

A RETENTION AND ATTRITION STUDY OF HORIZONTAL
TRANSFER, VERTICAL TRANSFER, AND NATIVE
STUDENTS AT A SELECTED UNIVERSITY

By

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PREFACE

This study compares the voluntary nonreturning and returning horizontal transfer, vertical transfer, and native students on thirteen background characteristics, forty-eight reasons for leaving college, and forty-nine college services and environment characteristics at State University. The results of these findings formulate a conceptual conic model of student retention based upon the principles of Tinto's model. The model consists of three major factors (faculty-student interaction, student peer-group interaction, and financial aid services). Each of these major factors is achieved through a set of prescribed variables which provide for individual and group differences. If there remains a proper balance between the faculty-student interaction, student peer-group interaction, and financial aid services, the student will persist.

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CHAPTER I

THE RESEARCH PROBLEM

Introduction

Higher education in the 1980's faces many problems. One of the major problems is declining enrollments. The Carnegie Council on Policy Studies in Higher Education¹ estimates an undergraduate enrollment drop of 5 to 15 percent in the next twenty years. The report points out that pessimists fear enrollments may be slashed 40 to 50 percent in the years ahead. With a decline in the number of eighteen-year-olds, higher education must look elsewhere to maintain its present level of enrollment. Four-year institutions of higher education have two possibilities to maintain enrollments. The first possibility is to recruit the transfer student and the second possibility is to reduce their student dropout rate.

In 1977, approximately 1,000,000 students transferred from one institution of higher education to another.² However, according to Monroe³

¹Malcolm G. Scully, "Carnegie Panel Says Enrollment Declines Will Create a 'New Academic Revolution,'" The Chronicle of Higher Education, Vol. 19, No. 19 (January 29, 1980), pp. 1, 9.

²Richard Rinehart, "Assessing Successful Articulation of Transfer Students," New Directions for Community Colleges, Vol. 5, No. 2 (Summer, 1977), p. 37.

³Charles R. Monroe, Profile of the Community College (San Francisco: Jossey-Bass Inc., 1972), p. 207.

and Summerskill,⁴ national student attrition rates in higher educational institutions have held relatively constant at about 50 percent through the first half of this century and, according to a study by Astin,⁵ appear not to have changed markedly in the last decade. Between 40 and 50 percent of the entering students earn baccalaureate degrees in four years, 20 to 30 percent graduate later, and the remaining 30 to 40 percent never earn degrees.⁶ College attrition rates vary from college to college, time of withdrawal, and the stated reasons for dropping out.⁷

Each fall term at State University there is a large entering class of horizontal transfers, vertical transfers, and freshmen students. However, the registration of returning students is growing smaller each fall term. From the fall of 1978 to the winter of 1979 the entering freshmen and transfers increased 34 percent. The attrition rates of returning transfer and native students for the same period were 34 percent and 33 percent respectively.

The reader of this study need not assume that dropping out is detrimental to all students. There are cases in which the student's personal development is clearly enhanced by leaving college. What this study does assume is that large numbers of administrators, faculty, policy-makers, and students have a legitimate interest in understanding

⁴John Summerskill, "Dropouts from College," in Nevitt Sanford's (ed.) The American College (New York: John Wiley, 1962), pp. 630-631.

⁵Alexander W. Astin, Preventing Students From Dropping Out (San Francisco: Jossey-Bass Inc., 1975), pp. 11-12.

⁶Robert G. Cope and William Hannah, Revolving College Doors-- The Causes and Consequences of Dropping Out, Stopping Out, and Transferring (New York: Wiley, 1975), p. 331.

⁷Ibid., p. 39.

the background characteristics and the personal and environmental circumstances that lead a student to drop out of college and that they wish to alter these factors to maximize the student's chances of finishing.

Statement of the Problem and Purpose of the Study

The problem is the increasing attrition rate of returning transfer and native students at State University. The purpose of this study is to answer the following questions:

1. What are the characteristics of nonreturning horizontal transfers, nonreturning vertical transfers, nonreturning native students, returning horizontal transfers, returning vertical transfers, and returning native students at State University?

2. What are the reasons why horizontal transfers, vertical transfers, and native students voluntarily drop out of State University?

3. How do nonreturning horizontal transfers, nonreturning vertical transfers, nonreturning native students, returning horizontal transfers, returning vertical transfers, and returning native students view the college services and environment at State University?

In this study, if nonreturning horizontal transfers, nonreturning vertical transfers, and nonreturning native students differ in their reasons for dropping out, or if nonreturning vertical transfers, nonreturning horizontal transfers, nonreturning native students, returning vertical transfers, returning horizontal transfers, and returning native students differ in their background characteristics, and/or their satisfaction with college services and/or their satisfaction with the college environment, then the study:

1. Will provide college administrators with a basis for establishing or improving academic programs, admission and registration

policies, counseling and advising services, career planning services, orientation programs, parking facilities, job placement services, food and housing services, student health services, financial aid, and other services that will better serve the needs of each group.

2. Will help identify the problems that each type of student may frequently encounter in the areas of adjustment to a new environment.

3. Will provide students with a sound basis for selecting the institution and refinement of curriculum and career plans.

4. Will provide State University with a partial model of student flow. Such a model can be useful both for documenting the numbers and characteristics of these students entering and leaving the institution and also for providing a profile of students attending the institution. As the institution continues to obtain objective data concerning its students, there is increased ability to make meaningful comparisons among the groups over time. Thus, as institutional planners and managers have better knowledge about their students, they are able to make better, more informed decisions about student needs and plans.

5. Will provide educational policy-makers in state government with a partial retention and attrition model flow for State University to aid in making decisions pertaining to matters about tuition, facilities construction, financial aid, and coordination and evaluation of institutions within a system.

6. Will provide a better understanding of the degree of each group's integration into the academic and social system of the college, thus providing a more meaningful understanding of Tinto's (1975) conceptual model of voluntary withdrawal.

7. Will help State University to support continued analysis of student retention problems and to develop policies which will increase retention rates.

Assuming all this will directly assist the individual student in his/her personal, intellectual, and social development, the institution will be in a stronger position to face the demands of the future. With whatever yardstick one uses, if an institution of higher education is not special, personable, marketable, and academically sound, students will neither enroll nor persist in significant numbers.

Definitions of Terms

For the purpose of this study, the following classifications and definitions were used:

State University is defined as a rural public southeastern undergraduate institution with an enrollment of approximately 4600 students. This university offers programs of study leading to degrees in more than 65 specialized fields. These are offered through the colleges of agriculture, business administration, education, engineering and engineering technology, home economics, arts and sciences, and nursing.

Voluntary dropout is defined as a student no longer enrolled at State University who neither graduated nor was dismissed for academic or disciplinary reasons.

Nonreturning vertical transfer student is defined as a student enrolled at State University for any or all of the fall, 1978, through winter, 1980, quarters who had previously attended a community or junior college, who had earned at least 25 quarter credit hours from State University, who was not enrolled at State University the spring quarter 1980, and who was a voluntary dropout from State University.

Nonreturning horizontal transfer student is defined as a student enrolled at State University for any or all of the fall, 1978, through winter, 1980, quarters who had previously attended a four-year institution of higher education, who had earned at least 25 quarter credit hours at State University, who was not enrolled at State University for the spring quarter 1980, and who was a voluntary dropout from State University.

Nonreturning native student is defined as a student enrolled at State University for any or all of the fall, 1978, through the winter, 1980, quarters who did not previously attend a community or junior or four-year college or technical institution, who had earned at least 25 quarter credit hours, who was not enrolled at State University for the spring quarter 1980, and who was a voluntary dropout from State University.

Returning native student is defined as a student enrolled at State University for the spring 1980 quarter who has earned at least 25 quarter credit hours and who had not previously attended a community or junior or technical or four-year college.

Returning horizontal transfer student is defined as a student enrolled at State University for the spring 1980 quarter who has previously been enrolled at a four-year institution of higher education and who has earned at least 25 quarter credit hours.

Returning vertical transfer student is defined as a student enrolled at State University for the spring 1980 quarter who has previously been enrolled at a community or junior college and who has earned at least 25 quarter credit hours.

Classification is defined as one of the following:

Freshman	0 - 44	quarter hours passed
Sophomore	45 - 89	quarter hours passed
Junior	90 - 134	quarter hours passed
Senior	135 - up	quarter hours passed

College Major and Occupational Choice is defined by the following areas: undecided; agriculture; architecture; biological sciences; business and commerce; communications; computer and information sciences; education; engineering, fine and applied arts; foreign languages; health professions; home economics; letters (humanities); mathematics; physical science; community service; social sciences; trade, industrial and technical; and general studies.

Cumulative overall grade point average (GPA) is defined as one of the following groups: 1.00 or less; 1.01 - 1.50; 1.51 - 2.00; 2.01 - 2.50; 2.51 - 3.00; 3.01 - 3.50; or 3.51 - 4.00 on a four point scale.

