and intellectual self-confidence highly tended to persist, while the persistence rate of students who rated their popularity highly was below average. In general, the higher students' rated their academic ability and intellectual self-confidence, the more likely they were to persist. Self-ratings on popularity reflected a different pattern: although only 8 students rated their popularity in the top ten percent of their peer group, they all achieved their undergraduate degree goals, as did just over 70 percent of the students who described their popularity as "average" or below, but only 51 percent of those who rated their popularity as "above average."

The extent to which students valued obtaining recognition from their colleagues for contributions in their special field, having an active

social life, being very well-off financially, and being successful in a business of their own diffentiated persisters from nonpersisters. College can play a critical role in enabling students to obtain recognition and financial prosperity, and students who said these goals were essential to them had the highest persistence rates. A college education can help but is not essential to being successful in one's own business and is pretty much irrelevant to having an active social life. Students who said that having their own business was essential to them had a below average persistence rate, while those for whom having an active social life was essential had an extremely low persistence rate. Our comparison of life goals factor scores found nonpersisters valued Quality of Life goals significantly ($p < .05$) higher than persisters: i.e., they tended to place greater importance on having an active social life, having friends with different backgrounds and interests from their own, and being very well-off financially.

With the exception of their views on open admissions and on whether married women belong in the home, there were no differences in these students' attitudes on social and educational issues or in their political views. Not surprisingly, the more academically successful persisters were less likely to favor universal admissions in public colleges. They were also more likely to express strong disagreement with the statement: "The activities of married women are best confined to the home and family." Perhaps the freshman women who turned out to be persisters were more interested in pursuing careers and, thus, more likely to disagree with this statement.

The differences in persisters' and nonpersisters' academic perform-

ance, involvement, and interests that we observed earlier are consistent with the differences in persistence rates by degree aspirations and in self-ratings on academic ability and intellectual self-confidence. We are also beginning to get a better sense of who the nonpersisters were: They appear to be popular students who are perhaps more interested in their social life and in the quality of their future personal life than in their academic pursuits. Our impression is that they are more interested in having a good time in college and in the benefits of a college education than they are in education per se.

Reasons for Going to College and College Expectations

Sixty percent of the students who said that "to be able to make more money" had been a very important reason for deciding to go to college persisted (see Table 27), as did 71 percent of those who rated this as a "somewhat important" reason for continuing their education and 85 percent of those who said this had not influenced their decision at all. Nonpersisters also had a significantly ($p < .01$) higher mean factor score on Extrinsic reasons for going to college. That is, they were more likely to report that they had gone to college so that they would be able to make more money, get a better job, and because their parents wanted them to go.

Students who chose the college they attended in 1971 because someone who had been there before advised them to go there were less likely to persist (61 percent) than students who said this had not been a factor in their college choice (76 percent of whom persisted).

As freshmen, 42 percent of the Indian students said that they expected their parents or family to be a major resource for financing

Table 27

Distribution of Nonpersisters and Persisters by Reasons for Going to College and for Choosing this College and College Expectations

(in percentages)

Reasons and Expectations	Nonpersisters (58)	Persisters (125)	
Very Important Reasons for Going to College			
To be able to make more money	59	40	(60)[a]
Reasons for Choosing to Attend this College			
Someone who had been here before advised me to go	69	50	(61)
Major Source for College Financing			
Parental or family aid or gifts	29	47	(78)
Other repayable loans	3	4	(71)
College Expectations: Very Good Chance of			
Voting in the 1972 presidential election	59	86	(76)
Changing major fields	-	14	(100)
Making at least a "B" average	17	28	(78)
Needing extra time to complete my degree requirements	7	6	(64)

[a]The figure in parentheses is the persistence rate of students making this response.

Note. Variables reported in this table significantly differentiated persisters from nonpersisters, as indicated by chi squares at the .05 level of confidence or higher.

their college education, and 78 percent of these students persisted. Just over one-third (36 percent) expected to receive no financial help from their parents or family, and 69 percent of these students persisted. It was the students who expected to receive minor financial assistance from their parents or family who were least likely to persist (50 percent). Since equal proportions of persisters and nonpersisters expected to receive no parental help with college costs and since there were no significant differences in family income between the two groups, these findings suggest that persisters' families were more likely to do all that they could financially to help their children attend college. This, in turn, suggests that they valued higher education more highly than the families of nonpersisters. Furthermore, students whose families have invested heavily in their education may feel a sense of obligation to complete their degrees and, thereby, justify their family's expenditures in their education.

Relatively few freshmen expected to rely on "other repayable loans" (i.e., loans that were not covered in the category "NDEA loans, federally insured loans, or college loans") as a source for meeting their college costs. While nonpersisters (17 percent) were more likely to expect to use this resource than persisters (7 percent), equally small proportions of persisters and nonpersisters (4 and 3 percent, respectively) expected such loans to be among their major financial resources. Students who expected to assume no other repayable loans and those who expected this to be a major source for financing their education had equivalent persistence rates (71 percent, each), but only one-third of the students who expected to receive supplementary (minor) support from other loans

persisted. Our findings suggest that unless students indicate a willingness to assume major indebtedness in order to attain a college education, they are better off not considering taking out "other" loans.

Students who indicated the greatest certainty about their chances (none or very good) of changing their major field had higher persistence rates (76 and 100 percent, respectively) than students who felt there was some or very little chance of their changing majors (71 and 51 percent, respectively). We assume that students who said there was no chance of their changing majors knew precisely what they wanted and set out to attain it, and that the remaining students' persistence rates increase with their expectations of changing majors as their willingness to consider alternative fields and their receptivity to guidance increases.

Students who expected to do better academically in college were more likely to persist: the higher respondents rated their chances of earning a "B" average, the more likely they were to persist. Similarly, students who did not expect to need extra time to complete their degree requirement were more likely to persist than were students who felt that there was "some" or a "very good" chance of their needing extra time (over three-fourths of the former but only 57 percent of the latter group persisted).

College Choices and Experiences

Indian freshmen who attended two-year colleges had a substantially lower persistence rate (53 percent) than those who matriculated at four-year colleges and universities, 72 and 73 percent of whom persisted (see Table 28). Astin (1975, 1977b, 1982) has consistently found that attending a two-year college reduces students' chances of achieving their

Table 28

Distribution of Nonpersisters and Persisters by College Characteristics, Experiences, and Satisfaction

(in percentages)

College Characteristics and Experiences	Nonpersisters	Persisters	
College Type	(58)	(125)	
University	41	51	(73)[a]
Four-year college	31	38	(72)
Two-year college	28	11	(53)
College Enrollment			
Below 1,000	10	6	(54)
1,000-1,999	10	21	(81)
2,000-4,999	29	19	(59)
5,000-9,999	19	25	(74)
10,000-19,999	10	21	(81)
20,000 and above	21	9	(48)
College Experiences	(41)	(72)	
Knew at least one professor or administrator personally	44	74	
Took more than 4 years to complete my bachelor's degree	2	48	
Was elected president of one or more student organizations	2	17	
Belonged to a scholastic honor society	2	17	
Very Satisfied with College Entered in 1971			
Quality of classroom instruction	31	39	
Faculty-student relations	39	38	
Friendships with other students	56	66	
Overall	30	54	

[a]The figure in parentheses is the persistence rate of students attending this size or type college or university.

Note. Variables reported in this table significantly differentiated persisters from nonpersisters, as indicated by chi squares at the .05 level of confidence or higher. Data on college experiences and satisfaction are available only for sample members who responded to the follow-up questionnaire. All columns may not equal 100 percent due to rounding.

degree objectives. College size was also significantly related to persistence: Freshmen who entered very large schools with 20,000 or more students and those who attended very small colleges with fewer than 1,000 students had the poorest persistence rates.

Additional information on the college experiences of 72 persisters and 41 nonpersisters who completed follow-up surveys suggest that the nonpersisters, who had poorer high school grades, continued to have academic difficulties in college. They were far more likely to report having participated in Educational Opportunity Programs (41 percent as compared with 22 percent of persisters) and having sought tutoring (51 percent, as compared with 38 percent of persisters). Nonpersisters (73 percent) were also more likely to report having sought personal counseling than persisters (60 percent). These findings suggest that nonpersisters had academic problems to a greater extent than persisters did and were more likely to feel the need for counseling.

Differences in persisters' and nonpersisters' college experiences are certainly related to their persistence status. The most obvious example being that persisters were more likely to report having taken more than four years to complete a bachelor's degree. It is interesting to note that, although 36 percent of the freshmen who persisted thought there was some chance of their needing extra time to complete their degree requirements, 48 percent took more than four years to earn a bachelor's degree. Persisters were far more likely than nonpersisters to report that they had known at least one professor or administrator personally, that they had been elected president of a student organization, and that they had belonged to a scholastic honor society.

It is hardly surprising to find that persisters were more likely to describe themselves as very satisfied with the college they had entered as freshmen and with the quality of classroom instruction at that institution. While they were no more likely to describe themselves as very satisfied with faculty-student relations, they were far less likely to say that they were dissatisfied (3 percent versus 21 percent of nonpersisters). Persisters were much more likely to be very satisfied with their friendships with other students than were the more socially-oriented nonpersisters. Both groups were more likely to say that they were very satisfied with their friendships with other students than with the college itself, the quality of classroom instruction, or faculty-student relations.

College Outcomes

Although nonpersisters were, by definition, less likely to report having earned a college degree, it is interesting to note that 36 percent said that they were currently working toward a vocational certificate, associate or bachelor's degree (see Table 29). In contrast, 29 percent of the persisters were still attending school and most of them were pursuing master's degrees. Not surprisingly, persisters reported having earned better college grades than nonpersisters, with "A" students having the highest persistence rate.

As Table 30 shows, nonpersisters were four times as likely as persisters to be clerical workers, and three times more likely to be working as technicians, craftsmen, operatives or laborers: over half (52 percent) of the nonpersisters held such jobs, as compared with 15 percent of the persisters. On the other hand, 15 percent of the persisters and

Table 29

Distribution of Nonpersisters and Persisters on Educational Outcomes

(in percentages)

College Outcomes	Nonpersisters	Persisters	
Average Undergraduate Grade	(38)	(71)	
A	3	18	(93)[a]
B+ or B	26	43	(75)
B- or C+	13	24	(77)
C	34	16	(46)
C- and below	24	--	(0)
Highest Earned Degree	(58)	(125)	
None	55	--	
Vocational certificate	29	4	
Associate	16	5	
Bachelor's	--	70	
Master's	--	14	
Doctorate, medical, or law degree	--	7	
Degree Currently Working Toward	(58)	(125)	
None	64	71	
Vocational certificate	3	3	
Associate	16	1	
Bachelor's	17	2	
Master's	--	18	
Doctorate, medical, or law degree	--	5	

[a]The figure in parentheses is the persistence rate of students making this response.

Note. Variables reported in this table significantly differentiated persisters from nonpersisters, as indicated by chi squares at the .05 level of confidence or higher. Information on average undergraduate grade was available only for sample members who responded to the follow-up questionnaire. All columns may not equal 100 percent due to rounding.

Table 30

Distribution of Nonpersisters and Persisters by Current or Most Recent Job, Self-Concept, and Life Goals in 1980

(in percentages)

Occupational and Affective Outcomes	Nonpersisters	Persisters
Current or Most Recent Job	(58)	(125)
Allied health	14	12
Arts	-	2
Business	7	13
Clerical	24	6
Elementary and secondary education	-	15
Helping professions	3	8
Professions	2	7
Other professions	2	14
Technicians and craftsmen	21	7
Operatives and laborers	7	2
Other	10	9
Homemaker, student, or unemployed	10	5
Self-Ratings: Above Average	(40)	(72)
Drive to achieve	45	75
Life Goals: Essential		
Becoming a community leader	3	7
Becoming involved in programs to clean up the environment	18	8

Note. Variables reported in this table significantly differentiated persisters from nonpersisters, as indicated by chi squares at the .05 level of confidence or higher. Self-ratings and life goals data are available only for those sample members who responded to the follow-up questionnaire. All columns may not equal 100 percent due to rounding.

none of the nonpersisters were elementary and secondary school educators. Persisters were five times more likely to hold professional positions (including "other professionals"), over twice as likely to be in the "helping professions," and almost twice as likely to be pursuing business careers. Almost three-fifths (57 percent) of the persisters, but only 14 percent of the nonpersisters, held jobs in education, these professional fields, and business. Even without considering level of job responsibility or compensation, we find fairly dramatic differences in the types of jobs that college persisters and nonpersisters held. Although students who did not persist in college were more likely to say that they had decided to come to college in order "to be able to get a better job" and "to be able to make more money," it was the students who persisted who reaped these benefits of a college education.

In 1980, the self-ratings of persisters and nonpersisters on academic ability, intellectual self-confidence, and popularity were not significantly different, although they had identified significant differences between freshmen who persisted and those who did not. However, three-fourths of the persisters, but only 45 percent of the nonpersisters, rated their drive to achieve as "above average" or higher. This finding suggests that motivation or determination to succeed may be as critical to persistence in college as academic ability and self-confidence.

Summary and Discussion

Profiles of persisters and nonpersisters did emerge from these comparisons. It is interesting to note that neither parental education nor family income was related to persistence, although students from rural backgrounds were significantly less likely to persist than their urban

peers. The students who persisted in college to achievement of their undergraduate degree objective appeared to be more interested and involved in school and to place a higher value on education for its own sake. They had earned better grades in high school, were less likely to report having missed school because of illness or oversleeping, and had higher factor scores on Involvement, indicating not only greater academic involvement but also a tendency to think about and discuss religion, politics, civil rights, and their future as college students. Persisters entered college with higher degree goals and expressing greater confidence in their academic ability, intellectuality, prospects of earning a "B" average as an undergraduate, and chances of completing college on schedule. Nonetheless, there was a small group of persisters who did not perceive themselves as especially able academically or intellectually, who did not anticipate that they would earn a "B" average in college, and who did expect to need extra time to complete their degree requirements. In spite of their self-doubts, these students did persist, a finding that underscores the critical role that motivation and determination play in determining student persistence.

We have no way of knowing whether nonpersisters' poorer high school performance reflected lower academic ability or simply less interest in school. Although their grades were not as good as those of the persisters, close to half (46 percent) did report an average grade of "B" or better. Nonpersisters were more likely to report that Extrinsic considerations (i.e., to be able to make more money, to be able to get a better job, and their parents' wanting them to go to college) had influenced their decision to continue their education. They rated their popularity higher

than persisters' rated their popularity and expressed greater concern about achieving Quality of Life goals. Our impression is that nonpersisters were more interested in the possible benefits of a college education than in education per se. They also appear to be somewhat immature in comparison with the students who did persist in college.

Students who attended two-year colleges and those who enrolled at very small or very large schools had lower persistence rates. However, at this point in the analysis, we can't say whether this was because these types of college and universities attracted students who were predisposed to drop out of school or whether these types of schools did a poorer job of retaining students. This brings us to the next phase of the analysis.

Determinants of College Persistence

Of the differences that we have identified between students who persisted and those who did not, which really influenced their persistence in college and how important were they? To address these questions, we selected those variables that appeared to be significantly related to persistence among these students and variables that past research suggested might be critical to persistence (e.g., parental income, gender, plans to marry while in college) and conducted a five-step linear multiple regression analysis, using persistence as the dependent variable. The 59 independent variables are listed and their coding is described in Appendix E.

High school grades were the most powerful predictor of Indian students' persistence in college (see Table 31). This finding is consistent with Astin's (1977b) research on undergraduate persistence. Students

Table 31

Factors Influencing Persistence in College among American Indians, 1971-1980

(N=183)

Variables	Simple r	Summary of Stepwise Regression			
		Step	R	Final Beta	Final F Ratio
Urban home environment	.23	1	.23	.21	10.4
High school grades	.33	2	.39	.30	21.4
College financing: student's earnings or savings will be a major resource	-.17	3	.42	-.11	3.2
College financing: parental or family aid will be a minor resource	-.21	4	.45	-.14	4.6
Two-year college	-.20	5	.49	-.23	11.2
Private college	-.08	6	.51	-.17	6.1

who earn better grades in high school are more likely to persist than their peers who earn lower grades. High school grades reflect, to varying degrees for each individual student, academic ability, interest or intellectual curiosity, discipline, and motivation or willingness to apply oneself to one's coursework. It also seems reasonable to assume that the better a student's high school grades, the more likely he or she is to have developed the study skills and acquired the basic knowledge that provide the foundation for continued academic success in college.

Students who came from urban backgrounds were more likely to persist than their rural counterparts. Urban freshmen tended to have better educated parents and to come from more affluent families, yet these variables were not strongly related to persistence. However, urban freshmen were more likely to expect that their parents or family would provide major help with their college financing (r=.22), and this expectation did show a considerably stronger relationship with persistence (r=.17) than did parental income (r=.04). Are urban Indians more likely to receive major financial assistance from their families because their families place a higher value on education, because they have fewer children to support, or because these urban students are less likely to receive scholarship and grant support? Regardless of the explanation, receiving major parental assistance in meeting one's college expenses is positively associated with coming from an urban home and with persistence. A second characteristic that contributes to our understanding of urban Indians' higher persistence rate is that they are far less likely than rural Indians to cite Extrinsic considerations for deciding to go to college (r=-.24) and Extrinsic motivations are also negatively related to

college persistence (r=-.22). Furthermore, our earlier comparison of urban and rural students suggested that urban Indians were more sophisticated and that their values, interests, and attitudes were more congruent with those of an academic environment.

Freshmen who expected to pay a major portion of their educational expenses themselves and who expected to receive some, but only minor, financial help from their families were more likely to drop out of college. Students who plan to pay a substantial portion of their college expenses from savings and earnings may underestimate the cost of attending college and overestimate their earnings potential and may also underestimate the difficulty of working and attending school simultaneously. The encouragement and emotional support of one's family can be as critical to persistence as their financial support. Given the absence of any significant relationship between family income and students' expectations of having to pay a substantial portion of their college costs and between family income and students' expectations of receiving only minor support from their families, we suspect that these students were not receiving the kind of encouragement and psychological support from their families that might have enabled them to persist.

Even after we control for differences in students' personal background, high school preparation and achievements, financial concerns and expectations, we find that two college characteristics are significantly related to persistence. Freshmen who attended two-year colleges were more likely to drop out of school before they had achieved their undergraduate degree objective than were freshmen who attended four-year colleges or universities. This is consistent with Astin's research (1975,

1977b) which has found that a given student reduces his or her chances of completing college by enrolling at a two-year college. We were, however, surprised to find that freshmen who enrolled at private colleges and universities were more likely to drop out of college before achieving their undergraduate degree goal than were their peers at public schools. Freshmen who attended private colleges were at more selective (r=.31) and, by implication, more academically competitive schools; at smaller (r=.30) colleges and, by implication, less likely to have the support of Indian peers; and at schools that were further from home (r=.31) and, by implication, more likely to feel isolated and to suffer from homesickness.

These six variables accounted for 26 percent of the variance in student persistence. The Indian student with the best chances of achieving his or her undergraduate degree goal enters college with good high school grades, comes from an urban home, does not expect to pay a substantial portion of his or her college costs personally, and expects his or her family to be a source of major financial support or anticipates that they will provide no financial assistance whatsoever. College characteristics that facilitate persistence include attending a four-year college or university (rather than a two-year college) and attending a public (rather than a private) college or university.

Factors Influencing Level of Educational Attainment

What factors influenced these Indian students' level of educational attainment and how important were they? Looking at Table 32, we note, first, that home environment does not influence level of educational attainment and, second, that high school behaviors are far better predictors of educational achievements than high school grades are. Freshmen

Table 32

Factors Influencing Level of Educational Attainment among American Indians, 1971-1980

(N=183)

Variables	Simple r	Summary of Stepwise Regression			
		Step	R	Final Beta	Final F Ratio
High school behaviors: Rebelliousness	-.25	1	.25	-.23	11.1
High school behaviors: Involvement	.21	2	.33	.24	11.3
High school grades	.24	3	.37	.12	3.1
Self-ratings: Touchiness	-.17	4	.40	-.17	6.1
College financing: student's earnings or savings will be a major resource	-.20	5	.45	-.22	9.9
Freshman expectation: to be satisfied with the college entered in 1971	.00	6	.47	-.13	3.5
Reasons for going to college: Extrinsic	-.14	7	.49	-.15	4.8
Family income	-.08	8	.50	-.13	3.9
Two-year college	-.25	9	.52	-.14	4.1

who reported having engaged in rebellious behaviors during their last year of high school were less likely to earn higher degrees than their more conforming peers. High scores on Rebelliousness reflected the frequency with which students reported coming late to class, staying up all night, oversleeping and missing a class or appointment, arguing with a teacher in class, failing to complete a homework assignment on time, smoking cigarettes, and drinking beer. That such behaviors should be negatively associated with level of educational attainment is not especially surprising. After we control for the negative effects of Rebelliousness, we find a second set of high school behaviors, reflecting academic involvement, awareness and interest in politics, civil rights, student rights and responsibilities, and religion, enters the regression equation as a positive predictor of level of educational attainment. The more students exhibited these behaviors during high school, the higher their educational achievements. High school grades then enter the equation as a positive predictor of level of educational attainment, but are clearly less important than students' high school behaviors. Even after we know about a student's high school behaviors, information about his or her academic performance in high school does increase our ability to predict subsequent educational achievements.

Freshman self-ratings on sensitivity to criticism and defensiveness (Touchiness) are negatively related to level of educational attainment. Certainly, academic success and survival are dependent on a student's ability to listen and respond constructively to feedback about the strengths and weaknesses of his or her academic work and performance in class. Students who are highly sensitive to criticism and who are defen-

sive may have a very limited repertoire of coping skills and may be uncomfortable in an academic setting. Of course, this finding also indicates that students who described themselves as being neither particularly sensitive to criticism nor defensive were more likely to remain in school and to earn advanced degrees.

Freshmen who expected to assume a major responsibility for financing their college education were unlikely to proceed very far in college. This is consistent with our earlier finding that these students were more likely to withdraw from college prior to achieving their undergraduate degree objective.

Far more surprising was the finding that freshmen who had higher expectations of being satisfied with the college they had just entered were less likely to reach higher levels of educational attainment. Students who expected to be highly satisfied with their college tended to have strong Social Self-Esteem (r=.28), Altruistic life goals (r=.18), and to anticipate needing remedial help in mathematics (r=.19) Perhaps students who expect to be very satisfied with their college are more socially oriented than students with lower expectations of college satisfaction and, thus, put less energy into their academic endeavors. A second possibility is that these students overestimate the ease with which they will adjust, academically and socially, to college life and the discrepancy between their expectations and reality causes them to become discouraged and disillusioned. In contrast, students who enter college with little or no expectation of being satisfied can, at worst, find that their expectation is accurate and may find themselves pleasantly surprised. It should be noted that the negative relationship between

expecting to be highly satisfied with one's college and level of educational attainment only emerges as the analysis controls for high school behaviors and grades, self-ratings on Touchiness, and expectations of having to pay a major portion of one's college costs.

The more freshmen tended to cite Extrinsic reasons as important influences on their decision to attend college, the less likely they were to earn higher degrees. Or, conversely, the higher students' level of educational attainment, the less likely they were to report as freshmen that they had decided to go to college in order to be able to make more money, to get a better job, or to please their parents.

Only after our analysis had controlled for the effects of all the preceding variables did parental income enter the equation as a negative predictor of level of educational attainment. Students who came from more affluent families tended to be younger, to have better educated parents, higher expectations of receiving major financial assistance from their families, and expressed less concern about their ability to meet their college expenses. They entered college with somewhat higher degree aspirations, academic self-esteem, and expectations of earning at least a "B" average, and were less likely to cite Self-Improvement as a reason for deciding to attend college. They were also more likely to report that they had been involved in Activism during high school and to rate themselves highly on Conviction. They are, in sum, socioeconomically and educationally "advantaged" students with an attraction to causes who perhaps lack the motivation and determination to succeed in college that drives their academic equals from less privileged backgrounds.

One college characteristic was a negative predictor of level of

educational attainment: Freshmen who entered two-year colleges in 1971 were less likely to earn higher degrees than were students who had matriculated at four-year colleges and universities. Our earlier analysis found that attending a two-year college also reduced students' chances of achieving their undergraduate degree objectives.

These nine variables accounted for 27 percent of the variance in level of educational attainment. Our findings suggest that high achieving students do not engage in rebellious behaviors during high school, but are actively involved in academic, political, religious, and civil rights issues and concerns. They enter college with good grades and describe themselves as being able to deal with criticism without becoming defensive, which suggests that they have better coping skills. They do not expect to have to use their savings and/or earnings to finance much of their college education, and their expectations of being satisfied with their college are not unrealistic, given their high school behaviors and grades, their sensitivity to criticism, and their expectations of having to pay a major portion of their college costs personally. They are unlikely to explain their decision to continue their education as having been motivated by a desire to be able to earn more money, get a better job, or please their parents. All these other characteristics being equal, they are more likely to come from less affluent families. In brief, they express high levels of academic interest, awareness, and motivation. However, if they enroll at two-year colleges (rather than at four-year colleges and universities), they reduce their chances of earning higher degrees.

Summary and Discussion

Our analyses identified three factors that influenced both persistence in college to attainment of one's undergraduate degree objective and level of educational attainment, although their importance varies depending on the outcome under consideration. High school grades are the best predictor of whether or not a student will remain enrolled in college until he or she has achieved his or her undergraduate degree goal. In contrast, high school grades are less important than high school behaviors as a predictor of level of educational attainment and add relatively little to our ability to predict whether or not a student will earn an advanced degree once high school behaviors are taken into account.

Similarly, freshmen who enter two-year colleges are both less likely to persist in school and to attain higher degrees than are freshmen who attend four-year colleges and universities, but attending a two-year college is a stronger predictor of attrition than of level of educational attainment. This appears to be due to the fact that we are able to identify more student characteristics that affect level of educational attainment than persistence. If we look at the simple correlations between attending a two-year college and each outcome measure, we find that this college choice shows a stronger negative relationship with level of educational attainment ($r=-.25$) than with persistence ($r=-.20$). However, as other variables enter the regression equations, we find that attending a two-year college adds more to our ability to predict whether or not a student will persist than it adds to our ability to predict his or her highest earned degree. Nonetheless, these findings suggest

that Indian students should be encouraged to attend colleges and universities that offer a four-year degree program rather than two-year colleges if they have any interest in earning a bachelor's or higher degree. Whether Indian students who attend tribally controlled community colleges similarly reduce their chances of persisting and of attaining advanced degrees is a question beyond the scope of this study, but one which should be carefully studied in light of the negative effect that attending other two-year colleges has on Indian students' academic achievements.

The third variable that was a common--and a negative--predictor of both outcomes was expecting, as an entering college freshman, that one's savings and earnings during the college years would be a major resource for financing one's college education. This expectation was a stronger predictor of level of educational attainment (low) than of attrition. That is, even if these students did earn their undergraduate degree objective, they were very unlikely to pursue higher degrees subsequently. Our data suggest that Indian freshmen who assume both the academic demands of being a college student and the financial responsibility of paying for a substantial portion of their educational expenses are taking on more than they can successfully manage. The psychological burden of worrying about whether they will be able to come up with enough money to complete college ($r=.23$) also must take its toll: What is the value of investing one's hard-earned money in an education that one may not be able to complete? Furthermore, if college turns out to be more difficult or less interesting and enjoyable than students had expected it to be, those who are paying for it themselves are undoubtedly more predisposed to withdraw than those who are depending on financial aid or family support to meet

their educational expenses.

Indian freshmen who came from reservations, rural communities, and small towns, who expected to receive some--but only minor--financial help from their families with college financing, and who attended private colleges were less likely to persist than urban students, freshmen who expected their families to be a major resource in meeting their college expenses or to provide no help whatsoever, and students who enrolled at public colleges. None of these variables emerged as predictors of level of educational attainment. We believe that the psychological support and encouragement of one's family is important to college persistence and that students whose families are providing only minor help with their educational expenses and who come from rural backgrounds may be receiving less of this critical family support. The data presented in Chapter 5 document extensive differences between urban and rural students which suggest that the adjustment to college life is more difficult, academically, socially, psychologically, financially, and culturally, for rural Indians.

If postsecondary educators hope to improve retention among Indian students, they must distinguish between urban and rural students and provide the kinds of supportive services and educational programs that rural students need in order to feel comfortable on college campuses and to achieve academically. Furthermore, private colleges should not recruit Indian students unless they are willing to provide the support these students need in order to persist in college. Our data suggest that private colleges and universities recruit talented Indian students who have done well academically in high school, but place them in an

academic environment that may be far more competitive than they are prepared for and in a social environment where they probably have few Indian peers and where they are geographically isolated from the support of their family and friends.

Although high school grades are significantly correlated with level of educational attainment, they are a less powerful predictor of this outcome measure than high school behaviors. Our data suggest that Indian students whose high school behaviors reflect involvement and interest in school, in the larger world of ideas, and in the world around them are most likely to pursue and earn advanced degrees. Students who describe themselves as relatively undisturbed by criticism are more likely to succeed in the academic world than are students who describe themselves as highly sensitive to criticism and defensive. College counselors and professors should make every effort to identify students who have difficulty handling feedback and help them to develop coping skills so that these students will be able to realize their academic potential.

Our data also suggest that students whose expectations of being satisfied with college are realistic, who do not go to college for Extrinsic (nonacademic) reasons, and, after controlling for all these other factors, who are from families with below-average incomes for Indian students are most likely to pursue and attain advanced degrees. These findings underscore the importance of motivation, determination, interest and hard work to academic achievement and the futility of attempting to assess academic potential on the basis of such superficial indicators as socioeconomic status, test scores, or, without reference to other indicators of student performance, high school grades.

Chapter Eight

Summary, Conclusions, and Recommendations

This study was conducted to contribute to our understanding of American Indian college students, with particular attention to differences among entering freshmen who identify themselves as Indian and to factors that influence Indian students' persistence in college and level of educational attainment. It covers a critical eight-year period in the educational and occupational development of young adults, from college entry in fall 1971 to early 1980. The longitudinal data base includes survey responses collected by the Cooperative Institutional Research Program from a national sample of 675 college freshmen who identified themselves as American Indian in 1971, and follow-up information collected from each subject by survey questionnaire or telephone interview in 1980. The follow-up data were collected by the Higher Education Research Institute with support from the Ford Foundation. Of the 675 students who identified themselves as Indian on the freshman survey which permitted multiple responses to the race-ethnicity question, only 234 reidentified themselves as Indian in 1980, when instructed to choose only one racial-ethnic response on the follow-up survey and, if it was American Indian or Alaskan Native, to write in the name of their tribe or band, or when asked in the telephone interview if their classification as American Indian was correct.

The descriptive phase of this study focused on identifying differences between the 234 respondents who identified themselves as Indian in both 1971 and 1980, and the 441 respondents who identified themselves as

Indian only in 1971; the 121 Indian respondents whose freshman home address indicated that they came from a reservation, rural community, or small town and the 113 Indian respondents from urban backgrounds; the 101 Indian men and the 133 Indian women; and the 58 Indian respondents who, by 1980, had still not achieved their undergraduate degree objective and the 125 who had earned the degree or certificate that they had cited as their undergraduate objective when they entered college. The comparison of Indian students with students who indicated a tendency to inappropriately identify themselves as American Indian was intended to help us understand the causes and consequences of student misclassification as Indian, a recognized phenomenon that complicates efforts to monitor Indians' progress in achieving educational equity. Past research has not investigated differences between Indian students from rural and urban backgrounds, nor have gender differences been studied. These comparisons were conducted to learn if and how rural and urban students and Indian men and women differed in personal and academic background, self-concept, values, interests, college choice behavior, educational and occupational aspirations and outcomes and, thus, in their need for educational services and assistance. The final comparative analysis of students who had persisted in completing their undergraduate degree objectives and those who had not profiles differences between these two student groups as background to the next phase of the analysis.