CHAPTER II

REVIEW OF RELATED LITERATURE

In order to bring the present study into better focus, it was necessary to do a review of other scholarly works that explored (1) the problems faced by transfer students, (2) the characteristics of horizontal and vertical transfer and four-year native students, and (3) the attrition studies on college students. Such an examination would also bring to light those areas where little or no research had been done.

Problems Faced by Transfer Students

A review of the literature well defines the problems faced by a transfer student upon transferring. According to Wattenbarger,¹ in April, 1974, Sandeen and Goodale of the University of Florida completed a report for the National Association of Student Personnel Administrators in which they summarized 18 problems that affect the transfer student. The categories which Sandeen and Goodale used are outlined as follows: (1) attitudes toward transfer students, (2) admissions procedures, (3) curricular integration, (4) orientation programs, (5) registration process, (6) academic advising, (7) student financial aid, (8) housing, (9) student activities, (10) participation on publications,

¹James Wattenbarger, "Problems of Articulation," Toward Solving Transfer Problems in Southern Universities and Colleges (Report of a Workshop, Atlanta, Georgia: Southern Regional Educational Board, 1975), pp. 45-46 (ERIC Document ED 107 195).

and (11) career planning and placement. Essentially, all of the above problem areas are centered around ineffective articulation. Stansbury² cited the following hindrances in articulation: (1) poor communication, (2) lack of flexibility between the two institutions on acceptance of grades and credits, (3) refusal of senior institutions to accept occupational-vocational type courses, (4) lower division courses at the community colleges being upper division at the senior institutions, and (5) departmental refusal to accept courses as equivalent to theirs. In fact, both Medford³ and Sistrunk⁴ found that articulation problems were largely people problems that could be solved in part through better communication and better counseling.

Wattenbarger⁵ gave the following eight recommendations for solving transfer articulation problems:

1. Each state should establish sound and well conceived articulation policies to guide the institutions of that state in developing their own procedures.
2. There should be continuous attention of administrators and faculty to active communication and dialog between institutions.

²Donn B. Stansbury et al., "Fact versus Fiction (Articulation--Two-Year - Four-Year Colleges)," College and University, Vol. 47 (Summer, 1972), p. 242.

³Ray L. Medford, "Community College Transfer Student Perceptions of Factors Contributing to Their Lack of Success in the State University System of Florida" (unpublished doctoral dissertation, University of Florida, 1974), p. 47.

⁴Albert W. Sistrunk, "A Study of Transfer Problems Among Four-Year and Two-Year Universities in Florida" (unpublished doctoral dissertation, University of Florida, 1974), p. 52.

⁵James L. Wattenbarger, "College Transfer Students: New Faces, Old Problems," College Board Review, Vol. 100 (Summer, 1976), p. 40.

3. There should be an articulation counseling office in each university, four-year college, and community college.
4. There should be improved academic counseling at all institutions of higher education.
5. There should be better communication with new transfer students when they arrive on campus.
6. The energies and resources of university recruitment should be used more effectively by having the major recruitment thrust be acquainting the public to available programs and curricula.
7. Private colleges should inform the community colleges more completely and accurately about their junior-level admissions policies and procedures.
8. There are no permanent solutions to these above problems; thus their solutions require constant and continued attention.

The key to the solution of any articulation problem is formal and informal, external and internal communications among administrators and faculties of the institutions in the state. Presently, there is no articulation agreement among the four-year institutions in the state where State University is located, but there is an articulation agreement between the public community colleges and the universities.

Analyzing the students' satisfaction with their college environment and services may provide insight into which college services and characteristics have failed to contribute to the solution of transfer articulation problems. However, before one can analyze the students' satisfaction with the college environment, a thorough examination of student characteristics is necessary.

Characteristics of Horizontal Transfer Students

Hite⁶ examined problems of students who transferred to the University of Florida from four-year, degree-granting colleges and universities. Hite found that horizontal transfer students were more likely to be male, white, single, and relatively young. They had fairly high grade point averages on previous work and were from families with annual incomes over \$15,000. The problems identified by these students were largely procedural problems related to orientation, registration, and academic bureaucracy. They universally reported receiving poor academic counseling.

According to Peng and Bailey,⁷ horizontal transfer students were more likely to be white, female, of high socioeconomic status, participants of academic high school programs, of high aspirations, and of high college achievement but lower aptitude test scores. Holstrom⁸ and Van Alstyne⁹ have shown that the overall transfer rates are significantly higher for students from private institutions. Specifically, about 19 percent of the private college student population over a period of two

⁶Carl Hite, "A Study of Problems Encountered by Students Transferring from Baccalaureate Degree-Granting Institutions with Implications for the University of Florida" (unpublished doctoral dissertation, University of Florida, 1975), p. 32.

⁷Samuel S. Peng and J. P. Bailey, Jr., Transfer Students in Institutions of Higher Education, National Longitudinal Study of High School Seniors (Washington, D.C.: U.S. Government Printing Office, 1977), p. 8.

⁸Engin Inel Holstrom and Ann Stouffer Bisconti, Transfers from Junior to Senior Colleges (Washington, D.C.: Association Transfer Group, 1974), p. 24 (ERIC Document ED 093 422).

⁹Carol Van Alstyne et al., Comparison of Characteristics of Transfer and Nontransfer College Students (Washington, D.C.: American Council on Education, Policy Analysis Service, 1973), p. 2 (ERIC Document ED 085 028).

years transferred to other four-year institutions compared with about 15 percent of public college students.¹⁰ About 61 percent of the horizontal transfer students from private institutions moved to a public institution, whereas about 26 percent of the horizontal transfers from public institutions moved to a private institution.¹¹ The differences among institutions of varying sizes showed a consistent pattern--the larger the institution, the smaller the horizontal transfer rate out to other institutions.¹² According to Kamens,¹³ a larger institution exerts greater holding power over students by providing more diverse programs and social activities. However, this study did not deal with students transferring within a complex institution.

Why do the horizontal transfer students select another college? According to Peng and Bailey,¹⁴ the major reasons were (1) the search for better career opportunities and better intellectual and personal development and (2) their interests changed and the former school did not offer the courses they wanted. This second reason is also consistent with Hite's¹⁵ findings. Peng and Bailey¹⁶ listed the following other

¹⁰Peng and Bailey, Transfer Students in Institutions of Higher Education, National Longitudinal Study for High School Seniors, p. 15.

¹¹Ibid.

¹²Ibid., p. 19.

¹³David H. Kamens, "The College 'Charter' and College Size: Effects in Occupational Choice and College Attrition," Sociology of Education, Vol. 44, No. 3 (Summer, 1971), p. 281.

¹⁴Peng and Bailey, Transfer Students in Institutions of Higher Education, National Longitudinal Study for High School Seniors, p. 42.

¹⁵Hite, pp. 80-84.

¹⁶Peng and Bailey, Transfer Students in Institutions of Higher Education, National Longitudinal Study for High School Seniors, p. 44.

reasons for horizontal transfers: (1) to attend a college closer to home, (2) to attend a college with more social activities of interest, and (3) to attend a college where the faculty was interested in the student's academic growth. Studies by Buckley,¹⁷ Pate,¹⁸ Donato,¹⁹ and Zultowski and Catron²⁰ concluded that both vertical and horizontal transfers, as well as incoming freshmen, possess very high expectations of their new college environment.

Characteristics of Vertical Transfer Students

The study of Knoell and Medsker,²¹ often considered to be a landmark, gave a good description of the community college transfer. Findings of their study showed that a "typical" transfer student in many ways appeared to resemble the typical undergraduate in a state university. He was male, white, Protestant, 19 or 20 years old when he transferred, and had American-born parents. He had taken a general or college preparatory program in high school and graduated in the top half of his class.

¹⁷Donald H. Buckley, "A Comparison of Freshman and Transfer Expectations," Journal of College Personnel, Vol. 7, No. 2 (May, 1977), pp. 186-188.

¹⁸Robert H. Pate, Jr., "Student Expectations and Later Expectations of a University Enrollment," Journal of College Student Personnel, Vol. 11, No. 6 (November, 1970), pp. 458-462.

¹⁹Donald J. Donato, "Junior College Transfers and a University Environment," Journal of College Student Personnel, Vol. 14, No. 3 (May, 1973), pp. 254-259.

²⁰Walter H. Zultowski and David W. Catron, "High Expectations Among Transfer Students and College Freshman: A Further Analysis of the Transfer Myth," Journal of College Student Personnel, Vol. 17, No. 2 (March, 1976), pp. 123-125.

²¹Dorothy M. Knoell and Leland L. Medsker, From Junior College to Senior College: A National Study of the Transfer Student (Washington, D.C.: American Council on Education, 1965), p. 18.