The second research objective was to identify factors that influenced these Indian students' persistence in achieving their undergraduate degree objectives and level of educational attainment. For each student outcome, a five-stage stepwise linear multiple regression was conducted,

controlling for: (1) eight student personal characteristics, (2) fifteen high school background variables, (3) twenty affective measures, (4) seven expectations about how they would finance their college education, and (5) nine college environmental characteristics.

The sample of Indian students whose characteristics, educational achievements, and postcollege activities are examined in this study is not a representative cross-section of all Indians who entered college in 1971. Past experience shows that successful students are most likely to respond to such follow-up surveys. Astin et al (1982) estimate that 39 percent of the 2332 freshmen who identified themselves as Indian in 1971, and who were selected for the 1980 follow-up sample had completed bachelor's degrees by 1980. In contrast, 62 percent of the Indian sample for this study (78 percent of urban Indians and 49 percent of rural Indians) held baccalaureate degrees. However, the fact that respondents were above-average students does not affect our ability to identify and examine differences related to their classification as Indian (appropriate or inappropriate), home environment (urban or rural), gender, or persistence status, nor does it affect our ability to identify factors that influenced persistence and level of educational attainment among these Indian students.

Research Findings and Recommendations

In the review of the literature, Chapter 2, we discussed four barriers to Indian students' educational achievement: past education, finances, lack of role models, and culture conflict. Do our findings suggest that these were problems for students in our sample and, if so, to what extent and for which student groups? Do our data suggest other additional

barriers to academic success? And what are the implications of these findings for educators, researchers, policymakers, and Indian students and their families?

Past Education

The quality of precollegiate education is critical in determining if and where students go to college, how well they do academically, and whether or not they persist in school. Our data indicate that quality of precollegiate education is a major determinant of whether or not Indian students persist in college: persistence was linearly related to high school grades and rank in graduating class, and average high school grade was the most powerful predictor of college persistence. Furthermore, our comparison of Indian and nonIndian students' records of achievement in high school and academic preparation for college, self-ratings, expectations of academic success in college, and college outcomes suggest that Indian students enter college with substantially poorer precollegiate education and struggle to overcome its effects throughout their undergraduate years.

Despite the fact that Indian students were significantly less likely to have had the benefit of a more rigorous college preparatory curriculum in high school (42 percent of Indians versus 73 percent of nonIndians), they were still twice as likely to report having ranked in the bottom half of their graduating class (31 versus 13 percent of nonIndians). Indian freshmen were more likely to anticipate needing tutoring or remedial assistance than nonIndians and were significantly more likely to describe themselves as "not as well prepared as most" students at their college when asked to retrospectively assess their preparation at college

entry in five key areas. About two-fifths of the Indian, but only one-fourth of the nonIndian respondents felt their backgrounds in mathematics and in preparing research papers was below average. Interestingly, it was the rural Indians who felt that they had entered college with a deficient background in preparing research papers: 51 percent of rural Indians and 20 percent of urban Indians rated their preparation as lower than that of most students at their college.

Given that Indian students appear to enter college with substantially weaker academic backgrounds than nonIndians, it is not especially surprising to find that they were less likely to expect to be honors students in college. However, it is troubling to find that Indian freshmen perceived themselves not simply as less well prepared academically for college, but as less able: their self-ratings on academic ability, mathematical ability, writing ability, and intellectual self-confidence were all significantly lower than those of nonIndians. Thus, their poorer performance as high school students has led them to see themselves as being less able to succeed which may act as a kind of self-fulfilling prophecy. In this regard, it is interesting to note that urban Indians, whose record of high school achievements was not significantly different from that of their rural peers, rated their academic ability and drive to achieve significantly higher than rural students and were far more likely to persist in college and to earn bachelor's degrees.

Indian students did appear to encounter academic problems in college more often than nonIndians. Twice as many Indian (39 percent) as non-Indian (19 percent) respondents to the follow-up survey reported participating in Educational Opportunity Programs which are intended to assist

educationally disadvantaged students, and over half (55 percent) of the Indians, as compared with 39 percent of the nonIndians, reported seeking tutoring assistance as undergraduates. NonIndians earned significantly better college grades and had a somewhat higher baccalaureate attainment rate than all Indians (70 versus 62 percent). However, when we distinguish between urban and rural Indians, we find that urban Indians were more likely than nonIndians to report having earned a baccalaureate (78 percent), while only 49 percent of rural Indians held bachelor's degrees.

Thus, our findings suggest that Indians do enter college with poorer academic backgrounds; that they perceive themselves not simply as less well prepared and as less likely to excell academically, but as less academically able and less intellectually self-confident; and that they make greater use of services for students with academic problems and earn lower college grades. Although such measures as high school grades and rank in class did not differentiate urban from rural Indians, urban Indians felt that they entered college better prepared to write research papers, expressed higher expectations of becoming honors students in college, and rated their academic ability and drive to achieve significantly higher than rural Indians. They did not earn significantly better college grades as undergraduates, but they were far more likely to persist in college and to complete baccalaureates. These findings suggest that academic barriers caused by poor precollegiate education are a far more serious problem for rural than for urban Indians.

Additional differences between persisting and nonpersisting Indian students, between urban and rural Indians, and between men and women further suggest that quality of precollegiate education, in and of itself,

is not as great a barrier to academic achievement in college as is lack of interest and involvement in education and in the larger world of ideas. Persisting students and urban Indians had significantly higher Involvement factor scores on high school behaviors, suggesting that they were more actively engaged in their education, more intellectually curious, and more interested in the world around them. Women also had higher Involvement factor scores and, although their high school grades were not significantly better than those of their male peers and their confidence in their prospects of academic success in college appeared to be lower than those of men, they did succeed in earning significantly better college grades.

Recommendations. Efforts to improve the secondary school preparation of Indian students, particularly that of rural Indians, should be continued with renewed vigor. Indian students should have access to college preparatory programs and should be advised and encouraged to enroll in a college prep curriculum. All Indian students, and especially women, appear to need assistance developing their mathematics skills and confidence. Rural students should be provided with training in preparing research papers or term papers as part of their high school education.

- Colleges and universities should make a special effort to assess Indian students' academic skills at college entry to identify areas where they are poorly prepared. Based on the results of such individual diagnostic assessments, students should be provided with remedial assistance or skills training that they need in order to compete on a more equal footing with their nonIndian peers. While such assistance cannot be expected to compensate for the cumulative effects of an inferior precol-

legiate education, focused help on diagnosed problem areas can improve students' skills and teach them how to approach such tasks as writing term papers; how to schedule their coursework and manage their time wisely; and how to use campus resources.

- A better understanding of factors that contribute to educational involvement and interest would be helpful. For example, how do students with high Involvement scores on high school behaviors differ from students with low Involvement scores and to what would they attribute the development of their interest in school, their greater awareness of the world around them, and their involvement with ideas and issues? Are there differences in their experiences, particularly their educational experiences, that suggest ways in which educators and educational institutions can improve their effectiveness?

Finances

Ability to pay for a college education certainly influences students' decisions about whether or not to continue their education after high school and their persistence in college. Our data suggest that both rural and urban Indians come from less affluent families than white survey respondents, but it is the rural Indians who are seriously disadvantaged economically: 51 percent of the rural Indian, 22 percent of the urban Indian, and 14 percent of the white freshmen reported family incomes of less than $8,000. Of the eight college services listed on the follow-up survey, Indians reported using financial aid services most often, and rural Indians and Indian men reported using these services more often (82 percent, each) than urban Indians (60 percent) and Indian women (69 percent).

One of the study's most interesting findings was that family income was not related to students' persistence in college. However, the amount of help (none, minor, major) that students expected to receive from their family in meeting their college costs was related to persistence. Students who expected to receive only minor financial help from their families were less likely to persist than were students who expected to receive no help or major assistance from their families. Given that expecting to receive only minor financial help from one's family was not related to family income ($r=-.02$), we suspect that this expectation may be a surrogate measure of parental values regarding education. The research literature suggests that parental attitudes toward education and parental support and encouragement are critical to Indian students' persistence in and satisfaction with college. Thus, we would attribute the higher attrition rates of these students not to the fact that they are receiving minor financial support from their families but to less psychological support from their families.

Students who expected to assume personal responsibility for meeting a major portion of their college expenses from savings and by working during the college years were less likely to persist in college and to earn advanced degrees. We suspect that these students underestimate both the cost of attending college and the difficulty of working and attending school simultaneously, particularly during the transition from high school to college. These students apparently propose to take on more responsibility than they can successfully handle.

While our data clearly indicate the importance of financial aid in enabling Indian students to attend college, reliance on financial aid,

either in the form of scholarships and grants or in the form of loan support, was not related to college persistence or level of educational attainment.

Recommendations. Indian high school students, especially rural students, should be informed and advised about the kinds of postsecondary support for which they may be eligible, with particular attention given to explaining how to complete and when to file applications for aid. Efforts should be made to involve their parents in these information and guidance sessions.

- Indian students should be discouraged from trying to pay for a major portion of their college costs out of their personal resources and by working during college. As admirable as their desire to be self-sufficient and, perhaps, to avoid indebtedness may be, this expectation was a negative predictor of both persistence and level of educational attainment.

- Colleges and universities should reach out to the parents of Indian students, especially parents who have themselves never attended college, to inform them about college life, to let them know what college is like and what colleges and educators try to achieve in working with students, and to give them a sense of the kinds of problems and successes their children may experience during the undergraduate years.

Role Models

Role models--parents, older friends, or visible adults whose achievements serve as examples of what they can achieve--can play an influential role in shaping young people's aspirations and in motivating them to pursue their goals. Although our data base does not include information

on students' reasons for making major field and occupational choices, it does show that urban Indians, who had better educated parents for role models, had higher educational aspirations and expressed greater interest in liberal arts majors than rural Indians. Regardless of home environment, Indian students appear to enter college having already established their career goals more often than all freshmen. Except for marginally higher interest in the arts and education, urban Indians' freshman career goals parallelled those of nonIndian freshmen. Rural Indians, on the other hand, expressed substantially greater interest in the professions, allied health, business, and clerical careers than either urban Indians or nonIndians, but were less interested in the helping professions, education, and "other" careers. Rural Indians appear to be attracted to careers with which they are probably personally familiar (clerical and allied health careers) or to high status careers, such as the professions, that are known to all students. Our impression is that they consider a more limited range of career alternatives and that they set their sights either unrealistically high or unrealistically low, compared with their urban Indian peers and with nonIndians.

Indian men and women gravitated toward traditionally male and female fields of study to an even greater extent than their same-sex peers in the general student population, and their distributions by last college major also show significant gender differences. Both their occupational aspirations at college entry and their distributions by job type in 1980 show a similar pattern of attraction to traditionally male and female careers.

Recommendations. Indian students, especially those from rural backgrounds, should be provided with career information and guidance during

the precollegiate years, with particular attention to the kinds of training that are prerequisite for entering different fields. To enlarge their perceptions of their career alternatives, filmstrips and biographical materials about Indians who have pursued a variety of careers should be developed. Both men and women should be encouraged to consider a wider range of careers than the traditionally male and female occupations that they appear to select almost automatically.

- Indian studies centers on college campuses should collect biographical information about Indians in a variety of careers and should invite guest speakers to discuss their careers. Special efforts should be made to provide Indian women with information about Indian women who have succeeded in entering atypical careers and on nontraditional careers in general.

- College counselors should be alerted to Indian students' tendencies to make somewhat unrealistic career choices, relying on inadequate information about career alternatives and stereotypic preconceptions about what careers are appropriate of men and women. In working with Indian students, they should screen and refer those students who need help with their career planning.

Culture Conflicts

Our data suggest that urban Indians are far better prepared for the transition to college than rural Indians. Coming from an urban home was a predictor of college persistence. In addition to their socioeconomic advantages over rural Indians which make them more similar to their non-Indian peers, urban Indians appear to more sophisticated and more liberal in their political, social, and educational views and attitudes. Thus,

we expect that urban Indians' past experiences and values are more congruent with those of their student peers and with those that the academic environment expects its students to have. Rural Indians were much more vocationally oriented in their major field choices, were more likely to report Extrinsic reasons for deciding to attend college, and valued Quality of Life goals more highly than urban Indians. Academics and academic environments tend to be more responsive to students with academic rather than vocational interests and goals. The first several years of the college curriculum are typically devoted to fulfilling general education requirements which may seem irrelevant to students with a strong interest in practical training for the world of work.

Our data also show that rural students were more likely than urban Indians to enroll at large universities further from home. Thus, in addition to the academic adjustment of entering college, these students find themselves on campuses where they are likely to feel lost and confused and where they are removed from the support of their family and home community.

Recommendations. Indian students from rural communities should be advised to enter colleges and universities where there are support services and programs for Indian students, preferably programs that are administered and staffed by Indians. While our data do not suggest that Indian students are reluctant to use campus services, we suspect that Indian professionals and peer counselors are far better able to understand and respond to these students' needs. Furthermore, they serve as role models, demonstrating that other Indians have managed to "make it" in the academic world.

- College faculty and staff who work with Indian students should learn more about the backgrounds, values, and cultures of Native American students. Ross (1979) suggests that much of the culture conflict that occurs is due to lack of knowledge and appreciation for the expected values and behaviors of the other culture. By sharing the burden of learning about the values and behavioral expectations of another culture, academic personnel may be better able to understand and assist their Indian students.

- Colleges and universities should develop work-study opportunities, internships, and field practicums that help Indian students to see the vocational relevance of their education, that allow them to expand their skills repertoire, and that broaden their knowledge of career alternatives. Placements that enable them to work directly with or for Indian communities or peoples may be particularly important to students who have come to college to enhance their ability to be of service to their community or who feel conflicted about pursuing such a "selfish" goal as attaining a college education.

- Colleges and universities should consider permitting and advising freshmen who enter college expressing strong interest in a particular field and/or in training to enter a specific occupation to enroll in introductory courses or seminars in the relevant major early in their undergraduate careers, rather than waiting until after all of their general education requirements have been fulfilled. This would enable students to discover whether they were truly interested in the field and, if not, to begin exploring alternative possibilities earlier in the college years. It would also respond to more vocationally-oriented

students' need for and interest in "practical" education and would probably help them appreciate the less obvious relevance of many required general education courses. While it could be argued that this recommendation is an invitation to failure for lower-division students who would not have the advantages of their better prepared upper-division classmates, we believe that students who enroll in courses that they truly want to take will be motivated to perform at a much higher level than they might exhibit in a course where they had reluctantly enrolled to fulfill general education requirements.

Self-Concept

Our data suggest that Indian students have a lower self-concept than their nonIndian peers. They rate themselves significantly lower not only on their academic abilities but also on social and interpersonal skills, leadership ability, originality, and public speaking ability. High self-ratings on Touchiness were a negative predictor of level of educational attainment, suggesting that poor coping skills handicap students' academic achievements.

Recommendations. Students who describe themselves as being sensitive to criticism and defensive should be assisted to develop coping skills that will enable them to succeed in college.

- Research should be conducted to determine if our impression that Indian students have lower self-concepts than their majority peers is accurate and, if so, to try to identify factors that contribute to this problem. Programs should be developed to promote a greater sense of self-worth and self-confidence among Indian students.

College Choice

Enrolling at a two-year college was a negative predictor of both persistence in college and level of educational attainment. After our analysis controlled for student characteristics, attending a private college emerged as a negative predictor of persistence. These findings suggest that Indian students reduce their prospects for academic achievement by choosing to attend community colleges and private institutions of higher education.

Recommendations. Indian high school students should be strongly encouraged to attend colleges and universities that offer four-year degree programs, if they have any interest in earning a baccalaureate.