His parents tended to have a lower income and less formal education than the parents of university students. Peng and Bailey²² concluded that four-year native students tended to have higher socioeconomic background scores, high school grades, aptitude tests, and educational aspirations than did vertical transfer students. The socioeconomic background was based upon a composite of the father's education, mother's education, parental income, father's occupation, and a household items index. These findings of Peng and Bailey²³ were consistent with the findings of Brinbaum²⁴ and Kintzer²⁵. Peng and Bailey²⁶ also found that four-year native students were more likely than transfer students to have been graduated from high school academic programs, to have higher self-concepts, and to be more internal in locus of control. The variables of self-concept and locus of control were psychometrically-constructed scales, measured when the students were seniors in high school. Locus of control is a factor consisting of the student's responses to the following items: (1) luck more important than work, (2) try to get ahead, but stopped, (3) plans hardly work out, and (4) accept conditions. Locus of control and self-concept were measured on a five-point scale, ranging from strongly disagree to strongly agree. A high score on locus of

²²Samuel S. Peng and J. P. Bailey, Jr., "Differences Between Vertical Transfers and Native Students in Four-Year Institutions," Research in Higher Education, Vol. 7, No. 2 (1977), p. 148.

²³Ibid.

²⁴Robert Brinbaum, "Why Community College Transfer Students Succeed in Four-Year Colleges: The Filter Hypothesis," Journal of Educational Research, Vol. 63 (February, 1970), pp. 247-249.

²⁵Frederick C. Kintzer, "The Community College Transfer Student," New Directions for Community Colleges, Vol. 1 (Autumn, 1973), pp. 1-14.

²⁶Peng and Bailey, Research in Higher Education, p. 148.

control indicated a high degree of externality. A high score on self-concept indicated a positive self-concept. However, transfer students had higher scores on work-oriented and family-oriented life goals than native students and were composed of proportionally more blacks.²⁷

Knoell and Medsker²⁸ noted that the economic plight of the transfer students appeared at many points in their study: (1) in their initial decision to attend a community college, (2) in their employment while in college, (3) in their financial problems after transfer, and (4) in their attrition. Willingham and Findikyan's²⁹ study showed that in 1969 only 20 percent of the four-year institutions had specific aid programs for transfer students and that only 14 percent of the transfer students had financial assistance, while one-third of all new freshmen received aid. However, this difference may have been lessened since federal financial aid programs were restructured in 1972. According to Peng and Bailey,³⁰ community college transfer students were less likely than four-year college native students to receive scholarships, fellowships, or grants. As to student loans, proportionally more community college transfer students than native students received Federal Guaranteed Student Loans, and more native students received National Defense (Direct) Student Loans.³¹ However, only small number of transfer students received loans.

²⁷Ibid.

²⁸Knoell and Medsker, From Junior College to Senior College: A National Study of the Transfer Student, p. 69.

²⁹Warren W. Willingham and Nurhan Findikyan, Patterns of Admissions of Transfer Students (New York: College Entrance Examination Board, 1969), pp. 34-40 (ERIC Document ED 107 195).

³⁰Peng and Bailey, Transfer Students in Institutions of Higher Education, National Longitudinal Study of High School Seniors, p. 37.

³¹Peng and Bailey, Research in Higher Education, p. 152.

Those students who transferred gave their community college experience a high rating--faculty knowledge of subject matter (77 percent); quality of teaching (87 percent); adequacy of the range of courses offered (79 percent); and whether they would attend a junior college again, 42 percent responded "definitely yes," and 29 percent said "probably yes."³²

The academic ability of the community college student is probably the most frequently researched and cited area. Cross³³ noted that it can be stated with considerable confidence that the mean score for students attending four-year colleges exceeds that of students in two-year colleges and that two-year college students score higher as a group than high school graduates who do not go to college. The students entering four-year colleges tend to cluster in the top third of their high school class and the noncollege student in the lower third. However, the community college group has substantial numbers of students at all three levels.³⁴ Previous studies such as those by Anderson and Riehl,³⁵ Hodgson and Dickinson,³⁶ and Peng and Bailey³⁷ have found that the

³²Knoell and Medsker, From Junior College to Senior College: A National Study of the Transfer Student, p. 69.

³³K. Patricia Cross, Beyond the Open Door, New Students to Higher Education (San Francisco: Jossey-Bass, Inc., 1971), p. 11.

³⁴Ibid., p. 13.

³⁵Ernest F. Anderson and Natalie S. Riehl, Comparison of Transfer and Native Student Progress at the University of Illinois at Urbana-Champaign, Fall, 1971 Group (Urbana, Illinois: University of Illinois, June, 1974), pp. 14-21 (ERIC Document ED 099 022).

³⁶Thomas F. Hodgson and Carl Dickinson, Upper-Division Academic Performance of Native and Transfer Students at the University of Washington (Seattle: Washington University, November, 1974), pp. 4-13 (ERIC Document ED 098 878).

³⁷Peng and Bailey, Research in Higher Education, p. 153.

students who transfer from the community college to a four-year institution do not perform academically as well as native students in their first year at the new college. However, studies by Hartmann and Cople,³⁸ Knoell,³⁹ and Snyder and Blocker⁴⁰ have shown that transfer students improve their achievement in the second year after transfer.

Parental influence plays an important role in keeping a community college's students enrolled at a four-year institution. In their study of 10,000 high school graduates, Trent and Medsker⁴¹ found that 70 percent of the college students who persisted in college during the four-year period covered in their study had stated, as high school seniors, that their parents had wanted them to attend college. Of the students who dropped out of college during this four-year period, only 48 percent felt that college was important to their parents. Among the top 30 percent of the high school graduating class who did not attend college, only 15 percent reported having received parental encouragement to attend college.

³⁸Eugene L. Hartmann and Richard B. Cople, "Academic Achievement of Junior College Transfer Students and Native University Students," Journal of College Student Personnel, Vol. 11, No. 6 (November, 1969), pp. 378-381.

³⁹Dorothy M. Knoell, "Focus on the Transfer Progress; Report on a National Study of Nearly 8500 Students From More Than 300 Two-Year Colleges," Community and Junior College Journal, Vol. 35 (1965), pp. 5-9.

⁴⁰Fred A. Snyder and Clyde E. Blocker, 1966 Transfer Student Performance Research Report No. 4, (Harrisburg, Pennsylvania: Harrisburg Area Community College, 1970), pp. 5-30 (ERIC Document ED 040 698).

⁴¹James W. Trent and Leland L. Medsker, Beyond High School: A Psychological Study of 10,000 High School Graduates (San Francisco: Jossey-Bass, Inc., 1968), pp. 114-121.

In another study, Knoell and Medsker⁴² found that one-fourth of the students who later transferred to a four-year institution had not committed themselves to majors at the time they completed their work in the community college. Another one-fourth had changed their majors after entering four-year colleges. The most common specific major field choices for transfer students two years after their transfer were business administration (18 percent), engineering (14 percent), and education (17 percent). Liberal arts majors, combined, attracted 32 percent, but over half of the community college transfers majored in one of the applied fields.

In 1971, Anderson⁴³ sent a questionnaire to those Kansas community college graduates who had received the Associate of Arts degree in June, 1970. This study had a 57 percent return. A total of 77.5 percent of those who responded were attending a college or university; of those, 90.9 percent were attending a Kansas senior institution. Education ranked first in order of major areas of study being pursued in the senior institutions, followed by business and areas such as social sciences, engineering, and English.

Acero⁴⁴ assembled a profile of a typical student who graduated from a Kansas community college and transferred to a four-year

⁴²Dorothy M. Knoell and Leland L. Medsker, Articulation Between Two-Year and Four-Year Colleges (Berkeley: Center for the Study of Higher Education, 1964), pp. 20-22.

⁴³Kenneth E. Anderson, "A Study of the Kansas Community Junior College Graduates of June, 1970," Master Planning Commission Reports (Topeka, Kansas: Kansas State Board of Regents, 1971), pp. 276-289.

⁴⁴Herman D. Acero, "A Comparison of Four Groups of Kansas Community Junior College Students" (unpublished doctoral dissertation, Department of Administration, Foundations and Higher Education, University of Kansas, 1972), pp. 97-103.

institution. The high school grade point average was B for male and B+ for female. Their parents' educational levels ranged between "high School" and "some college." The annual parental income of these students was more than \$6,000, but less than \$10,000 for the male's and less than \$8,000 for the female's family. The highest degree aspired to was the bachelor's degree. The male rated himself above average in the following abilities: academic, athletics, originality, self-confidence (intellectual), and writing. The female rated herself above average in these abilities: academic, athletic, artistic, leadership, originality, and self-confidence (intellectual). Also, both the male and female rated themselves above average in popularity. The female considered herself to be above average in cheerfulness, political conservatism, and understanding others. The major influence for entering the junior college was to prepare for a more difficult school. Finally, the ACT scores supported a high potential for academic success.