- Indian students who apply to or are recruited by private colleges should be advised to carefully consider: (1) how often they want to be able to come home during the school year and, in light of that, how far each college is from their home and how often finances and the academic calendar will permit visits home; (2) how important it is to them to attend a college where there are other Indian students on campus or a local Indian community and the size of the Indian student body on campus and whether or not there is a local or an accessible Indian community; (3) whether or not the school offers support programs for Indian students; and (4) what the basic demographics of the school's student body are (in terms of personal characteristics and academic background) and whether they feel that they would be comfortable, socially and academically, as a member of that student body. Research suggests that the student-institutional "fit" is an important factor in explaining college persistence. Astin reports: "...in general, persistence is enhanced if the student

attends an institution in which the social backgrounds of other students resemble his or her own social background. Such interactions are most apparent with town size, religion, and race of the student" (1975, pp. 144-145).

- Research should be conducted into the effects of attending a tribally controlled community college on Indian students' academic achievement. Do the advantages of attending an institution that presumably offers the maximal student-institutional "fit" for Indian students outweigh the negative effects associated with attending other kinds of two-year colleges? Does research suggest that tribally controlled colleges should focus their efforts on serving the general education, avocational, and vocational needs of their client community?

- Private colleges and universities should not recruit Indian students unless they are committed to providing the academic and social support that these students need to succeed in college. Dartmouth College's experience (see pp. 34-35) suggests that a "critical mass" of Indian students, a curriculum that includes courses related to the Native American experience, and Indian faculty and staff members contribute to improving Indian retention rates.

Indian Identification

Our data show major differences between Indian students and students who indicate a tendency to misclassify themselves as Indian, as well as between Indian students from urban and rural backgrounds. These are three different student populations with different educational interests, concerns, and needs. Unless colleges and universities know who they are serving, they cannot provide the kinds of programs and services that

Indian students need in order to succeed in college.

Recommendations. Student surveys or information forms used to collect racial-ethnic data should: (1) always instruct students to mark only one response to indicate their primary identity; (2) never use the response option "Native American" which can readily be misinterpreted as asking whether or not a student is a native-born citizen; (3) should use the response option "American Indian or Alaskan Native" since our research found that freshmen who were Alaskan Natives chose the "other" response category rather than identifying themselves as "American Indian"; and (4) ideally instruct students who do select the American Indian or Alaskan Native response to write in the name of their tribe, band, or Indian community.

- Incoming Indian students should be assigned to intake interviews with advisors or counselors who are aware of and sensitive to cross-cultural issues and who have and will take the time to elicit the information about each student's background, educational goals and interests, and college concerns that is needed to plan out a sound academic program, provide appropriate information and guidance, and introduce the student to campus resources that will assist him or her to make the academic and social adjustment to campus. These intake interviews will identify some students who need minimal assistance, while others will need more extended guidance and personal attention. The emphasis should be on responding to students as individuals rather than on assigning all Indian students or all rural Indians to an "Indian program" or curriculum sequence.

- Institutional research offices should monitor the progress and success of Indian students, with particular attention to distinguishing

rural from urban Indians. Such data would be useful in identifying points of high attrition so that further research could be undertaken to identify and address its causes and in gauging institutional progress in improving Indian students' retention rates and in encouraging them to enter and assisting them to succeed in fields where they are underrepresented.

Summary

Indian students have entered college and succeeded in earning post-secondary degrees despite barriers to educational achievement that are created by poor precollegiate education, finances, lack of role models, culture conflicts, lower self-concept, and lack of institutional support and responsiveness. Data on the size of the nation's Indian college student population and on the number of Indians receiving college degrees do show that substantial progress has been made since the late sixties in reducing these barriers to academic success. Nonetheless, Indians have not achieved educational equity and continued attention to the problems of Indian education is necessary to secure the gains that have been achieved and to build upon this progress.

APPENDIX A

1971 Student Information Form

YOUR NAME _____
(please print) First Middle or Maiden Last

HOME STREET ADDRESS _____
(print)

CITY _____ STATE _____
(print) (print) Zip Code (if known)

STUDENT INFORMATION FORM

191944

When were you born? Month (01-12) Day (01-31) Year

Dear Student:

The information in this report is being collected as part of a continuing study of higher education by the American Council on Education. The Council, which is a non-governmental association of colleges and educational organizations, encourages and solicits your cooperation in this research in order to achieve a better understanding of how students are affected by their college experiences. Detailed information on the goals and design of this research program are furnished in research reports available from the Council. Identifying information has been requested in order to make subsequent mail follow-up studies possible. Your response will be held in the strictest professional confidence.

Sincerely yours, Logan Wilson

Logan Wilson, President

GRP.

DIRECTIONS: Your responses will be read by an optical mark reader. Your careful observance of these few simple rules will be most appreciated:

Use only black lead pencil (No. 2½ or less).
Make heavy black marks that fill the circle.
Erase cleanly any answer you wish to change.
Make no stray markings of any kind.

	Yes	No
EXAMPLE: Will marks made with ball pen or fountain pen be properly read?	○	●

1. Your Sex:
Male ....○
Female...○

2. Are you presently married?
Yes ..○
No ...○

3. How old will you be on December 31 of this year? (Mark one)
16 or younger ..○
17 .....○
18 .....○
19 .....○
20 .....○
21 .....○
22-25.....○
26 or older.....○

4. What was your average grade in secondary school? (Mark one)
A or A+ .○
A- .....○
B+ .....○
B .....○
B- .....○
C+ .....○
C .....○
D .....○

5. Where did you rank academically in your high school graduating class? (Mark one)
Top Quarter ○ 3rd Quarter ○
2nd Quarter ○ 4th Quarter ○

6. Did you graduate from secondary school in the class of 1971?
Yes .....○ No ..... ○

7. Are you a veteran? (Mark one)
No ..... ○
Yes, I served in Southeast Asia ..... ○
Yes, but I did not serve in Southeast Asia ..... ○

8. Mark one:
This is the first time I have enrolled in college as a freshman .....○
I have attended this college before .....○
I came to this college from a junior college .....○
I came to this college from a four-year college or university .....○

9. The following questions deal with accomplishments that might possibly apply to your high school years. Do not be discouraged by this list; it covers many areas of interest and few students will be able to say "yes" to many items.

(Mark all that apply)	Yes
Was elected president of one or more student organizations (recognized by the school)	○
Received a high rating (Good, Excellent) in a state or regional music contest	○
Participated in a state or regional speech or debate contest	○
Had a major part in a play	○
Won a varsity letter (sports)	○
Won a prize or award in an art competition	○
Edited the school paper, yearbook, or literary magazine	○
Had poems, stories, essays, or articles published	○
Participated in a National Science Foundation summer program	○
Placed (first, second, or third) in a state or regional science contest	○
Was a member of a scholastic honor society	○
Won a Certificate of Merit or Letter of Commendation in the National Merit Program	○

10. What is the highest academic degree that you intend to obtain? (Mark one)
None .....○
Associate (A.A. or equivalent) ..○
Bachelor's degree (B.A., B.S., etc.)○
Master's degree (M.A., M.S., etc.) .○
Ph.D. or Ed.D. .....○
M.D., D.O., D.D.S., or D.V.M. ...○
LL.B. or J.D. (Law) .....○
B.D. (Divinity) .....○
Other .....○

11. How many miles is this college from your home? (Mark one)
5 or less ○ 51-100 ..... ○
6-10 ... ○ 101-500 ..... ○
11-50 .. ○ More than 500 ○

12. What is the highest level of formal education obtained by your parents? (Mark one in each column)

	Father	Mother
Grammar school or less	○	○
Some high school	○	○
High school graduate	○	○
Some college	○	○
College degree	○	○
Postgraduate degree	○	○

13. Do you have any concern about your ability to finance your college education?
(Mark one)
None (I am confident that I will have sufficient funds) ..... ○
Some concern (but I will probably have enough funds) .. ○
Major concern (not sure I will be able to complete college) ... ○

14. For each item indicate if it is a source for financing your education. (Mark one in each row)

	Major Source	Minor Source	Not a Source
Part-time or summer work	O	O	O
Savings from full-time employment	O	O	O
Parental or family aid or gifts	O	O	O
Federal benefits from parent's military service	O	O	O
G.I. benefits from your military service	O	O	O
Scholarships and grants	O	O	O
NDEA loans, federally insured loans or college loans	O	O	O
Other repayable loans	O	O	O

15. What is your best estimate of the total income last year of your parental family (not your own family if you are married)? Consider annual income from all sources before taxes. (Mark one)

Less than $4,000 O	$15,000-$19,999 O
$4,000-$5,999 O	$20,000-$24,999 O
$6,000-$7,999 O	$25,000-$29,999 O
$8,000-$9,999 O	$30,000-$34,999 O
$10,000-$12,499 O	$35,000-$39,999 O
$12,500-$14,999 O	$40,000 or more O

16. Are you: (Mark all that apply.)

- White/Caucasian O
- Black/Negro/Afro-American O
- American Indian O
- Oriental O
- Mexican-American/Chicano O
- Puerto Rican-American O
- Other O

17. Mark one in each column:

	Religion in Which You Were Reared	Your Present Religious Preference
Protestant	O	O
Roman Catholic	O	O
Jewish	O	O
Other	O	O
None	O	O

18. In deciding to go to college, how important to you was each of the following reasons? (Mark one answer for each reason)

	Very important	Somewhat important	Not important
My parents wanted me to go	V	S	N
To be able to contribute more to my community	V	S	N
To be able to get a better job	V	S	N
To gain a general education and appreciation of ideas	V	S	N
To improve my reading and study skills	V	S	N
There was nothing better to do	V	S	N
To make me a more cultured person	V	S	N
To be able to make more money	V	S	N
To learn more about things that interest me	V	S	N
To meet new and interesting people	V	S	N
To prepare myself for graduate or professional school	V	S	N

19. Below is a general list of things that students sometimes do. Indicate which of these things you did during the past year in school. If you engaged in an activity frequently, mark (F). If you engaged in an activity one or more times, but not frequently, mark (O) (occasionally). Mark (N) (not at all) if you have not performed the activity during the past year. (Mark one for each item)

	Frequently	Occasionally	Not at all
Voted in a student election	F	O	N
Came late to class	F	O	N
Played a musical instrument	F	O	N
Studied in the library	F	O	N
Checked out a book or journal from the school library	F	O	N
Arranged a date for another student	F	O	N
Overslept and missed a class or appointment	F	O	N
Read about collegiate rights and responsibilities of students	F	O	N
Typed a homework assignment	F	O	N
Discussed my future with my parents	F	O	N
Failed to complete a homework assignment on time	F	O	N
Argued with a teacher in class	F	O	N
Attended a religious service	F	O	N
Demonstrated for a change in some racial or ethnic policy	F	O	N
Demonstrated for a change in some military policy	F	O	N
Demonstrated for a change in some administrative policy of my high school	F	O	N
Did extra (unassigned) reading for a course	F	O	N
Took sleeping pills	F	O	N
Tutored another student	F	O	N
Played chess	F	O	N
Read poetry not connected with a course	F	O	N
Took a tranquilizing pill	F	O	N
Discussed religion	F	O	N
Took vitamins	F	O	N
Visited an art gallery or museum	F	O	N
Worked in a school political campaign	F	O	N
Worked in a local, state, or national political campaign	F	O	N
Missed school because of illness	F	O	N
Smoked cigarettes	F	O	N
Discussed politics	F	O	N
Drank beer	F	O	N
Discussed sports	F	O	N
Read about civil rights and liberties	F	O	N
Asked a teacher for advice after class	F	O	N
Had vocational counseling	F	O	N
Stayed up all night	F	O	N

20. How would you characterize your political views? (Mark one)

- Far left O
- Liberal O
- Middle-of-the-road O
- Conservative O
- Far right O

21. Mark only three responses, one in each column.

Your probable career occupation.
Your father's occupation.
Your mother's occupation.
(Y) (F) (M)

NOTE: If your father (or mother) is deceased, please indicate his (her) last occupation.

	Y	F	M
Accountant or actuary	Y	F	M
Actor or entertainer	Y	F	M
Architect	Y	F	M
Artist	Y	F	M
Business (clerical)	Y	F	M
Business executive (management, administrator)	Y	F	M
Business owner or proprietor	Y	F	M
Business salesman or buyer	Y	F	M
Clergyman (minister, priest)	Y	F	M
Clergy (other religious)	Y	F	M
Clinical psychologist	Y	F	M
College teacher	Y	F	M
Computer programmer	Y	F	M
Conservationist or forester	Y	F	M
Dentist (including orthodontist)	Y	F	M
Dietitian or home economist	Y	F	M
Engineer	Y	F	M
Farmer or rancher	Y	F	M
Foreign service worker (including diplomat)	Y	F	M
Housewife	Y	F	M
Interior decorator (including designer)	Y	F	M
Interpreter (translator)	Y	F	M
Lab technician or hygienist	Y	F	M
Law enforcement officer	Y	F	M
Lawyer (attorney)	Y	F	M
Military service (career)	Y	F	M
Musician (performer, composer)	Y	F	M
Nurse	Y	F	M
Optometrist	Y	F	M
Pharmacist	Y	F	M
Physician	Y	F	M
School counselor	Y	F	M
School principal or superintendent	Y	F	M
Scientific researcher	Y	F	M
Social worker	Y	F	M
Statistician	Y	F	M
Therapist (physical, occupational, speech)	Y	F	M
Teacher (elementary)	Y	F	M
Teacher (secondary)	Y	F	M
Veterinarian	Y	F	M
Writer or journalist	Y	F	M
Skilled trades	Y	F	M
Other	Y		
Undecided	Y		
Laborer (unskilled)		F	M
Semi-skilled worker		F	M
Other occupation		F	M
Unemployed		F	M

22. Rate yourself on each of the following traits as you really think you are when compared with the average student of your own age. We want the most accurate estimate of how you see yourself. (Mark one for each item)

Trait	Highest 10 Percent	Above Average	Average	Below Average	Lowest 10 Percent
Academic ability	O	O	O	O	O
Athletic ability	O	O	O	O	O
Artistic ability	O	O	O	O	O
Cheerfulness	O	O	O	O	O
Defensiveness	O	O	O	O	O
Drive to achieve	O	O	O	O	O
Leadership ability	O	O	O	O	O
Mathematical ability	O	O	O	O	O
Mechanical ability	O	O	O	O	O
Originality	O	O	O	O	O
Political conservatism	O	O	O	O	O
Political liberalism	O	O	O	O	O
Popularity	O	O	O	O	O
Popularity with the opposite sex	O	O	O	O	O
Public speaking ability	O	O	O	O	O
Self-confidence (intellectual)	O	O	O	O	O
Self-confidence (social)	O	O	O	O	O
Sensitivity to criticism	O	O	O	O	O
Stubbornness	O	O	O	O	O
Understanding of others	O	O	O	O	O
Writing ability	O	O	O	O	O

23. Mark one in each row: Agree Strongly / Agree somewhat / Disagree somewhat / Disagree strongly

	Agree strongly	Agree somewhat	Disagree somewhat	Disagree strongly
The Federal government is not doing enough to control environmental pollution	O	O	O	O
The Federal government is not doing enough to protect the consumer from faulty goods and services	O	O	O	O
The Federal government is not doing enough to promote school desegregation	O	O	O	O
There is too much concern in the courts for the rights of criminals	O	O	O	O
The death penalty should be abolished	O	O	O	O
The activities of married women are best confined to the home and family	O	O	O	O
The "generation gap" between me and my parents is so great that we can barely communicate	O	O	O	O
Marijuana should be legalized	O	O	O	O
Parents should be discouraged from having large families	O	O	O	O
Women should receive the same salary and opportunities for advancement as men in comparable positions	O	O	O	O
Everybody should be given an opportunity to go to college regardless of past performance or aptitude test scores	O	O	O	O
Realistically, an individual person can do little to bring about changes in our society	O	O	O	O