In the comparison, according to Anderson⁴⁵ a typical student who did not graduate from the community college and transferred to a four-year institution had a lower high school grade average, B- (male) and B (female); yet, his aspirations were higher, above the bachelor's degree; and parental income was higher, between \$10,000 and \$15,000 a year. A major influence for entering the community college was to become more self-reliant and independent, as well as to prepare for a more difficult school.

Another interesting point about the community college student who transfers to a senior institution is the student's self-reported reasons for changing schools. Among the freshmen community college transfers,

⁴⁵Kenneth E. Anderson, pp. 281-287.

the major reasons for changing schools were related primarily to career development.⁴⁶ Other major reasons cited by Peng and Bailey included "former school did not offer courses I wanted," "to attend a larger school," and "to have more group and social activities of interest."⁴⁷ Sophomores indicated they transferred to a four-year institution because they wanted to continue their educations. As would be expected, few transfers from community colleges reported transferring because their grades were too low to continue.

Guistwhite's⁴⁸ study compared selected factors that influenced community college graduates in enrolling in one of the institutions in the Florida State System. He ranked twelve variables of influence in the following order of importance:

1. Desirable curriculum offered by university
2. Desirable location of the university
3. Prestige and academic reputation of the university
4. High scholastic standards
5. Appealing atmosphere of the campus
6. Favorable impression of the campus
7. Influence of individuals other than community college and university staff members
8. Cost of living at the university

⁴⁶Peng and Bailey, Transfer Students in Institutions of Higher Education, National Longitudinal Study of High School Seniors, p. 41.

⁴⁷Ibid.

⁴⁸Jack C. Guistwhite, "A Comparison of Selected Factors Which Influenced Graduates of Florida Public Community Colleges to Enroll in a State University in Florida" (unpublished doctoral dissertation, Florida Atlantic University, 1975), pp. 75-79.

9. Availability of financial aid at the university
10. Extracurricular activities of the university
11. Advice of community college staff
12. Recruitment effort by the university

Attrition Studies on Four-Year College Students

The massive amount of research literature on dropouts can be reviewed under three major areas: (1) student characteristics, (2) financial aid, and (3) attrition theories.

Student Characteristics

A. W. Astin,⁴⁹ Astin and Panos,⁵⁰ Cope,⁵¹ Devecchio,⁵² and Pumroy,⁵³ describe a number of characteristics of entering freshmen who will eventually drop out of college. The most dropout-prone freshmen are those with poor academic records in high school, low aspirations, poor study habits, relatively uneducated parents, and small town backgrounds. Dropping out is also associated with being older than most freshmen, having Protestant parents, having no current religious preference, and being a

⁴⁹Alexander W. Astin, Predicting Academic Performance in College (New York: Free Press, 1971), pp. 174-201.

⁵⁰Alexander W. Astin and R. J. Panos, The Educational and Vocational Development of College Students (Washington, D.C.: American Council on Education, 1969), pp. 9-21.

⁵¹Robert G. Cope, "Types of High Ability Dropouts Who Continue in College," The North Central Association Quarterly, Vol. 44, No. 2 (Fall, 1969), pp. 253-256.

⁵²Richard C. Devecchio, "Characteristics of Nonreturning Community College Freshman," Journal of College Student Personnel, Vol. 13, No. 5 (September, 1972), pp. 429-432.

⁵³Donald K. Pumroy, "Cigarette Smoking and Academic Achievement," The Journal of General Psychology, Vol. 77 (July, 1967), pp. 31-34.

cigarette smoker. Among freshmen women, those who are married or have marriage plans are also more likely to drop out, although among male freshmen, being married at the time of college entrance is related positively to persistence.

The predictors associated with low dropout-proneness produce the opposite pattern. In addition, low dropout-proneness is associated with being Jewish or Oriental, with winning varsity letters in high school, and with plans to attend more than one college.

According to Astin,⁵⁴ by far the greatest predictive factor is the student's past academic record and academic ability. Next in importance are the student's degree plans at the time of college entrance, religious background, and religious preference, followed by concern about college finances, study habits, and educational attainment of parents.

Simpson has summarized the characteristics of the college dropout from the literature of Knoell, Marsh, Sexton, Spady, Tinto, and Waller as follows:

Usually, dropouts are compared to those remaining in school as: coming from families of lower socioeconomic status, having lower intelligence; having poorer pre-college academic preparation as indicated by high school grades, scholastic aptitude test scores, and high school quality; having lower college achievement; being less cosmopolitan (coming from smaller towns, coming from smaller high schools, being less secular); coming from families which are more religious but less warm and supportive; having lower educational aspirations and lower commitment to remain in college; viewing education vocationally rather than as a place for intellectual and personal expansion; spending less time studying; being less well socially integrated; being less mature (less rational, self-controlled, self-confident, independent, involved and tolerant); having ideas and personal attributes which do

⁵⁴ Astin, Preventing Students From Dropping Out, p. 45.

not 'fit' the college culture; and being less satisfied with the college or university they leave.⁵⁵

This picture of a college dropout makes sense if one assumes that students leave primarily because of personal or academic failure. However, students leave college for a variety of reasons, some of which do not mesh with this composite. For example, some students leave college despite being successful academically. It is interesting to note that in all the studies summarized by Simpson, the definition of dropout involved both transfer and nontransfer students.

According to Cope and Hannah,⁵⁶ men and women discontinue, stop out, and transfer in approximately equal proportions, but for different reasons. Men drop out for reasons related to competence, adequacy, and identity searching; whereas women drop out more because of intellectual-aesthetic dimensions, dating, and marriage. According to Rinehart,⁵⁷ these differences are a result of the programs men and women select and sexual stereotypes rather than a result of female individual or group aptitudes. Women are overrepresented in teacher education and other fields where transfer arrangements can be flexible. However, women are underrepresented in such programs as engineering, where students, both transfer and native, often take more than four total years to complete their degrees.

There is good reason to believe that if ways can be found to involve students more in the life and environment of the institution, their

⁵⁵Carl Simpson et al., A Dropout is a Dropout . . . A Comparison of Four Different Types of University Dropouts (California University Berkeley: Institute for Research in Social Behavior, 1977), p. 4 (ERIC Document ED 153 543).

⁵⁶Cope and Hannah, p. 79.

⁵⁷Rinehart, p. 43.

chances of staying in college are improved. According to Astin's research, students concerned about maximizing their chances of finishing college should consider leaving home and living in a college dormitory. Simply getting away from home appears to enhance a man's chances of finishing college even if he lives in a private room or apartment. However, for a woman, leaving home may reduce her chances of finishing college if she selects a private residence.⁵⁸

Participation in extracurricular activities, especially membership in social fraternities or sororities is also significantly related to staying in college.⁵⁹ The most frequent reasons cited by Astin for dropping out for both men and women are as follows: boredom with classes, financial difficulties, dissatisfaction with requirements or regulations, and change in career goals. However, according to Cope and Hannah,⁶⁰ colleges know little about the reasons for withdrawal, the process of withdrawal, or the proportion of students leaving their campus.

Financial Aid

According to Cope and Hannah,⁶¹ financing college is not a major problem in persistence. Lack of money seems to be a socially acceptable reason to discontinue attending school, regardless of actual financial

⁵⁸Astin, Preventing Students From Dropping Out, p. 107.

⁵⁹Ibid., p. 108.

⁶⁰Cope and Hannah, p. 69.

⁶¹Ibid., p. 72.

position.⁶² Family income has been an important variable in many studies of attrition with the findings less than consistent, and a number of studies have found family incomes unrelated to persistence. Jencks and Riesman⁶³ conclude that "... while dropping out is probably not related to parental income, it is related in some cases to parental parsimony." This situation is reflected when students are forced to borrow all or a portion of their expected parental contribution. It is interesting to note that Cope and Hannah⁶⁴ believe that the commitment to finish college resulting from the motivational climate of the family is far more important than having enough money. In fact, these authors make the assertion that lack of finances is more of a barrier in starting college than it is to finishing college.

Astin⁶⁵ indicated that undergraduates usually pay their costs through one or a combination of five different sources of aid: family, scholarships, loans, savings, and work. Astin presents evidence that the source and amount of financial aid can be an important factor in the student's ability to complete college.

Some of the general conclusions arrived at by Astin⁶⁶ are as follows:

1. Receiving support from parents for college expenses generally enhances the ability to complete college.

⁶²Leonard M. Wenc, "The Role of Financial Aid in Attrition and Retention," College Board Review, Vol. 104 (Summer, 1977), p. 18.

⁶³Christopher Jencks and David Riesman, The Academic Revolution (New York: Doubleday and Company, 1968), p. 120.

⁶⁴Cope and Hannah, p. 79.

⁶⁵Astin, Preventing Students From Dropping Out, pp. 47-69.

⁶⁶Ibid., pp. 69-71.

2. Students who are married when they enter college persist better if their spouses provide major support for their college costs.

3. Scholarships or grants are associated with small increases in student persistence rates. The amount of grant support appears to be a major factor in student persistence, particularly among black students.

4. Reliance on loans is associated with decreased persistence among men in all income groups.

5. Participation in federal work-study programs seems to enhance student persistence, particularly among women and blacks. Work-study has its most consistent positive impact among students from middle-income families. Jobs on campus are clearly superior to off-campus employment.

6. Reliance on savings or other assets appears to decrease the student's chances of finishing college.

7. Reliance on GI Bill support is negatively associated with student persistence.

8. Support from ROTC stipends is strongly associated with increased student persistence.

9. and 10. In general, any form of aid appears to be most effective if it is not combined with other forms. This is especially true in the case of work-study programs, which tend to lose their beneficial impact when combined with grants or loans. This loss is especially marked among low-income students. Similarly, grants are most effective if the student has no loan. The only combination which is associated with greater persistence is work-study and major loan support.

Astin's research supports the evidence that the provision of job opportunities for students is one sure way to enhance student persistence. On-campus jobs, even during the freshman year, substantially

increase the student's chances of finishing college. Federal work-study and other forms of on-campus employment seem to be equally positive in their impact. On-campus work is generally preferable to off-campus employment. Students improve their chances of finishing college even if they dislike their on-campus jobs. The only qualification concerning the positive effect of student employment is the number of hours worked. These hours should be limited to not more than 20 hours per week.⁶⁷

Attrition Theories

Kamens,⁶⁸ Rootman,⁶⁹ Spady,⁷⁰ and Tinto⁷¹ have developed explanatory theories of attrition. Kamens' model has reported empirical evidence to support his largely structural argument that attrition can be explained by an institution's social charter and size. According to Kamens'⁷² model large and more prestigious institutions exert greater holding power over students by means of their stronger status-allocating roles. Students are afforded a greater choice and possibility of access to a broad range of vocations and economic groups outside the academic profession because these institutions have a variety of professional schools and

⁶⁷Astin, Preventing Students From Dropping Out, pp. 75-78.

⁶⁸Kamens, pp. 280-286.

⁶⁹Irving Rootman, "Voluntary Withdrawal From a Total Adult Socialization Organization: A Model," Sociology of Education, Vol. 45 (Summer, 1972), pp. 261-268.

⁷⁰William G. Spady, "Dropouts From Higher Education: Toward an Empirical Model," Interchange, Vol. 2 (July, 1970), pp. 49-58.

⁷¹Vincent Tinto, "Dropout From Higher Education: A Theoretical Synthesis of Recent Research," Review of Educational Research, Vol. 45, No. 1 (Winter, 1975), pp. 102-119.

⁷²Kamens, pp. 280-286.

programs available on campus and an established network of corporate recruiters and alumni of these programs. Students are dependent on the institution for access to these opportunities. Consequently, their commitment to the institution is greater and they are more likely to stay enrolled.

However, Rootman⁷³ has developed an interactional theory in which he asserts that voluntary withdrawal is functionally related to the goodness of the "person-role" fit between the individual and the normative environment of the institutional world he/she inhabits. If the fit is a poor one, the individual experiences strain, and withdrawal becomes a mechanism for coping when that tension becomes too great.

Another interaction model was developed by Spady.⁷⁴ In this model, personal attributes such as dispositions, interests, attitudes, and skills interact with environmental influences and sources of demand such as courses, faculty members, administrators and peers. This interaction provides a student with opportunities for successful assimilation into the social and academic systems of an institution. The student's decision to withdraw or remain is heavily influenced by the sufficiency of the rewards he finds within these systems.

A conceptual model which is similar to, but more elaborate than, Spady's model has been given by Tinto.⁷⁵ The principal element in Spady's conceptualization of attrition lies in the domain of social integration. Tinto asserts an approximate parity between the interacting influences

⁷³Rootman, pp. 261-268.

⁷⁴William G. Spady, "Dropouts From Higher Education: Toward an Empirical Model," Interchange, Vol. 2 (July, 1970), pp. 49-58.

⁷⁵Tinto, pp. 103-119.

of integration in both the social and academic systems of an institution. His model seeks to distinguish conceptually between those interactional patterns which lead to varying forms of dropout behavior normally classified under one large category, attrition. Tinto attempts to distinguish between those behaviors that lead to academic dismissal and those that lead to voluntary withdrawal from the institution.

According to Tinto:

Given individual characteristics, prior experience, and commitments, . . . it is the individual's integration into the academic and social systems of the college that most directly relates to his continuance in that college. Given prior levels of goal and institutional commitment, it is the person's normative and structural integration into the academic and social systems that lead to new levels of commitment. Other things being equal, the higher the degree of integration of the individual into the college systems, the greater will be his commitment to the specific institution and to the goal of college completion.⁷⁶

This model takes into account a student's background characteristics, levels of commitment to completing a postsecondary degree program, commitment to the institution in which the student is enrolled, elements of the environment external to the institution, and the influences of all these interrelated variables on social and academic integration and subsequent levels of commitment to institutional attendance.

Summary

This review of the literature attempted to examine significant research studies on the returning and nonreturning vertical, horizontal, and native student. The review revealed studies of the problems faced by transfer students upon transfer to a four-year institution, characteristics of vertical transfers, characteristics of horizontal transfers,

⁷⁶Tinto, p. 96.

characteristics of college dropouts, and theories on attrition. Nowhere in the literary review was there an attrition study involving horizontal transfers, vertical transfers, and four-year native students. The studies either involved freshmen or dropouts in general. That is, there was no distinction made in the definition of dropout between nontransfer and transfer students. The review pointed out that there are also two other types of dropouts from an institution--those that leave because of academic failure and those that leave voluntarily in good academic standing. Since previous research is limited on the voluntary dropout, especially the transfer dropout, the study reported here was concerned with only the vertical and horizontal transfers and the four-year native students who voluntarily drop out.

There is a feast of descriptive studies of attrition but a comparative famine of conceptual frameworks to explain them. Little is to be gained by additional descriptive, theoryless research employing univariate statistical procedures. What is needed, if administrators and educational planners are to understand and deal with the complex process of student attrition, is theory-based research that adapts multivariate designs and statistical procedures. However, a longitudinal assessment of the primacy in withdrawal decisions of students' interactions with the social and academic systems of an institution is beyond the present data resources of most colleges or universities.⁷⁷ Nevertheless, a cross-sectional assessment of the validity of the central principles of the Tinto model is possible. A student cannot be integrated into the academic

⁷⁷Patrick T. Terenzini and Ernest T. Pascorella, "Voluntary Freshman Attrition and Patterns of Social and Academic Integration in a University: A Test of a Conceptual Model," Research in Higher Education, Vol. 6, No. 1 (1977), p. 27.

and social system of an institution if he/she is not satisfied with the services and environment provided by that institution.

According to Astin; Cope and Hannah; Kamens, Peng and Bailey; Rootman; Simpson; Spady; Summerskill; and Tinto, the following variables are related to dropping out: high school grades, scholastic scores, college grade point average, father's occupation, personal problems, academic problems, employment, type of housing, financial aid, parents' education, vocational choice, ethnic group, faculty, study habits, degree plans at time of entrance, and religious preference. The review of the literature gives a wide range of variables that affect dropouts. However, previous studies have not included student background characteristics, reasons for leaving college, and student satisfaction with college services and environment in one study.

CHAPTER III

METHODS AND PROCEDURES

Hypotheses

The hypotheses of this study were divided into three categories: (1) student background variables, (2) student reasons for leaving college, and (3) student satisfaction with college services and environment. Set A was defined as the following thirteen background variables: (1) age, (2) race (black vs. nonblack), (3) classification, (4) purpose for entering college, (5) enrollment status (full or part-time), (6) sex, (7) marital status, (8) type of tuition paid (in-state or out-of-state), (9) most recent college residence, (10) college major, (11) cumulative grade point average, (12) length of enrollment, and (13) hours employed per week while enrolled.

Ia. There are no statistically significant differences between the nonreturning horizontal transfer and returning horizontal transfer students in terms of each background variable in set A.

Ib. There are no statistically significant differences between the nonreturning vertical transfer and returning vertical transfer students in terms of each background variable in set A.

Ic. There are no statistically significant differences between the nonreturning native students and returning native students in terms of each background variable in set A.

Id. There are no statistically significant differences among the three population samples--returning horizontal transfers, returning vertical transfers, and returning native students--in terms of each background variable in set A.

Ie. There are no statistically significant differences among the six populations--nonreturning horizontal transfers, nonreturning vertical transfers, nonreturning native students, returning horizontal transfers, returning vertical transfers, and returning native students--in terms of each background variable in set A.