24. Mark one in each row: Agree strongly / Agree somewhat / Disagree somewhat / Disagree strongly

	Agree strongly	Agree somewhat	Disagree somewhat	Disagree strongly
College officials have the right to regulate student behavior off campus	O	O	O	O
The chief benefit of a college education is that it increases one's earning power	O	O	O	O
Faculty promotions should be based in part on student evaluations	O	O	O	O
College grades should be abolished	O	O	O	O
Colleges would be improved if organized sports were de-emphasized	O	O	O	O
Student publications should be cleared by college officials	O	O	O	O
College officials have the right to ban persons with extreme views from speaking on campus	O	O	O	O
Students from disadvantaged social backgrounds should be given preferential treatment in college admissions	O	O	O	O
Most college officials have been too lax in dealing with student protests on campus	O	O	O	O
Open admissions (admitting anyone who applies) should be adopted by all publicly-supported colleges	O	O	O	O
Even if it employs open admissions, a college should use the same performance standards in awarding degrees to all students	O	O	O	O

25. What is your best guess as to the chances that you will: (Mark one for each item)

	Very Good Chance	Some Chance	Very Little Chance	No Chance
Get married while in college?	O	O	O	O
Get married within a year after college?	O	O	O	O
Vote in the 1972 presidential election?	O	O	O	O
Enlist in the armed services before graduating?	O	O	O	O
Change major field?	O	O	O	O
Change career choice?	O	O	O	O
Fail one or more courses?	O	O	O	O
Graduate with honors?	O	O	O	O
Be elected to a student office?	O	O	O	O
Join a social fraternity, sorority, or club?	O	O	O	O
Be elected to an academic honor society?	O	O	O	O
Make at least a "B" average?	O	O	O	O
Need extra time to complete your degree requirements?	O	O	O	O
Have to work at an outside job?	O	O	O	O
Seek vocational counseling?	O	O	O	O
Seek individual counseling on personal problems?	O	O	O	O
Enroll in honors courses?	O	O	O	O
Get tutoring/help in specific courses?	O	O	O	O
Author or co-author a published article?	O	O	O	O
Be more successful after graduation than most students attending this college?	O	O	O	O
Drop out of this college temporarily (exclude transferring)?	O	O	O	O
Drop out permanently (exclude transferring)?	O	O	O	O
Transfer to another college before graduating?	O	O	O	O
Be satisfied with your college?	O	O	O	O

26. Do you feel that you will need any special tutoring or remedial work in any of the following subjects? (Mark all that apply)

English O Mathematics O Science O
Reading O Social studies O Foreign language O

27. Below is a list of 68 different undergraduate major fields grouped into general categories. Mark only three of the 68 fields as follows:

- ① First choice (your probable major field of study).
- ② Second choice.
- Ⓛ The field of study which is least appealing to you.

ARTS AND HUMANITIES

Architecture	① ② Ⓛ
English (literature)	① ② Ⓛ
Fine arts	① ② Ⓛ
History	① ② Ⓛ
Journalism (writing)	① ② Ⓛ
Language (modern)	① ② Ⓛ
Language (other)	① ② Ⓛ
Music	① ② Ⓛ
Philosophy	① ② Ⓛ
Speech and drama	① ② Ⓛ
Theology	① ② Ⓛ
Other	① ② Ⓛ

BIOLOGICAL SCIENCE

Biology (general)	① ② Ⓛ
Biochemistry	① ② Ⓛ
Biophysics	① ② Ⓛ
Botany	① ② Ⓛ
Zoology	① ② Ⓛ
Other	① ② Ⓛ

BUSINESS

Accounting	① ② Ⓛ
Business admin.	① ② Ⓛ
Electronic data processing	① ② Ⓛ
Secretarial studies	① ② Ⓛ
Other	① ② Ⓛ

ENGINEERING

Aeronautical	① ② Ⓛ
Civil	① ② Ⓛ
Chemical	① ② Ⓛ
Electrical	① ② Ⓛ
Industrial	① ② Ⓛ
Mechanical	① ② Ⓛ
Other	① ② Ⓛ

PHYSICAL SCIENCE

Chemistry	① ② Ⓛ
Earth science	① ② Ⓛ
Mathematics	① ② Ⓛ
Physics	① ② Ⓛ
Statistics	① ② Ⓛ
Other	① ② Ⓛ

PROFESSIONAL

Health Technology (medical, dental, laboratory)	① ② Ⓛ
Nursing	① ② Ⓛ
Pharmacy	① ② Ⓛ
Predentistry	① ② Ⓛ
Prelaw	① ② Ⓛ
Premedical	① ② Ⓛ
Preveterinary	① ② Ⓛ
Therapy (occupat., physical, speech)	① ② Ⓛ
Other	① ② Ⓛ

SOCIAL SCIENCE

Anthropology	① ② Ⓛ
Economics	① ② Ⓛ
Education	① ② Ⓛ
History	① ② Ⓛ
Political Science (government, int. relations)	① ② Ⓛ
Psychology	① ② Ⓛ
Social work	① ② Ⓛ
Sociology	① ② Ⓛ
Other	① ② Ⓛ

OTHER FIELDS

Agriculture	① ② Ⓛ
Communications (radio, T.V., etc.)	① ② Ⓛ
Computer Science	① ② Ⓛ
Environmental Science	① ② Ⓛ
Electronics (technology)	① ② Ⓛ
Forestry	① ② Ⓛ
Home economics	① ② Ⓛ
Industrial arts	① ② Ⓛ
Library science	① ② Ⓛ
Military science	① ② Ⓛ
Physical education and recreation	① ② Ⓛ
Other (technical)	① ② Ⓛ
Other (nontechnical)	① ② Ⓛ
Undecided	① ② Ⓛ

Please be sure that only three circles have been marked in the above list.

28. Indicate the importance to you personally of each of the following: (Mark one for each item)

	Essential	Very important	Somewhat important	Not important
Becoming accomplished in one of the performing arts (acting, dancing, etc.)	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Becoming an authority in my field	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Obtaining recognition from my colleagues for contributions in my special field	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Influencing the political structure	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Influencing social values	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Raising a family	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Having an active social life	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Having friends with different backgrounds and interests from mine	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Becoming an expert in finance and commerce	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Having administrative responsibility for the work of others	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Being very well-off financially	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Helping others who are in difficulty	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Participating in an organization like the Peace Corps or Vista	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Becoming a community leader	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Making a theoretical contribution to science	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Writing original works (poems, novels, short stories, etc.)	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Never being obligated to people	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Creating artistic work (painting, sculpture, decorating, etc.)	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Keeping up to date with political affairs	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Being successful in a business of my own	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Becoming involved in programs to clean up the environment	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Developing a meaningful philosophy of life	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Participating in a community action program	Ⓔ	Ⓥ	Ⓢ	Ⓝ
Getting married within the next five years	Ⓔ	Ⓥ	Ⓢ	Ⓝ

29. Below are some of the reasons that might have influenced your decision to attend this particular college. How important was each reason in deciding to come here? (Mark one answer for each statement.)

	Very important	Somewhat important	Not important
My relatives wanted me to come here	Ⓥ	Ⓢ	Ⓝ
This college has a very good reputation	Ⓥ	Ⓢ	Ⓝ
Most of my friends are going to this college	Ⓥ	Ⓢ	Ⓝ
Because of low tuition	Ⓥ	Ⓢ	Ⓝ
Someone who had been here before advised me to go	Ⓥ	Ⓢ	Ⓝ
Because of the special educational programs offered	Ⓥ	Ⓢ	Ⓝ
I was not accepted anywhere else	Ⓥ	Ⓢ	Ⓝ
My guidance counselor advised me to go	Ⓥ	Ⓢ	Ⓝ
I wanted to live at home	Ⓥ	Ⓢ	Ⓝ

DIRECTIONS:

The remaining circles are provided for items specifically designed by your college, rather than by the American Council on Education. If your college has chosen to use the circles, observe carefully the supplemental directions given you.

30.	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
31.	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
32.	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
33.	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
34.	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
35.	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
36.	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
37.	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
38.	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
39.	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ

DO NOT MARK

⓪	⓪	⓪	ⓒ	⓪
①	①	①	①	①
②	②	②	②	②
③	③	③	③	③
④	④	④	④	④
⑤	⑤	⑤	⑤	⑤
⑥	⑥	⑥	⑥	⑥
⑦	⑦	⑦	⑦	⑦
⑧	⑧	⑧	⑧	⑧
⑨	⑨	⑨	⑨	⑨
①	②	①	④	Ⓐ

Prepared by Office of Research, American Council on Education, One Dupont Circle N.W., Washington, D.C. 20036. Processed by Ivoran Corporation, 4588 W. 77th St., Minneapolis, Minn. 55435

APPENDIX B

Follow-up of 1971 Entering Freshmen (1980)

FOLLOW-UP OF 1971 ENTERING FRESHMEN

79/80

HIGHER EDUCATION RESEARCH INSTITUTE • P.O. BOX 35559 • MINNEAPOLIS, MINNESOTA 55435

NAME & ADDRESS CORRECTION:

Your Name

First Middle or Maiden Last

Home Street Address

City State

ZIP Code

DIRECTIONS: Your responses will be read by an optical mark reader. Your careful observance of these few simple rules will be most appreciated.

- *Use only a black lead pencil (no. 2½ or less).*
- Make heavy black marks that fill the circle.
- Erase cleanly any answer you wish to change.
- Make no stray markings of any kind.
- Where write-in responses are necessary, please confine your writing to the limits of the lines provided.

EXAMPLE: Will marks made with ball-point or felt-tip pen be properly read? ○ Yes ● No

1. Please indicate: (Mark one in each column)

	(A) the highest degree you now hold	(B) the degree (if any) you are now working toward	(C) the highest degree you plan to receive	(D) the highest degree your spouse holds
High school diploma (or equivalent)	Ⓐ	Ⓑ	Ⓒ	Ⓓ
Vocational training certificate	Ⓐ	Ⓑ	Ⓒ	Ⓓ
Associate's	Ⓐ	Ⓑ	Ⓒ	Ⓓ
Bachelor's	Ⓐ	Ⓑ	Ⓒ	Ⓓ
Master's (M.A., M.S., M.B.A., M.F.A., etc.)	Ⓐ	Ⓑ	Ⓒ	Ⓓ
Doctorate (Ph.D. or Ed.D.)	Ⓐ	Ⓑ	Ⓒ	Ⓓ
Advanced professional (MD, DDS, DVM, JD, LLD)	Ⓐ	Ⓑ	Ⓒ	Ⓓ
Not married				Ⓓ

2. From what type of high school did you graduate?

○ Public high school in U.S.
○ Private religious (parochial) high school in U.S.
○ Private non-religious high school in U.S.
○ Public high school outside U.S.
○ Private high school outside U.S.

3. Were you in a college preparatory program in high school?

○ Yes ○ No ○ Don't remember

4. How many children do you have?

○ None ○ Two
○ One ○ Three or more

5. What is your citizenship status?

○ U.S. native
○ U.S. naturalized
○ Immigrant, permanent U.S. resident
○ Foreign citizen on temporary visa

6. Where were you and your parents born?

	You	Father	Mother
U.S. native	○	○	○
U.S. territory (e.g., Puerto Rico, Guam, Samoa)	○	○	○
Foreign country	○	○	○

7a. Have you ever been married? (Mark one)

○ No
○ Yes, now living with spouse
○ Yes, but am now separated, divorced, or widowed

7b. When were you first married?

○ Before entering college in 1971 ○ After leaving college
○ While I was an undergraduate

THE FOLLOWING QUESTIONS (8-17) ARE ABOUT YOUR UNDERGRADUATE EXPERIENCE. UNLESS OTHERWISE SPECIFIED, COLLEGE REFERS TO THE LAST UNDERGRADUATE COLLEGE YOU ATTENDED.

8. Write in the name of the college you last attended as an undergraduate.

Name of College

City State

11 12

9. What was your last major in college? (Be specific; for example, state which specialty of engineering)

10. How many different colleges did you attend as an undergraduate?

○ One ○ Two ○ Three ○ Four or more

11. Altogether, how many academic years did you complete: (Mark one on each line)

	Less than 1 yr.	1 yr.	2 yrs.	3 yrs.	4 or more yrs.
College entered in 1971?	○	○	○	○	○
Last undergraduate college attended?	○	○	○	○	○

12. When you first entered college, how well prepared were you compared to most other students at your college?

(Mark one on each row)	Better prepared than most	About as well prepared as most	Not as well prepared as most
Reading and comprehension	○	○	○
Writing	○	○	○
Mathematics	○	○	○
Natural sciences	○	○	○
Preparing research papers	○	○	○

13. What was your average undergraduate grade? (Mark one)

○ A+, A, A- ○ B-, C+ ○ C-, D+
○ B+, B ○ C ○ D or less

14. How satisfied were you with the following at your last undergraduate college? (Mark one in each row)

	Very Satisfied	Somewhat Satisfied	Not Satisfied	Available But I Did Not Take/Use	Not Available
Career counseling	○	○	○	○	○
Personal counseling	○	○	○	○	○
Tutoring	○	○	○	○	○
Health services	○	○	○	○	○
Job placement services	○	○	○	○	○
Financial aid services	○	○	○	○	○
Ethnic studies	○	○	○	○	○
Women's studies	○	○	○	○	○
EOP (Educational Opportunity Program)	○	○	○	○	○
College's academic reputation	○	○	○		
Intellectual environment	○	○	○		
Quality of classroom instruction	○	○	○		
Faculty-student relations	○	○	○		
Variety of courses offered	○	○	○		
Friendships with other students	○	○	○		
The administration	○	○	○		

15. Did you: (Mark all that apply)

- ○ Attend college part time for at least one term
- ○ Know at least one professor or administrator personally
- ○ Take more than four years to complete your Bachelor's degree
- ○ Get elected president of one or more student organizations
- ○ Serve on a university or departmental committee
- ○ Have a major part in a play
- ○ Win a varsity letter (sports)
- ○ Edit the school paper, yearbook, or literary magazine
- ○ Belong to a scholastic honor society
- ○ Drop out for a period of time

16. Did you participate in any of the following? (Mark all that apply)

- ○ NSSFNS
- ○ Ford Foundation Upper Division Transfer program
- ○ General Electric Upper Division program
- ○ Upward Bound
- ○ MESA (Minority Engineering Science Association)
- ○ Talent Search
- ○ A summer enrichment program (educational)
- ○ Bureau of Indian Affairs program

17. Overall, how satisfied were you with: (Mark one on each line)

	Very Satisfied	Somewhat Satisfied	Not at all Satisfied
College entered in 1971	○	○	○
Last undergraduate college attended	○	○	○

IF YOU DROPPED OUT OF COLLEGE BEFORE EARNING A DEGREE OR VOCATIONAL CERTIFICATE, PLEASE ANSWER THE FOLLOWING QUESTIONS (18-19). OTHERWISE GO TO QUESTION 20.

18. What are the chances that you will return to college within the next two years? (Mark one)

- ○ Very good
- ○ Fairly good
- ○ Not very good
- ○ No chance

19. Do you now wish that you had stayed in college?

- ○ Yes
- ○ No

20. I am currently: (Mark one)

- ○ Employed full time
- ○ Employed part time
- ○ Unemployed, looking for work
- ○ Unemployed, not looking for work

21. Racial/Ethnic Group: (Mark one only)

- ○ Asian-American/Oriental
- ○ American Indian or Alaskan Native (tribe or band):
- ○ Black/Afro-American
- ○ Chicano/Mexican-American
- ○ Puerto Rican-American/Puerto Rican
- ○ White/Caucasian
- ○ Other (specify):

22. How would you describe the racial composition of the high school you last attended and the neighborhood where you grew up?