Set B contained the three background variables: (1) plans for the coming year, (2) length of time since student withdrew from school, and (3) plan to re-enroll at this school.

If. There are no statistically significant differences among the three populations--nonreturning horizontal transfers, nonreturning vertical transfers, and nonreturning native students--in terms of each background variable in set B.

For the hypotheses IIa and IIb, set C consisted of six reasons for leaving school: (1) personal, (2) family, (3) academic, (4) institutional, (5) financial, and (6) employment. The items of each of these six composite reasons are listed in Appendix E.

IIa. There are no statistically significant differences between the nonreturning horizontal transfer and nonreturning vertical transfer students in terms of each reason for leaving in set C.

IIb. There are no statistically significant differences among the three populations--nonreturning vertical transfers, nonreturning horizontal transfers, and nonreturning native students--in terms of each reason for leaving in set C.

For hypotheses IIIa, IIIb, IIIc, IIIId, IIIe, and IIIf, the set E was defined as the following forty-nine college services and environment characteristics: (1) academic advising services, (2) personal counseling services, (3) career planning services, (4) job placement services, (5) recreational and intramural programs, (6) library facilities and services, (7) student health services, (8) student health insurance programs, (9) college-sponsored tutorial services, (10) financial aid services, (11) student employment services, (12) residence hall services and programs, (13) food services, (14) college-sponsored social activities, (15) cultural programs, (16) college orientation program, (17) credit-by-examination program, (18) honors programs, (19) computer services, (20) veterans' services, (21) day care services, (22) testing/grading system, (23) course content in major field, (24) out-of-class availability of instructors, (25) attitude of the faculty toward students, (26) variety of courses offered by this college, (27) instruction in major field, (28) class size relative to the type of course, (29) flexibility to design your own program of study, (30) availability of student advisor, (31) value of the information provided by student advisor, (32) preparation students are receiving for future occupation, (33) student voice in college policies, (34) rules governing student conduct at this college, (35) residence hall rules and regulations, (36) personal security/safety of this campus, (37) classroom facilities, (38) laboratory facilities, (39) athletic facilities, (40) general registration procedures, (41) availability of the courses student wants at the times student can take them, (42) academic calendar for this college, (43) concern for you as an individual, (44) attitude of college nonteaching staff toward students, (45) racial harmony at this college,

(46) opportunities for personal involvement in campus activities, (47) religious activities, and (48) study area, and (49) college in general.

IIIa. There are no statistically significant differences between the nonreturning horizontal transfers and the returning horizontal transfers in terms of their satisfaction with each college service and environment characteristic in set E.

IIIb. There are no statistically significant differences between the nonreturning vertical transfers and the returning vertical transfers in terms of their satisfaction with each college service and environment characteristic in set E.

IIIc. There are no statistically significant differences between the nonreturning native students and the returning native students in terms of their satisfaction with each college service and environment characteristic in set E.

IIId. There are no statistically significant differences among the three populations--returning horizontal transfers, returning vertical transfers, and returning native students--in terms of their satisfaction with each college service and environment characteristic in set E.

IIIe. There are no statistically significant differences among the three populations--nonreturning horizontal transfers, nonreturning vertical transfers, and nonreturning native students--in terms of their satisfaction with each college service and environment characteristic in set E.

III f. There are no statistically significant differences among the six populations--nonreturning horizontal transfers, nonreturning vertical transfers, nonreturning native students, returning horizontal transfers, returning vertical transfers, and returning native students--in

terms of their satisfaction with each college service and environment characteristic in set E.

For hypotheses IVa, IVb, IVc, IVd, IVe, IVf, set F was defined as the following five college services and environment characteristics: (1) academic, (2) rules and regulations, (3) registration, (4) general, and (5) services. The items of each of these composite college services and environment characteristics are listed in Appendix F.

The hypotheses IVa, IVb, IVc, IVd, IVe, and IVf are the same as the hypotheses IIIa, IIIb, IIIc, III d, IIIe, and IIIf respectively, except that set F replaces set E.

Data Bases

The student surveys for this study utilized two data bases from State University: (1) voluntary nonreturning students and (2) returning students. Each data base consisted of horizontal transfer, vertical transfer, and native students. The major problem in developing a voluntary nonreturning student data base was identification of the dropout.

At State University there are two kinds of nonreturning students: (1) Type 1--those who register for a term, and either fail to show up for classes or attend classes only for a short period of time, and then decide to withdraw; and (2) Type 2--those who finish one term and simply fail to register for the next term. State University keeps no formal records on students who decide not to re-enroll between terms. Some records are computerized and some are maintained manually. The registration information is computerized, but mid-term withdrawal and rebate information is not. Since State University has only a minicomputer system with limited storage, only the current quarter student enrollment is

stored on the computer. Previous quarter enrollments are kept on magnetic tape. A Type 1 withdrawal can be identified by a blank in the quarter grade point average on the student data base. Thus Type 1 and Type 2 withdrawals can be identified by creating a new computer file by a quarter to quarter update of the registration information and the student data base.

The voluntary nonreturning student data base for this study was built using the following analog:

Step 1. Start with all students enrolled fall 1978 quarter. Select the following variables from the college's student registration data base: social security number, full name, permanent mailing address, quarter credit hours earned, previous institution attended (blank if non-transfer), and graduating status.

- Step 2.
- a. Delete graduating students.
 - b. Delete all students except freshmen, sophomores, juniors, and seniors.
 - c. Delete all students with less than twenty-five quarter hours earned.

- Step 3. For the winter 1979 and spring 1979 quarters
- a. Update matching permanent mailing address, quarter hours earned, current quarter grade point average, graduating status.
 - b. Add nonmatching students with variables in Step 1.
 - c. Go to Step 2.

Step 4. Delete summer 1979 graduates.

Step 5. Do Step 3 for fall 1979 and winter 1980 quarters.

Step 6. Delete graduating students.

Step 7. Delete matching spring 1980 students.

Step 8. Manually delete students that were dismissed from the University for disciplinary or academic reasons between fall 1978 and winter 1980.

Step 9. Manually delete all students with incomplete addresses. Following Steps 1 through 7 produced a population of 1121 nonreturning students for the period fall, 1978, through winter, 1980. After steps 8 and 9 were implemented, the data base population for voluntarily nonreturning students was 841. Of these 841 students, 353 or 42 percent were transfer students. Of the 353 transfer students, 144 or 41 percent were horizontal transfer students while 209 or 59 percent were vertical transfer students. See Table I for class level breakdown of nonreturning students.

The second data base used in the study utilized the returning students enrolled spring, 1980, at State University. A random list of all courses, except the first and second quarter freshmen courses, taught at State University was assembled. According to the records office at State University, the average class size for a lecture/discussion class was 28.1 students. Since the survey for this sample was administered during a class period, the response rate was much better than a mailed survey. Therefore, a sample of 500 students was sufficient. Hence, of the 120 different classes listed, twenty were selected using a random number generator table. Because some classes had more than one section, the classes were selected with the same meeting days and time to minimize duplicate student enrollment. The total class enrollment originally numbered 604 students. If a student was enrolled in more than one class, his/her name was kept on the first class roll examined and eliminated

TABLE I
CLASS LEVEL OF NONRETURNING AND RETURNING STUDENTS

	Dropout Native	Returning Native	Dropout Vertical	Returning Vertical	Dropout Horizontal	Returning Horizontal
Freshman *N:	75	125	11	2	11	4
%:	15.2	32.4	5.3	2.4	7.6	3.3
Sophomore N:	203	98	83	11	46	31
%:	41.6	25.3	39.7	13.2	32.0	25.8
Junior N:	178	67	87	33	69	33
%:	36.4	17.4	41.6	39.7	47.9	27.5
Senior N:	32	96	28	37	18	52
%:	6.5	24.8	13.3	44.5	12.5	43.3
Total N:	488	386	209	83	144	120
**%:	100	100	100	100	100	100

*Equals the number of students.

**Due to truncation these percentages may not total 100.

from all other class rolls. The twenty classes with their enrollments are listed in Table LXIV in Appendix C. These courses provided a random cluster sample of 589 returning students. Student records were checked to determine the number and type of transfer students enrolled in each course. Table LXV in Appendix C contains a listing of the number of transfer students in each course. A total of 203 students or 34 percent were transfer students. Table LXVI in Appendix C contains a listing of the number of horizontal and vertical transfer students in each class. Of the 203 transfer students, 83 or 41 percent were vertical transfers and 120 or 59 percent were horizontal transfer students. See Table I for a class level breakdown of the returning students.

Hence, this study was limited to the data base at State University which consisted of 841 nonreturning students from the fall quarter 1978 through the winter quarter 1980. Of the 841 nonreturning students, 353 were transfer students (144 horizontal and 209 vertical). The data base also consisted of 589 returning students from spring quarter 1980 of whom 203 were transfer students (83 vertical and 120 horizontal).

Instruments

To complete the data bases, two survey instruments were administered, one to the voluntary nonreturning students and one to the returning students. The voluntary nonreturning student questionnaire included questions concerning student demographics and background, student's degree of satisfaction with the institution, and the student's reasons for leaving the institution. The instrument or questionnaire for returning students was similar to the nonreturning student questionnaire except the questions on the student's reasons for leaving were omitted.

Four instruments are listed in Appendix A for conducting attrition studies. Questionnaires I and II are modifications of questionnaires suggested by Bowers and Meyers at the University of Colorado.¹ Questionnaires III and IV are available from The American College Testing Program.² With eight optional items added to the ACT Nonreturning Survey, the nonreturning questionnaires I and III are similar in content. In like manner, with two optional items added to The ACT Student Opinion (Returning) Survey, the returning student questionnaires II and IV are similar in content. Also the optional questions added to both the ACT questionnaires provided similar background variables and college service and environment characteristics on each questionnaire needed to compare returning and nonreturning students. The specific optional questions for each survey are included at the end of each questionnaire in Appendix A.

The ACT nonreturning and returning surveys were selected as the instruments for this study. The major reason for selecting the ACT survey instruments was that the reliability and validity of the instruments have been established. Both the Bower and Meyers and ACT instruments were developed after a thorough review of the pertinent literature. However, the ACT instruments were developed after consultation with expert practitioners in the relevant fields. Many of the items were selected from previous ACT large-scale research studies, and others were

¹Cathleen Bower and Edward Meyers, A Manual for Conducting Student Attrition Studies in Institutions of Postsecondary Education (Boulder, Colorado: National Center for Higher Education Management Systems, March, 1976), pp. 51-56 (ERIC Document ED 107 195).

²The ACT Evaluation/Survey Service for Educational Institutions and Agencies (Iowa City, Iowa: The American College Testing Program, October, 1979), p. 34.

suggested by literature or by professional educators. The instruments were reviewed by educators from a number of institutions of higher education. The instruments were also examined for clarity and accuracy by a small group of currently enrolled college students. Following these reviews, a pilot version of each instrument was administered to 2,000 students (or ex-students) at a number of institutions of higher education in the United States. Data from the pilot administrations were analyzed to determine response patterns within and between institutions and to determine which items and sections appeared to confuse students.³ Following this analysis, the form of the ACT nonreturning student and student opinion surveys in Appendix A was developed. However, the most direct evidence of the content validity of the instruments consisted of the items themselves. Each item was examined individually and was found easy-to-read. Also, each item contributed to a particular need of the study.

The standard types of internal-consistency reliability indices typically reported with assessment instruments, such as the Kuder-Richardson formula 20, are not appropriate for the ACT Nonreturning Student Opinion (returning student) instruments because these instruments have no "correct" answers and no logical scales on which to base a total score.⁴ The most meaningful approach to determining the reliability of this type of instrument is to administer it to a group of subjects on two separate occasions and compare the responses. Even when this is done, correlational indices will not be appropriate for any items which

³The ACT Evaluation/Survey Service for Educational Institutions and Agencies, p. 10.

⁴Ibid.

request nominal data. For these reasons, the reliability data was in terms of the percentages of respondents who selected the same item response on two separate administrations of an instrument.⁵

Tables LXVII and LXVIII in Appendix C contain the reliability data obtained through a test-retest administration of the Student Opinion Survey using a single large undergraduate class of students enrolled during the summer of 1979 at a major midwestern university.⁶ The instruments were administered during two regular class sessions with approximately five weeks between the first and second administrations. ACT concluded that the nonreturning and student opinion surveys in Appendix A are reliable.⁷

Survey Mailing Guidelines

A cover letter enclosed with the ACT nonreturning survey and the post card reminder mailed for the follow-up are shown in Appendix B. The cover letter was on State University stationery and was signed by the chancellor or president.⁸ The cover letter: (1) conveyed the importance of a response from the student, (2) stated that the responses would be confidential, and (3) stated awareness that the students may have been re-enrolled, and assured that re-enrollment is not affected by receipt of the questionnaire. The follow-up letter or post card should re-emphasize that responses will be kept confidential and the

⁵The ACT Evaluation/Survey Service for Educational Institutions and Agencies, p. 10.

⁶Ibid, pp. 11-12.

⁷Ibid, p. 10.

⁸Bower and Meyers, pp. 10-11.

importance to the institution of receiving as many completed questionnaires as possible.

The initial mailing of nonreturning student questionnaires required the assembling of the following materials: the questionnaire, cover letter, two kinds of envelopes, address labels, postage, and a list (in the same order as the address labels) of each student's social security number, name, and address. This list was the survey status list, or tracking sheet, and is shown in Figure 1. The self-addressed return envelopes were numbered from 1 to 841 in the lower left-hand corner on the envelope in ink. Also, each student on the status list was assigned the same consecutive numbers 1 to 841 as that on the return envelope. This numbering system provided a method by which return questionnaires with incorrect or insufficient identifying information could be matched to the student's name and social security number. After the initial mailing was completed, a set of tracking sheets were prepared for recording the status of the questionnaires as they returned. An identifying mark (such as a ✓) was placed on each questionnaire as the proper information was recorded on the tracking sheet. Follow-up post card mailing occurred about three to four weeks after the initial mailing.⁹

Analysis of the Data

The analysis of the data for this study consisted of descriptive statistics (frequencies, percentages, means, standard deviations), factor analysis, and stepwise discriminant analysis summarizing the questionnaire responses of the six groups. Percentages of each questionnaire

⁹Bower and Meyers, p. 30.

Return Envelope Number	Social Security Number	Name	Address	First Mailing			Follow-Up Postcard		
				Undeliverable	Unusable	Usable	Date Sent	Unusable	Usable
001	555555555	John Jones	515 North Memphis, TN 30372	4/26					
002	666666666	Sam Jones	616 South T-Town, TN 31387			4/28			
003	777777777	Sally Kelly	717 West St. Big, TN 35876				5/12		5/17
004	888888888	June Kelly	818 East St. Nashville, TN 36874		4/29				

Figure 1. Form for Listing of Attrition Study Survey Status

item were calculated using the total number of actual respondents (excluding those who left the item blank) as the base.

Another part of the analysis of data consisted of assessing response bias. Response bias exists when the students who chose to respond to the questionnaire survey differ systematically from the total sample of students who were sent questionnaires. Response bias may operate such that actual respondents tend to be more concerned, more interested, and to have stronger views than those who choose not to respond to a survey. The primary method for dealing with nonresponse rate is to reduce the size of the nonrespondent group by maximizing response. This has been done with the follow-up mailing.

There are two approaches in survey research to the problem of assessing response bias. One approach is to isolate a small random sample of nonrespondents to the survey and make every effort to get valid returned questionnaires from this group for comparison with those who originally returned questionnaires. The second approach is to examine the characteristics of respondents and nonrespondents using demographic/background data available in the institutional master file records. This second approach was used in determining the response bias of the non-returning student questionnaires. An assessment of differences between respondents and nonrespondents on the thirteen background characteristics age, race, final class level (freshman, sophomore, junior, senior), purpose for entering college, enrollment status, sex, marital status, type of tuition paid, most recent college residence, college major, cumulative grade point average, length of enrollment, and hours employed per week while enrolled was made by comparing percentages for each of the two groups. Chi-square analysis between the respondents and nonrespondents

for each of the three groups (nonreturning horizontal transfer, nonreturning vertical transfer, and nonreturning native students) on the background characteristics above was tested at the .05 level of significance.

Two sets of hypotheses, Ia-If (background variables) and IIIa-IIIIf (satisfaction with college services and environment characteristics), were each analyzed with stepwise discriminant analysis. The relative importance of individual variables in differentiating the nonreturning horizontal transfer, the nonreturning vertical transfer, the nonreturning native student, the returning horizontal transfer, returning vertical transfer, and returning native students was measured by the standardized discriminant function coefficients. The discriminant functions are linear combinations of variables that give maximum discrimination between groups. The coefficients are compatible with multiple regression coefficients. They not only indicate the relative partial contribution of a variable, holding other variables constant, but they also indicate the direction of the effect.

The stepwise discriminant analysis was performed by a program from the Statistical Package for the Social Sciences, Second Edition (SPSS). The statistics needed from this printed statistical package included means and standard deviations for each group and for all the cases, the pooled within-groups covariance matrix, the pooled within-group correlation matrix, F tests, plotting discriminant scores, discriminant coefficients and the discriminant functions. All the discriminant functions were tested at the .05 level of significance using the F test.