	Completely non-White	Mostly non-White	Roughly half non-White	Mostly White	Completely White
High school I last attended	○	○	○	○	○
Neighborhood where I grew up	○	○	○	○	○

23. How many of your close friends and associates at work or school are White versus non-White?

	All non-White	Mostly non-White	Mostly White	All White
Close friends	○	○	○	○
Associates	○	○	○	○

THE FOLLOWING QUESTIONS (24-32) ARE ABOUT WORK. ANSWER EACH QUESTION ABOUT YOUR CURRENT OR MOST RECENT JOB. IF YOU HAVE NEVER BEEN EMPLOYED SINCE LEAVING COLLEGE, GO TO QUESTION 33.

24. What is your current (or most recent) occupation or job?

25. What was the first full-time job you had after you last left college? (Name of occupation or job)

24	25
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

26. (A) What is your current annual income before taxes? If self-employed, indicate your annual earned income after adjusting for business expenses.

(B) What is your spouse's income? If not married, mark here →

(Mark one in each column)	(A) My Income	(B) Spouse's Income
None		
Below $7,000		
$7,000-$9,999		
$10,000-$14,999		
$15,000-$19,999		
$20,000-$24,999		
$25,000-$29,999		
$30,000-$34,999		
$35,000-$39,999		
$40,000 and over		

27. What two undergraduate fields of study would you recommend for someone preparing himself/herself for your present job?

(field)

(field)

27

28. Is your current or most recent job related to your undergraduate major? (Mark one)

- Yes, closely related
- Yes, somewhat related
- No, not related

29. Which category best describes the type of organization in which you are employed? (Mark one)

- Commerce, finance, insurance, real estate
- Retail or wholesale trade
- Other business or service establishments
- Manufacturing
- Transportation or public utilities
- Agriculture or forestry
- Elementary or secondary school system
- Human services organization (social welfare, health, etc.)
- College, university, technical institute or professional school
- U.S. government, civilian employee
- State, local or other government
- U.S. military service, active duty, or Commission Corps
- Other, (specify):

30. Approximately how many persons does your company or organization employ? (Mark one)

- I work alone
- Fewer than 10
- 10-99
- 100-999
- 1,000-9,999
- 10,000-24,999
- 25,000 or more

31. How well did your college education prepare you for your present job? (Mark one)

- Very well
- Well
- Fairly well
- Not well

32. How satisfied are (were) you with the following aspects of your current (most recent) job? (Mark one in each row)

	Very Satisfied	Somewhat Satisfied	Not Satisfied
Overall			
Income			
Fringe benefits			
Variety of activities			
Working conditions (hours, location)			
Decision-making power, responsibility			
Competency of people you work with			
Opportunities for promotion			
Job security			
Opportunity to be creative			
Opportunity to use training or schooling			
Opportunity to contribute to society			
Challenge			

33. Mark one answer next to each statement:

	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
The chief benefit of a college education is that it increases one's earning power				
Faculty promotions should be based in part on student evaluations				
College officials have the right to ban persons with extreme views from speaking on campus				
Students from disadvantaged social backgrounds should be given preferential treatment in college admissions				
Open admissions should be adopted by all publicly-supported colleges				
Even if it employs open admissions, a college should use the same performance standards in awarding degrees to all students				
Racial discrimination is no longer a major problem in America				
Colleges and universities should not have responsibility for rectifying racial injustice				
Any institution with a substantial number of minority students should offer an ethnic studies program				
Increases in minority enrollments result in a lowering of academic standards				

34. Rate yourself on each of the following traits as compared with the average person your age. We want the most accurate estimate of how you see yourself. (Mark one in each row)

	Highest 10 Percent	Above Average	Average	Below Average	Lowest 10 Percent
Academic ability					
Artistic ability					
Drive to achieve					
Leadership ability					
Mathematical ability					
Popularity					
Popularity with the opposite sex					
Public speaking ability					
Self-confidence (intellectual)					
Self-confidence (social)					
Writing ability					

35. How would you characterize your current political views? (Mark one)

- ○ Far left
- ○ Liberal
- ○ Middle-of-the-road
- ○ Conservative
- ○ Far right

36. Indicate how important to you personally each of the following is: (Mark one in each row)

	Essential	Very important	Somewhat important	Not important
Influencing the political structure	○	○	○	○
Influencing social values	○	○	○	○
Raising a family	○	○	○	○
Being very well-off financially	○	○	○	○
Becoming a community leader	○	○	○	○
Being successful in a business of my own	○	○	○	○
Participating in a community action program	○	○	○	○
Helping others who are in difficulty	○	○	○	○
Becoming involved in programs to clean up the environment	○	○	○	○

IF YOU HAVE EVER ATTENDED GRADUATE OR PROFESSIONAL SCHOOL, ANSWER THE FOLLOWING QUESTIONS (37–41).

37. Name your current or most recent graduate or professional school and your field/major at that school.

Graduate or Professional School

Field/Major

38. How do you rate yourself academically among the students in your current (or most recent) graduate/professional program?

- ○ Among the best
- ○ Above average
- ○ About average
- ○ Below average

39. As a graduate or professional student, did you apply for or participate in any of the following programs?

	Received	Applied for, didn't get	Knew about but didn't apply
Fellowship (institutional funds)	○	○	○
Research assistantship	○	○	○
Administrative assistantship	○	○	○
Special fellowship:			
Ford Foundation	○	○	○
Woodrow Wilson	○	○	○
Danforth	○	○	○
Other (specify):	○	○	○
National Fellowship Fund	○	○	○
Council on Legal Education Opportunities (CLEO)	○	○	○

40. How satisfied are you with the following at your current (or last) graduate or professional school? (Mark one in each row)

	Very Satisfied	Somewhat Satisfied	Not Satisfied	Available, I did not use
Career counseling	○	○	○	○
Tutoring	○	○	○	○
Job placement	○	○	○	○
Financial aid	○	○	○	○
College's academic reputation	○	○	○	
Intellectual environment	○	○	○	
Faculty-student relations	○	○	○	
Quality of instruction	○	○	○	
Variety of courses offered	○	○	○	
Friendships with other students	○	○	○	
The administration	○	○	○	
Accessibility of faculty	○	○	○	
Faculty support of my work	○	○	○	
Ethnic composition of student body	○	○	○	
Ethnic composition of faculty	○	○	○	

41. The following statements reflect patterns of minority and White relations that have been observed on various college and university campuses. To what extent is each present on or descriptive of the campus of your graduate school or professional school? (Mark one in each row)

	Substantial	Some	Very Little	Don't Know
Trust between minority students and				
White students	○	○	○	○
The faculty	○	○	○	○
The administration	○	○	○	○
Trust among different ethnic minority groups	○	○	○	○
Racial conflict	○	○	○	○
Faculty concern with minority issues	○	○	○	○
Social interaction between minority students and				
White students	○	○	○	○
The faculty	○	○	○	○
The administration	○	○	○	○
Open discussion of minority issues	○	○	○	○

THANK YOU FOR PARTICIPATING!

Please return your completed questionnaire in the postage-paid envelope provided to: Higher Education Research Institute, P.O. Box 35559, Minneapolis, Minnesota 55435.

Computer Use Only

37

5916/2660-Intran-54321

APPENDIX C

Telephone Interview Protocol (1980)

HIGHER EDUCATION RESEARCH QUESTIONNAIRE

I'm calling from Chilton Research in Chicago and we are conducting a national study for an educational research firm in Los Angeles. We are trying to contact people like yourself who were college students in 1971.

The research institute in Los Angeles is trying to find out what happened to your college class of 1971, and I would like to ask you a few very brief questions.

1. Have you earned any certificates or degrees since you finished high school?

   1. No
   2. Yes

2. What was your degree or certificate? (Code highest)

   1. Vocational/technical certificate
   2. Associate degree
   3. Bachelor's degree (BA, BS)
   4. Master's degree (MS, MBA, MA)
   5. Professional degree (law, medicine, etc.)
   6. Doctorate (PhD)
   7. Other

3. In what year did you receive it?

   1. 1971
   2. 1972
   3. 1973
   4. 1974
   5. 1975
   6. 1976
   7. 1977
   8. 1978
   9. 1979
   X. 1980

4. How long were you in college?

   1. Less than 1 year
   2. 1-2 years
   3. 3-4 years
   4. More than 4 years
   5. Still attending college

5. How many credit hours have you earned?

   1. 0-30
   2. 31-60
   3. 61-90
   4. 91-120
   5. Over 120
   6. Don't know

6. What was your primary reason for choosing not to stay in college?

   1. Academic problems
   2. Financial problems
   3. Health problems
   4. Personal or family problems (not health or finances)
   5. Lack of interest; college courses boring/not relevant
   6. Job opportunity
   7. Change of status: moved/got married/went into the armed forces
   8. Other

6A. Probe: Were there any other reasons?

   (repeat codes) add
   9. Nor other reason

7. Are you currently enrolled in any program working for a degree or certificate?

   1. No
   2. Yes

8. What degree or certificate are you currently working toward?

   1. Vocational/technical certificate
   2. Associate degree
   3. Bachelor's degree
   4. Master's degree
   5. Professional degree (law, medicine, etc.)
   6. Doctorate

9. What are you currently doing?

   1. Going to school
   2. Working part time
   3. Working full time
   4. Homemaker
   5. Unemployed

10. Are you currently seeking either part-time or full-time employment?

    1. No
    2. Yes, part time
    3. Yes, full time

11. What is your job?

    (Dept. of Census Codes)

12. What type of job are you looking for?

    (Dept. of Census Codes)

13. Our records show that when you entered college you identified yourself as (RACE/ETHNICITY). Is this correct?

    1. Yes
    2. No, Black
    3. No, Chicano
    4. No, Puerto Rican
    5. No, American Indian/Alaskan Native
    6. No, White/Caucasian
    7. No, Other

14. What language or languages were spoken in your home when you were a child?

    1. English
    2. Spanish
    3. American Indian language
    4. Other language

15. Do you feel that going to college helped you in terms of finding jobs or do you feel you could have done just as well without going to college?

    1. College helped
    2. College did not help
    3. Don't know

16. Do you feel going to college was worthwhile for other non-job related reasons?

    1. No
    2. Yes, somewhat
    3. Yes
    4. Don't know

17. Could I please have your current zip code?

    (5-digit code)

18. Thank you very much for helping us complete our study. For purposes of classification was your 1979 household income before taxes over or under $15,000?

6. Over $15,000
3. Under $15,000
R. Refused

18A. Was it over or under $25,000?

5. Over $25,000
4. Under $25,000
R. Refused

18B. Was it over or under $7,500?

2. Over $7,500
1. Under $7,500
R. Refused

APPENDIX D

Classification of Respondents' Home Addresses at College Entry (1971) as Rural or Urban

Home Addresses Classified as Rural by State

Alaska
- Kwethluk (pop. 408)
- Seward (pop. 1587)
- Sitka (pop. 6100)

Arizona
- Cameron (pop. less than 1,000; on reservation)
- Chinle (pop. less than 1,000; on reservation)
- Dilkon Trading Post, Winslow
- Holbrook (pop. 4759)
- Many Farms (pop. less than 1,000; on reservation)
- St. Michaels (pop. less than 1,000; on reservation)
- Tonalea (pop. less than 1,000; on reservation)
- Tuba City (pop. 800; on reservation)
- Winslow (pop. 7,663)

Arkansas
- McRae (pop. 643)

California
- Farmersville (pop. 3456)
- Loyalton (pop. 945)
- Marysville (pop. 9358)
- Strathmore (pop. 1221)
- Yuba City (pop. 13,981)

Illinois
- Washington (pop. 4647)
- Worden (pop. 1091)

Iowa
- Lansing (pop. 1218)
- Toledo (pop. 2361)

Kansas
- Arkansas City (pop. 12,600)
- Coffeyville (pop. 14,100)

Kentucky
- Jackson (pop. 1887)
- Manchester (pop. 1664)

Louisiana
- Benton (pop. 1493)

Maine
- Ellsworth (pop. 4603)
- North Anson (pop. 700)
- West Paris (pop. 500)

Massachusetts
- Groton (pop. 5109)

Michigan
- Dowagiac (pop. 6583)
- Grand Blanc (pop. 5132)

Minnesota
- Cass Lake (pop. 1317; on reservation)
- Redlake (pop. 400; on reservation)

Mississippi
- Holcomb (pop. less than 1,000)

Montana
- Bainville (pop. 217)
- Brockton (pop. 401; on reservation)
- Browning (pop. 1700; on reservation)
- Canyon Creek (pop. less than 1,000)
- Chinook (pop. 1813)
- Crow Agency (pop. 750; on reservation)
- Culbertson (pop. 821)
- Cut Bank (pop. 4,006; on reservation border)
- Halme (pop. less than 1,000)
- Harlen (pop. 1094; on reservation border)

Nevada
- McDermitt (pop. 200; on reservation border)

New Hampshire
- Milton Mills (pop. less than 1,000)
- Weare (pop. less than 1,000)

New Jersey
- Hammonton (pop. 11,464)

New Mexico
- Crownpoint (pop. 900)
- Fort Wingate (pop. less than 1,000; on reservation)
- Fruitland (pop. less than 1,000)
- Gallup (pop. 15,100)
- Isleta (pop. 1,080; on reservation)
- Mescalero (pop. 900; on reservation)
- Pueblo Alto (pop. less than 1,000)
- San Felipe Pueblo (pop. 1,187)
- Santo Domingo Pueblo (pop. 1,662)

New York
- Basom (pop. less than 1,000; on reservation)
- Bombay (pop. 400)
- Brockport (pop. 7,878)
- Elba (pop. 752)

(New York continued)
Forestville (pop. 908)
Hogansburg (pop. less than 1,000; on reservation)
Johnson City (pop. 18,025)
Oxford (pop. 1,944)
Pavilion (pop. 500)
Randolph (pop. 1,498)
Salamanca (pop. 7,877; on reservation)
St. Johsville (pop. 2,089)
Slingerlands (pop. less than 1,000)
Star Lake (pop. 800)

North Carolina
Cherokee (pop. 600; on reservation)
Fairmont (pop. 2,827)
Graham (pop. 8,172)
Pembroke (pop. 1,982)
Shelby (pop. 16,328)

North Dakota
Belcourt (pop. 950; on reservation)
Cannon Ball (pop. less than 1,000; on reservation)
Fort Yates (pop. 1,153; on reservation)
Rolette (pop. 579)

Ohio
Newton Falls (pop. 5,378)

Oklahoma
Choctaw (pop. less than 1,000)
Duncan (pop. 19,718)
East Pryor (pop. 7,057)
Fairfax (pop. 1,889)
Hugo (pop. 6,585)
McAlester (pop. 18,802)
Morris (pop. 1,119)
Pawnee (pop. 2,443)
Perry (pop. 5,341)
Sasakaw (pop. 321)

Pennsylvania
Danville (pop. 6,176)

South Dakota
Eagle Butte (pop. 530; on reservation)
Fort Thompson (pop. 300; on reservation)
Ideal (pop. less than 1,000)
Mission (pop. less than 1,000)
Pine Ridge (pop. 2,768; on reservation)
Stickney (pop. less than 1,000)

Texas
Gunter (pop. 847)

Vermont
Wilder (pop. 1,328)

Virginia
Grottoes (pop. 1,166)
Providence Forge (pop. 200)

Washington
Marysville (pop. 4,343; on reservation)

Wisconsin
Keshena (pop. 400)
Phillips (pop. 1,511)
Two Rivers (pop. 13,243)
Watertown (pop. 16,400)
Wisconsin Dells (pop. 2,401)
Wisconsin Rapids (pop. 18,800)

Home Addresses Classified as Urban by State

Alabama
Huntsville (pop. 139,282)

Alaska
Fairbanks (pop. 25,000)

Arizona
Phoenix (pop. 705,000)

California
Azusa (pop. 25,217; in Los Angeles metropolitan area)
Concord (pop. 85,164)
Covina (pop. 30,395; in Los Angeles metropolitan area)
Duarte (pop. 14,981; in Los Angeles metropolitan area)
Glendora (pop. 31,380; in Los Angeles metropolitan area)
Hacienda Heights (pop. 35,969; in Los Angeles metropolitan area)
La Mirada (pop. 30,808; in Los Angeles metropolitan area)
Long Beach (pop. 358,879)
Los Angeles (pop. 2,809,813)
Pomona (pop. 87,384; in Los Angeles metropolitan area)
Sacramento (pop. 257,105)
Santa Ana (in Los Angeles metropolitan area)
Visalia (pop. 27,268)

Colorado
Denver (pop. 514,678)

Connecticut
- East Hartford (pop. 54,600)
- Milford (pop. 50,858)
- Wallingford (pop. 35,714)
- Westport (pop. 27,414)

Delaware
- Wilmington (pop. 80,386)

Florida
- Lakeland (pop. 47,500)
- Panama City (pop. 33,100)

Georgia
- Augusta (pop. 59,864)

Illinois
- Brookfield (pop. 20,100; Chicago suburb)
- Glenview (pop. 30,800; Chicago suburb)
- Woodridge (pop. 20,400; Chicago suburb)

Iowa
- Davenport (pop. 99,386)

Kansas
- Shawnee (pop. 20,482; Kansas City suburb)

Kentucky
- Owensboro (pop. 56,000)

Maryland
- Baltimore (pop. 905,759)
- Silver Springs (pop. 82,500; Washington D.C. suburb)
- Towson (pop. 77,768; Baltimore suburb)

Massachusetts
- Acton (pop. 2,500; in Boston metropolitan area)
- Fall River (pop. 95,000)
- Lexington (pop. 31,886; Boston suburb)
- West Bridgewater (pop. 2,100; in Boston metropolitan area)
- West Springfield (pop. 28,461)

Michigan
- Detroit (pop. 1,355,000)
- Garden City (pop. 41,864; Detroit suburb)
- Taylor (pop. 77,490; Detroit suburb)
- Warren (pop. 179,260)

Minnesota
- Minneapolis (pop. 434,400)

Missouri
- Ferguson (pop. 27,400; St. Louis suburb)
- Florissant (pop. 65,908; St. Louis suburb)
- Hazelwood (St. Louis suburb)
- Kansas City (pop. 507,330)
- Parkville (pop. 1,253; Kansas City suburb)
- St. Charles (pop. 31,834; St. Louis suburb)

Nevada
- Reno (pop. 72,863)

New Jersey
- River Edge (pop. 12,850; part of New York to Newark urban sprawl)

New Mexico
- Albuquerque (pop. 243,751)

New York
- Baldwin (pop. 34,525; on Long Island)
- Buffalo (pop. 462,768)
- East Meadow (pop. 46,290; on Long Island)
- Huntington (pop. 12,601; on Long Island)
- New York City (pop. 7,605,000)
- Niagra Falls (pop. 80,600)
- Rochester (pop. 282,000)
- Webster (pop. 5,037; Rochester suburb)
- White Plains (pop. 50,346; New York City suburb)

North Carolina
- Charlotte (pop. 241,178)
- Raleigh (pop. 144,000)

North Dakota
- Grand Forks (pop. 42,581)
- West Minot (pop. of Mioot is 32,823)

Ohio
- Toledo (pop. 366,000)
- Willowick (pop. 21,237; Cleveland suburb)

Oklahoma
- Del City (pop. 28,900; Oklahoma City suburb)
- Muskogee (pop. 40,000)
- Oklahoma City (pop. 368,377)
- Ponca City (pop. 24,600)
- Sapulpa (pop. 15,159; Tulsa suburb)
- Stillwater (pop. 33,000)
- Tulsa (pop. 343,000)
- West Oklahoma City (see Oklahoma City)

Pennsylvania
- Hummelstown (suburb of Harrisburg; Harrisburg pop. is 62,600)

(Pennsylvania continued)
Newton Square (pop. 11,081; Philadephia suburb)
Palmyra (pop. 7,615; Harrisburg suburb)
Springfield (pop. 29.006; Philadephia suburb)

Rhode Island
Woonsocket (pop. 46,000)

Tennessee
Clarksville (pop. 44,900)

Texas
Houston (pop. 1,232,802)
Sherman (pop. 29.061)
Victoria (pop. 41,349)

Utah
Provo (pop. 59,000)

Virginia
Newport News (pop. 149,000)
Virginia Beach (pop. 224,000)

Washington
Auburn (pop. 21,300)
Seattle (pop. 530,000)

Wisconsin
Grafton (pop. 5,998; Milwaukee suburb)
Madison (pop. 173,000)
Milwaukee (pop. 669,022)
Racine (pop. 90,700)
Wauwatosa (pop. 55,500; Milwaukee suburb)

APPENDIX E

Coding of College Region

Recoding of Major Field (1971 and 1980)

Recoding of Occupational Aspirations (1971)

Recoding of Occupational Outcomes (1980)

Factor Analysis Results

List (and Coding) of Independent Variables Used in the Regressions

Coding of College Region

Region	States
East	Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont
Midwest	Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin
South	Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia
West	Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oklahoma, Oregon, Texas, Utah, Washington, Wyoming

Recoding of Major Field (1971 and 1980)

Major Field Category	Survey Response Alternatives
Arts and humanities	architecture, English (literature), fine arts, history, journalism (writing), language (modern), language (other), music, philosophy, speech and drama, theology, other arts and humanities major
Biological sciences[a]	biology (general), biochemistry, biophysics, botany, zoology, other biological science major
Business	accounting, business administration, electronic data processing, secretarial studies, other business major
Engineering	aeronautical, civil, chemical, electrical, industrial, mechanical, other engineering major
Physical sciences and mathematics[a]	chemistry, earth science, mathematics, physics, statistics, other physical science or mathematics major
Allied health fields	health technology (medical, dental, laboratory), pharmacy, therapy (occupational, physical, speech)
Nursing	nursing
Premedical	predentistry, premedical, preveterinary
Prelaw	prelaw
Social sciences (theoretical)[b]	anthropology, economic, history, political science (government and international relations), psychology, other social science major
Social sciences (applied)[b]	social work, sociology
Education	education, physical education and recreation
Agriculture and forestry[c]	agriculture, environmental science, forestry

Recoding of Major Field (1971 and 1980): continued

Major Field Category	Survey Response Alternatives
Technical fields	electronics, industrial arts, other (technical) major
Other fields[c]	other professional majors, communications, computer science, home economics, library science, military science, other (non-technical) major

[a]In reporting the data, the biological sciences and the physical sciences and mathematics are often collapsed as "natural sciences and mathematics."

[b]In reporting the data, the theoretical and applied social sciences are often collapsed as "social sciences."

[c]In reporting the data, agriculture and forestry are often included in the "other fields" category.

Recoding of Occupational Aspirations (1971)

Occupational Category	Survey Response Alternatives
Allied health	dietician or home economist, lab technician or hygienist, nurse, optometrist, pharamacist, therapist (physical, occupational, speech)
Arts	actor or entertainer, artist, interior decorator, musician, writer or journalist
Business	accountant or actuary, business executive, business owner or proprietor, business salesman or buyer
Clerical	business (clerical), computer programmer
Elementary and secondary education	school principal or superintendent, teacher (elementary), teacher (secondary)
Helping professions	clergyman (minister or priest), clergy (other religious), clinical psychologist, school counselor, social worker
Professions	architect, dentist, engineer, lawyer, physician, veterinarian
Peace keeping and agriculture[a]	farmer or rancher, law enforcement officer, military service
Skilled trades[a]	skilled trades
Other[a]	college teacher, conservationist or forester, foreign service worker, interpreter, scientific researcher, statistician, other occupation
Homemaker	housewife
Undecided	undecided

[a]In reporting the data, peace keeping and agriculture and skilled trades are usually included in the "other" category, since few freshmen chose these responses. They are reported separately only when the response patterns show differences between the groups being compared on choice of that occupation.

Recoding of Occupational Outcomes (1980)

Occupational Category	Survey or Telephone Interview[a] Responses
Allied health	Survey: dietician or home economist, lab technician or hygienist, nurse, optometrist, pharmacist, therapist (physical, occupational, speech) Interview: dietician, registered nurse, therapist, clinical laboratory technologist or technician, dental laboratory technician, health technologist or technician (not elsewhere classified)
Arts	Survey: actor or entertainer, artist, interior decorator, musician, writer or journalist Interview: designer, editor or reporter
Business:	Survey: accountant or actuary, business executive, business owner or proprietor, business salesman or buyer Interview: accountant; computer systems analyst; public relations or publicity writer; restaurant, cafeteria, or bar manager; sales manager or department head (retail trade); advertising agent or salesman; insurance agent, broker, or underwriter; sales representative (manufacturing industry); manager or administrator (not elsewhere classified)
Clerical	Survey: business (clerical), computer programmer Interview: office manager, sales clerk (retail trade), computer or peripheral equipment operator, key puch operator, medical secretary, secretary, stock clerk or storekeeper, telephone operator, miscellaneous clerical workers
Elementary and secondary education	Survey: school principal or superintendent, teacher (elementary), teacher (secondary) Interview: elementary school teacher, secondary school teacher, teacher (other than college or university, not elsewhere classified)

Recoding of Occupational Outcomes (1980): continued

Occupational Category	Survey or Telephone Interview[a] Responses
Helping professions	Survey: clergyman (minister or priest), clergy (other religious), clinical psychologist, school counselor, social worker Interview: clergyman, psychologist, social worker, vocational or educational counselor
Professions	Survey: architect, dentist, engineer, lawyer, physician, veterinarian Interview: architect, civil engineer, electrical engineer, mechanical engineer, lawyer, physician
Other professional	Survey: college teacher, conservationist or forester, foreign service worker, interpreter, scientific researcher, statistician, other Interview: librarian, geologist, urban or regional planner, college or university teacher, health administrator, official or administrator (public administration)
Technicians and craftsmen	Survey: skilled trades, semi-skilled worker Interview: computer specialist (not elsewhere classified); engineer (not elsewhere classified); chemical technician; draftsman; electrical or electronic engineering technician; public administration inspector; lodge, society, or union official; carpenter; printing trade apprentice; foreman; locomotive engineer; air conditioning, heating, or refrigeration mechanic or repairman; plumber or pipe fitter; plumber or pipe fitter apprentice; telephone installer or repairman; asbestos or insulation worker; welder or flame-cutter; miscellaneous mechanics or repairmen
Operatives and laborers	Survey: laborer (unskilled) Interview: assembler, machine operative, laborer
Other	Survey: farmer or rancher, law enforcement officer, military service, other occupation Interview: athlete or kindred worker, teacher aide, bartender, sheriff or bailiff, other

Recoding of Occupational Outcomes (1980): continued

Occupational Category	Survey or Telephone Interview[a] Responses
Housewife, student, or unemployed	Survey: housewife, unemployed Interview: housewife, student, unemployed

[a]Telephone interview responses were coded using the Census Bureau's Occupational Classification System.

Table 33

Results of the Factor Analysis of High School Behaviors[a]

Involvement (28.5)[b]		Rebelliousness (18.5)		Studiousness (9.4)		Activism (7.4)		Passivity (6.1)		Affiliative (5.7)	
Read about civil rights and liberties	.67	Came late to class	.67	Studied in the library	.74	Demonstrated for a change in some racial or ethnic policy	.73	Took sleeping pills	.80	Asked a teacher for advice after class	.65
Discussed politics	.60	Stayed up all night	.52	Checked out a book or journal from the school library	.60	Demonstrated for a change in some military policy	.54	Took a tranquilizing pill	.49	Tutored another student	.52
Read about collegiate rights and responsibilities of students	.47	Overslept and missed a class or appointment	.51	Visited an art gallery or museum	.40	Demonstrated for a change in some administrative policy of my high school	.42			Discussed my future with my parents	.27
Did extra (unassigned) reading for a course	.43	Argued with a teacher in class	.49			Worked in a local, state, or national political campaign	.24				
Typed a homework assignment	.40	Failed to complete a homework assignment on time	.46								
Discussed religion	.34	Smoked cigarettes	.33								
Worked in a school political campaign	.27	Drank beer	.29								
Read poetry not connected with a course	.27										

[a]The question was: "Below is a list of things that students sometimes do. Indicate which of these things you did during the past year in school. If you engaged in an activity frequently, mark F. If you engaged in an activity one or more times, but not frequently, mark O (occasionally). Mark N (not at all) if you have not performed the activity during the past year."

[b]Figures in parentheses refer to the percent of variance attributable to this factor.

Table 34

Results of the Factor Analysis of Freshman Self-Ratings[a]

Social Self-Esteem (48.4)[b]		Academic Self-Esteem (18.8)		Empathic-Expressive (10.4)		Realism (9.5)		Conviction (7.9)		Touchiness (4.9)	
Popularity	.75	Academic ability	.78	Originality	.64	Mechanical ability	.62	Political liberalism	.51	Sensitivity to criticism	.42
Popularity with the opposite sex	.70	Intellectual self-confidence	.60	Understanding of others	.60	Political conservatism	.39	Stubbornness	.46	Defensiveness	.32
Social self-confidence	.67	Mathematical ability	.55	Writing ability	.48	Athletic ability	.37				
Cheerfulness	.58			Artistic ability	.33						
Leadership ability	.58										
Drive to achieve	.49										
Public speaking ability	.47										

[a]The question was: "Rate yourself on each of the following traits as you really think you are when compared with the average student of your own age. We want the most accurate estimate of how you see yourself." Responses were coded: highest 10 percent, above average, average, below average, and lowest 10 percent.

[b]Figures in parentheses refer to the percent of variance attributable to the factor.

Table 35

Results of the Factor Analysis of Reasons for Going to College[a]

Extrinsic (58.2)[b]		Self-Improvement (23.1)		Exposure (11.7)		Default (7.0)	
To be able to make more money	.84	To gain a general education and appreciation of ideas	.65	To meet new and interesting people	.81	There was nothing better to do	.41
To be able to get a better job	.75	To improve my reading and study skills	.59	To learn more about things that interest me	.44		
My parents wanted me to go	.23	To make me a more cultured person	.59				
		To be able to contribute more to my community	.42				
		To prepare myself for graduate or professional school	.22				

[a]The question was: "In deciding to go to college, how important to you was each of the following reasons?" Responses were coded: very important, somewhat important, not important.

[b]Figures in parentheses refer to the percent of variance attributable to this factor.

Table 36

Results of the Factor Analysis of Reasons for Choosing this College[a]

Academic (45.3)[b]		Social (29.7)		Practical (13.5)		Only Option (11.5)	
Because of the special educational programs offered	.92	Someone who had been here before advised me to go	.44	I wanted to live at home	.44	My guidance counselor advised me to go	.48
This college has a very good academic reputation	.38	Most of my friends are going to this college	.42	Because of low tuition	.43	I was not accepted anywhere else	.45
		My relatives wanted me to come here	.39				

[a]The question was: "Below are some of the reasons that might have influenced your decision to attend this particular college. How important was each reason in deciding to come here?" Responses were coded: very important, somewhat important, not important.

[b]Figures in parentheses refer to the percent of variance attributable to this factor.

Table 37

Results of the Factor Analysis of Freshman Life Goals[a]

Status (41.9)[b]		Civic Involvement (22.6)		Aesthetic (10.1)		Quality of Life (8.4)		Altruistic (6.9)		Family (5.6)	
Obtaining recognition from my colleagues for contributions in my special field	.68	Influencing the political structure	.81	Writing original works (poems, novels, short stories, etc.)	.70	Having an active social life	.89	Helping others who are in difficulty	.69	Raising a family	.83
Becoming an expert in finance and commerce	.56	Influencing social values	.64	Creating artistic works (painting, sculpture, decorating, etc.)	.60	Having friends with different backgrounds and interests from mine	.52	Participating in an organization like the Peace Corps or Vista	.52	Getting married within the next five years	.56
Becoming an authority in my field	.54	Keeping up to date with political affairs	.57	Becoming accomplished in one of the performing arts	.41	Being very well-off financially	.47				
Being successful in a business of my own	.53	Participating in a community action program	.53	Developing a meaningful philosophy of life	.34						
Making a theoretical contribution to science	.51	Becoming involved in programs to clean up the environment	.35								
Becoming a community leader	.49										
Having administrative responsibility for the work of others	.48										

[a]The question was: "Indicate the importance to you personally of each of the following:" Responses were coded: essential, very important, somewhat important, not important. The only item that did not load was "never being obligated to people."

[b]Figures in parentheses refer to the percent of variance attributable to this factor.

Independent Variables Used in the Regressions

1. Student Personal Characteristics (8 variables)

   Source of Data: 1971 Survey

Question Number	Variable
1	Sex (1=male, 2=female)
3	Age (1=16 or younger...8=26 or older)
12	Father's education (1=grammer school or less...6=postgraduate degree)
12	Mother's education (1=grammer school or less...6=postgraduate degree)
15	Family income (1=less than $4,000...12= $40,000 or more)
17	Raised as a Catholic (1=no, 2=yes)
17	Raised as a Protestant (1=no, 2=yes)
home address	Home environment (1=rural, 2=urban)

2. High School Background (15 variables)

   Source of Data: 1971 Survey

Question Number	Variable
4	Average grade in high school (1=D...8=A, A+)
5	Rank in graduating class (1=4th quarter... 4=top quarter)
9	Achievements (1=no, 2=yes) 1. Won a varsity letter (sports) 2. Had poems, stories, essays, or articles published 3. Was elected president of one or more student organizations 4. Was a member of a scholastic honor society
26	Perceived need for tutoring or remedial assistance (1=no, 2=yes) 1. English 2. Mathematics 3. Science

Independent Variables Used in the Regressions: continued

Question Number	Variable
19	High school behavior factor scores
	1. Involvement
	2. Rebelliousness
	3. Studiousness
	4. Activism
	5. Passivity
	6. Affiliative

3. Affective Measures (20/21 variables)

Source of Data: 1971 Survey

Question Number	Variable
13	Concern about ability to finance college education (1=none...3=major concern)
18	Reasons for going to college factor scores
	1. Extrinsic
	2. Self-Improvement
	3. Exposure
	4. Default
22	Self-ratings factor scores
	1. Social self-esteem
	2. Academic self-esteem
	3. Empathic-expressive
	4. Realism
	5. Conviction
	6. Touchiness
25	College expectations (1=no chance...4=very good chance)
	1. Get married while in college
	2. Make at least a "B" average
	3. Be satisfied with your college

Independent Variables Used in the Regressions: continued

Question Number	Variable
28	Life goals factor scores 1. Status 2. Civic involvement 3. Aesthetic 4. Quality of life 5. Altruistic 6. Family
10[a]	Degree aspirations (1=unknown, none, or other...5=law, medical, doctorate)

4. Financial Plans for Meeting College Expenses (7 variables)
   Source of Data: 1971 Survey, Question 14 (1=no, 2=yes)

   1. Major resource: part-time or summer work or savings from full-time employment
   2. Major resource: parental or family aid or gifts
   3. Minor resource: parental or family aid or gifts
   4. Major resource: scholarships or grants
   5. Minor resource: scholarships or grants
   6. Major resource: NDEA loans, federally insured loans, college loans, or other repayable loans
   7. Minor resource: NDEA loans, federally insured loans, college loans, or other repayable loans

5. College Environmental Characteristics (9 variables)

Data Source	Variable
HEGIS[b]	University (1=no, 2=yes)
HEGIS	Two-year college (1=no, 2=yes)
HEGIS	Control (1=public, 2=private)
CIRP[c]	Located in East (1=no, 2=yes)
CIRP	Located in Midwest (1=no, 2=yes)
CIRP	Located in West (1=no, 2=yes)

Independent Variables Used in the Regressions: continued

Data Source	Variable
HEGIS	Selectivity (1=less than 775...9=1300 or above)
HEGIS	Enrollment (1=less than 250...9=20,000 and above)
1971 Survey, question 11	Distance from home to college (1=5 miles or less...6=more than 500 miles

[a]Degree aspirations were used as an independent variable only in the regression using level of educational attainment as the dependent variable.

[b]Some of the institutional variables were abstracted from the Higher Education General Information Survey (HEGIS) for 1973.

[c]The Cooperative Institutional Research Program (CIRP) classifies colleges by region as described earlier in this Appendix.

References

AAAS Project on Native Americans in Science and Office of Opportunities in Science. Conference of science and mathematics faculty and/or administrators of predominantly Native American colleges: Final report and summary of proceedings. Washington: AAAS, 1977.

Adler, L. On beoming a city Indian.... West Los Angeles Independent, Nov. 15, 1979, 1.

All Indian Pueblo Council. 19 Pueblo dropout study. Albuquerque: All Indian Pueblo Council, circa 1978.

Almquist, E. M. and Wehrle-Einhorn, J. L. The doubly disadvantaged: minority women in the labor force. In A. H. Stromberg and S. Harkess (Eds.) Women working: theories and facts in perspective. Palo Alto: Mayfield, 1978, 63-88.

American Indian Policy Review Commission. Final report (Vol. 1). Washington: U.S. Government Printing Office, 1977.

Antell, W. A definition of the critical and unique problems and concerns in the education of American Indians and the identification of alternative solutions to these problems. Paper presented at College Entrance Examination Board Minority Seminar, Denver, 1977.

Artichoker, J. and Palmer, N. M. The Sioux Indian goes to college. South Dakota, 1959. (Eric Document ED131 956)

Astin, A. W. Preventing students from dropping out. San Francisco: Jossey-Bass, 1975.

Astin, A. W. Determining racial enrollments in postsecondary education. Paper presented at Howard University, Washington, D.C., 1977.

Astin, A. W. Four critical years. San Francisco: Jossey-Bass, 1977b.

Astin, A. W., Astin, H. S., Green, K. C., Kent, L., McNamara, P., and Williams, M. R. Minorities in American higher education. San Francisco: Jossey-Bass, 1982.

Astin, A. W., King, M. R., and Richardson, G. T. The American freshman: national norms for fall 1980. Los Angeles: Graduate School of Education, University of California, 1981.

Astin, A. W. and Panos, R. J. The educational and vocational development of college students. Washington: American Council on Education, 1969.

Astin, H. S. and Cross, P. H. Student financial aid and persistence in college. Los Angeles: Higher Education Research Institute, 1979.

Astin, H. S., El-Khawas, E. H., and Bisconti, A. S. Beyond the college years. Washington: American Council on Education and Council on Human Resources, 1973.

Astin, H. S., Harway, M., and McNamara, P. P. Sex discrimination in education: access to postsecondary education. Final report to the Education Division, National Center for Education Statistics, 1976. (Eric Document ED132 967)

Bass, W. P. An analysis of academic achievement of Indian high school students in federal and public schools. Albuquerque: Southwestern Cooperative Educational Laboratory, 1971.

Career development opportunities for Native Americans. Washington: Bureau of Indian Affairs, U.S. Department of the Interior, undated.

Chavers, D. The feasibility of an Indian university at Bacone College. Report to the Board of Trustees, Bacone College, Muskogee, OK, 1979.

Chavers, D. Letter to Harrison Welford, Department of Education, Transition Implementation Team, dated Dec. 20, 1979b.

Chavers, D. Letter to Paul Mertins, Branch Chief, Higher Education General Information Survey, National Center for Education Statistics, dated Aug. 29, 1979c.

Chief executive. Time, June 15, 1981, 73.

Cope, R. and Hannah, H. Revolving college doors. New York: John Wiley, 1975.

Cross, K. P. Beyond the open door. San Francisco: Jossey-Bass, 1976.

Dearman, N. B. and Plisko, V. W. The condition of education: 1980 edition. Washington: U.S. Government Printing Office, 1980.

Dorris, M. A. The grass still grows, the rivers still flow: contemporary Native Americans. Daedalus, 1981, 110 (2), 43-69.

Dumont, R. N., Jr. and Wax, M. L. Cherokee school society and the intercultural classroom. In J. I. Roberts and S. K. Akinsanya (Eds) Schooling in the cultural context. New York: David McKay, 1976, 205-216.

Eggan, D. Instruction and affect in Hopi cultural continuity. In J. I. Roberts and S. K. Akinsanya (Eds) Schooling in the cultural context. New York: David McKay, 1976, 140-157.

Evaluation report on Indian college student counseling program, University of New Mexico, New Mexico State University. (Research and Evaluation Report Series No. 20-B). Albuquerque: Indian Education Resources Center, BIA, 1976.

Falling, L., former Chief, Division of Postsecondary Education, Bureau of Indian Affairs, U.S. Department of the Interior. Personal communication in telephone conversation, Aug. 15, 1979.

Fetter, W. B. Withdrawal from institutions of higher education. Washington: U.S. Government Printing Office, 1977.

Fuchs, E. and Havighurst, R. J. To live on this earth. New York: Doubleday, 1972.

Gabriel, B. Running to nowhere. Sports Illustrated, Nov. 26, 1979, 46-48+.

Green, R. Math avoidance: a barrier to American Indian science education and science careers. In R. Green, J. W. Brown, and R. Long Report and recommendations: conference on mathematics in American Indian education. Washington: AAAS, 1978, Appendix B.

Green, R. Native American women. Signs: Journal of Women in Culture and Society, 1980, 6, 248-267.

Green, R., Brown, J. W., and Long, R. Report and recommendations: conference on mathematics in American Indian education. Washington: AAAS, 1978.

Greenbaum, P., Becenti, A., Cole, M. M., and Wishkeno, C. The number of and need for Native Americans in the designated professions. Paper prepared under contract for the Office of Indian Education, U.S. Department of Education. Lawrence, KS: Native American Research Associates, 1980.

Indian Education Resources Center. Higher education evaluation: student characteristics and opinions. (Research and Evaluation Report Series No. 20-A). Albuquerque: Author, BIA, 1973. (Eric Document ED076 302)

Indian problems--an interview with Dr. Annie D. Wauneka. In National Commission on the Observance of International Women's Year "...To form a more perfect union...": justice for American women. Washington: U.S. Government Printing Office, 1976, 74-77.

Jeanotte, L. A study of the contributing factors relating to why American Indian students drop out or graduate from educational programs at the University of North Dakota. Unpublished doctoral dissertation, University of North Dakota, 1982.

Johnson, D. W. Student-student interaction: the neglected variable in education. Educational Researcher, 1981, 10 (1), 5-10.

Kidwell, C. S. The status of Native American women in higher education. Paper prepared for the Women's Research Program, National Institute of Education, 1976. Conference on the Educational and Occupational Needs of American Indian Women. Washington: U.S. GPO, 1980.

Kohout, K. and Kleinfeld, J. Alaskan natives in higher education. Fairbanks: Institute of Social, Economic, and Government Research, University of Alaska, 1974.

Lawrence, D. L. A study of the variables related to satisfaction of North Dakota American Indian students in higher education. Unpublished doctoral dissertation, University of North Dakota, 1974.

Leading Fighter, E. Statistics concerning Indian education: fiscal year 1979. Washington: U.S. Government Printing Office, 1981.

Lee, D. A chief for troubled times. PSA Magazine, 1981, 16 (7), 58-62+.

Locke, P. Indian postsecondary education and the law. Paper presented at Flaming Rainbow University Without Walls, Tahlequah, OK, 1978. (Eric Document ED154 953)

McDonald, A. Why do Indian students drop out of college? In T. Thompson (Ed) The schooling of Native America. Washington: American Association of Colleges for Teacher Education, 1978, 73-85.

McNamara, P. P. American Indians in higher education: a summary of findings and recommendations. Los Angeles: Higher Education Research Institute, forthcoming.

National Board on Graduate Education. Minority group participation in graduate education. Washington: National Academy of Sciences, 1976.

Nelson, B. 'Spanish-origin' residents up 61%, Blacks 17% in U.S. Los Angeles Times, Feb. 24, 1981, 1.

Noriega, J., former higher education counselor, Gila River Indian Community. Personal communication in telephone conversation in Nov. 1980 and in letter dated Nov. 20, 1980.

Norris, R. The effects of selected cultural variables influencing the college performance of Native American Indians. Unpublished doctoral dissertation, University of New Mexico, 1971.

Office of Indian Education, U.S. Office of Education. The Indian Education Act of 1972: report of progress for the third year of the program. Washington: U.S. Government Printing Office, 1976.

Pantages, T. J. and Creedon, C. F. Studies of college attrition: 1950-1975. Review of Educational Research, 1978, 48 (1), 49-101.

Parsons, C. In Arizona Indian parents speak out. Christian Science Monitor, Dec. 1, 1975, 40.

Patton, W. and Edington, E. D. Factors related to the persistence of Indian students at college level. Journal of American Indian Education, 1973, 12 (3), 19-23.

Picotte, A. Goes in Center. An analysis of statements made by Indian college students concerning success or failure in four-year colleges in Oregon. Unpublished doctoral dissertation, University of Oregon, 1974.

Quimby, R. J. American Indian students in Arizona colleges: a discriminant analysis of select variables that contribute to success and failure. Unpublished doctoral dissertation, Arizona State University, 1963.

Raines, H. American Indians struggling for power and identity. New York Times Magazine, Feb. 11, 1979, 21-24+.

Review of the literature on educational needs and problems of American Indians and Alaskan Natives: 1971 to 1976. (Research and Evaluation Report Series No. 64:00). Albuquerque: BIA, 1977. (Eric Document ED162 772)

Ross, K. A. Cultural factors in the success and failure of American Indian students in higher education: a case study for the Yakima Indian nation. Unpublished doctoral dissertation, Claremont Graduate School, 1979.

Sorkin, A. L. American Indians and federal aid. Washington: Brookings Institute, 1971.

Sorkin, A. L. The urban American Indian. Lexington, MA: Lexington Books, 1978.

Special Subcommittee on Indian Education, United States Senate Committee on Labor and Public Welfare. Indian education: a national tragedy--a national challenge. Washington: U.S. Government Printing Office, 1969.

Stanbury, W. T. Success and failure: Indians in urban society. Vancouver: University of British Columbia Press, 1975.

Standing Elk, D., Bureau scholarship officer, Office of Indian Education Programs, BIA. Personal communication in interview in Washington, Feb. 5, 1981.

Staff of the Office of Research. The American freshman: national norms for fall 1971. (ACE Research Reports 6 (6)). Washington: American Council on Education, 1971.

Task Force Eight on Urban and Rural Indians. Report on urban and rural non-reservation Indians. Final report to the American Indian Policy Review Commission. Washington: U.S. Government Printing Office, 1976.

Trillin, C. The symbol is a symbol. New Yorker, May 7, 1979, 132-140.

U.S. Bureau of the Census, Department of Commerce. American Indians. Subject report series. Washington: U.S. Government Printing Office, 1973.

U.S. Bureau of the Census, Department of Commerce. Age, sex, race, and Spanish origin of the population by regions, divisions, and states: 1980. (PC80-S1-1). Washington: Author, 1981.

U.S. Commission on Civil Rights. Social indicators of equality for minorities and women. Washington: U.S. Government Printing Office, 1978.

U.S. General Accounting Office. Coordination needed in the award of financial aid to Indian students. (MWD-76-14). Washington: Author, 1975.

U.S. General Accounting Office. Concerted effort needed to improve Indian education. (CED-77-24). Washington: Author, 1977.

U.S. General Accounting Office. The Bureau of Indian Affairs should do more to help educate Indian students. (HRD-77-155). Washington: Author, 1977b.

Wax, R. H. Oglala Sioux dropouts and their problems with educators. In J. I. Roberts and S. K. Akinsanya (Eds) Schooling in the cultural context. New York: David McKay, 1976, 216-226.

Webster, D. W., Sedlacek, W. E., and Miyares, J. A. Comparison of problems perceived by minority and white students. (Research Report No. 14-77). College Park: Counseling Center, University of Maryland, 1977.

Witt, S. H. Pressure points in growing up Indian. Perspectives: The Civil Rights Quarterly, 1980, 12 (1), 24-31.