Two other sets of hypotheses, IIa and IIb (reasons for leaving being personal, family, academic, institutional, financial, and employment) and IVa-IVf (college services and environment characteristics being

academic, rules and regulations, services, registration, and general), were analyzed first with principal-component factor analysis and then with stepwise discriminant analysis. Principal-component analysis was used to transform the reasons for leaving college and college characteristics into a new composite set of college characteristics. After this new composite set of variables was obtained using principal-component factor analysis, a stepwise discriminant analysis was performed on each set of new variables. All the discriminant functions were tested at the .05 level of significance using the F test. A combination of Statistical Analysis System (SAS) and Statistical Package for the Social Sciences (SPSS) programs were used to analyze hypotheses IIa, IIb, and IVa-IVf.

CHAPTER IV

ANALYSIS OF THE DATA

Introduction

The purpose of this study was to compare the nonreturning and returning vertical and horizontal transfer and native students on thirteen background variables and their views of the services and environment at State University. The nonreturning students and the returning students were administered the ACT Nonreturning Student Survey and the ACT Student Opinion Survey respectively. The answer sheets of these instruments were scored by the ACT Evaluation/Survey Service and the scores were returned on a magnetic computer tape in the tape formats described in Data Formats I and II in Appendix D. A COBOL program edited and merged the two files into a common format on a disk file (Format III, Appendix D). The editing converted all zeros to tens, all blanks to zeros, and all character data to numeric data (A to 1, B to 2, etc.). This editing provided for more efficient SPSS programming in analyzing the data. However, before analyzing the hypotheses, the return rate and the response bias of the nonreturning student questionnaires were analyzed.

Analysis of the Nonreturning Student

Questionnaires

The ACT Nonreturning Student Survey Questionnaires were sent to 841 nonreturning students (488 native, 209 vertical, and 144 horizontal).

A total of 313 were returned (187 native, 76 vertical, and 50 horizontal), yielding a 37.2 percent return. All the voluntary nonreturning students were from the period fall, 1978, through winter, 1980. Table II shows the total percentage of returns and the number of returns by nonreturning student type for both the initial and follow-up mailing.

To assess the differences between the respondents and nonrespondents on the thirteen background characteristics of the ACT Nonreturning Student Survey Questionnaire, a random sample of 75 native, 40 vertical, and 30 horizontal students was generated by a computer random generator function from 301 native, 133 vertical, and 94 horizontal nonreturning nonrespondents respectively. The data for the thirteen background variables on each sample of nonrespondents was found in the records office and recorded on a coding sheet (Format IV, Appendix D). This information for each student was then keypunched. A disk file was created using a COBOL program to concatenate the respondent nonreturning file (187 native, 76 vertical, and 50 horizontal) and the nonrespondent nonreturning sample of (75 native, 40 vertical, and 30 horizontal) students. A crosstab SPSS computer program was used to calculate the frequencies, percentage, and chi-square test for each pair of respondent and nonrespondent type of student (native, vertical, and horizontal) on each of the thirteen background variables. A summary of this output is given in Tables LXIX-LXXVIII in Appendix C. There was no statistically significant difference between the respondents and nonrespondents of the ACT Nonreturning Student Survey at the .05 level for the following pairs of students: (1) native respondents and native nonrespondents, (2) vertical respondents and vertical nonrespondents, and (3) horizontal respondents and horizontal nonrespondents. Therefore, the sample of respond-

TABLE II

DISTRIBUTION OF QUESTIONNAIRES SENT, RETURNED, AND ANALYZED
 ACCORDING TO TYPE OF NONRETURNING STUDENT, FALL, 1978
 THROUGH WINTER, 1980 QUARTERS

TYPE STUDENT	NUMBER SENT	NUMBER RETURNED FIRST MAILING	NUMBER RETURNED FOLLOW-UP POST-CARD	TOTAL RETURNED	PERCENT RETURNED
Native	488	151	36	187	38.3
Vertical	209	62	14	76	36.3
Horizontal	144	43	7	50	34.7
Total	841	253	55	313	37.2

ents was considered to be an unbiased sample of the nonreturning students for this study.

Background Variables

The first question posed in this study was: What were the characteristics of nonreturning horizontal transfers, nonreturning native students, returning horizontal transfers, returning vertical transfers, and returning native students at State University? Comparisons between these groups were made on the following background variables: (1) age, (2) race (black vs. nonblack), (3) classification, (4) purpose for entering college, (5) enrollment status (full or part-time), (6) sex, (7) marital status, (8) type of tuition paid (in-state or out-of-state), (9) most recent college residence, (10) college major, (11) cumulative grade point average, (12) length of enrollment, and (13) hours employed per week while enrolled. The comparisons between the following groups were made in terms of each background variable above:

1. Nonreturning horizontal transfers and returning horizontal transfers.
2. Nonreturning vertical transfers and returning vertical transfers.
3. Nonreturning natives and returning natives.
4. Nonreturning natives, vertical transfers, and horizontal transfers.
5. Returning natives, vertical transfers, and horizontal transfers.
6. All six groups (nonreturning and returning natives, vertical transfers, and horizontal transfers).
7. All nonreturning and all returning students.

To understand the analysis of the thirteen background variables on each of the above groups, an examination of the coding of each variable is given in Appendix G.

An SPSS stepwise discriminant analysis program was used to analyze the thirteen background variables with respect to the groups defined earlier in this study. Four sets of test statistics are presented for each comparison: the multivariate F-ratio for overall group differences, the stepwise F-ratio for the test of an individual variable holding prior variables constant, the standardized discriminant function coefficients, and the discriminant functions for providing differentiation between groups.

Comparison Between Nonreturning and Returning Horizontal Transfers on Background Variables

The means and common standard deviations (i.e. pooled across groups) of the background variables still in the analysis after eleven steps are presented in Table III. The nonreturning and returning horizontal transfers were different with respect to their overall background (the multivariate F-ratio of 11.86 was significant at the .0001 level with 11 and 126 degrees of freedom, see Table IV). The differences were particularly substantial in classification, college residence, sex, major, enrollment status, and age (see the univariate F-ratio for these variables in Table IV). Since the stepwise F-ratios on these variables were still significant at the .0001 level (see Table IV), the differences on these variables still existed even when some prior variables were controlled. Returning and nonreturning horizontal transfers had significant differences on the variables race, arts and science majors,

TABLE III

MEANS AND COMMON STANDARD DEVIATIONS FOR NONRETURNING AND
RETURNING HORIZONTAL TRANSFER STUDENTS ON SIGNIFICANT
BACKGROUND VARIABLES

BACKGROUND VARIABLES(1)	NONRETURNING HORIZONTAL TRANSFERS	RETURNING HORIZONTAL TRANSFERS	COMMON (2) STANDARD DEVIATION
Classification	2.65	3.22	0.70
College residence hall (vs other housing)	1.73	1.46	0.44
Male (vs female)	1.73	1.40	0.44
Arts & science (vs other majors)	1.65	1.78	0.48
Health profession (vs other majors)	1.78	1.90	0.28
Black (vs nonblack)	1.95	1.92	0.20
Enrollment status (full vs part-time)	1.17	1.04	0.38
Education (vs other majors)	1.86	1.86	0.34
Off-campus room or apartments (vs other types)	1.86	1.77	0.34
Cumulative grade point	4.86	5.05	0.70
Age	5.26	4.59	1.69
Sample Size N (3)	46	92	138

- (1) Background variables in the analysis after step 11.
 (2) The squares of these values are within-group means of squares (the error terms for univariate analysis).
 (3) The differences in sample size in this analysis were due to missing data on background variables.

TABLE IV
 TEST STATISTICS FOR COMPARISON BETWEEN NONRETURNING AND
 RETURNING HORIZONTAL TRANSFERS ON BACKGROUND
 VARIABLES

BACKGROUND VARIABLES(1)	UNIVARIATE F(2) df(1, 136)	p	STEPWISE F(2) p	STANDARDIZED DISCRIMINANT COEFFICIENTS(3)	
Classification	17.16	***	62.45	***	1.21
Campus-residence halls (vs other)	9.69	**	33.79	****	-0.95
Male (vs female)	15.28	***	14.62	****	-0.52
Arts & science (vs other)	2.72		5.05	****	0.31
Health professions (vs other majors)	8.76	**	9.63	****	0.45
Black (vs nonblack)	0.52		8.32	****	-0.43
Enrollment status (full vs part-time)	6.80	*	11.12	****	0.56
Education (vs other)	0.00		2.63	****	0.24
Off-campus room or apartment (vs other housing)	1.86		3.29	****	-0.28
Cumulative grade point	1.01		2.36	****	0.22
Age	4.52	*	2.28	****	-0.23

Multivariate F = 11.86 X = 92.77
 (df = 11, 126) p < .0001 (df = 11) p < .00001

- (1) Background variables in the analysis after step 11. Variables are listed in the order in which the stepwise analysis was performed. Thus, the stepwise F shows the significance of the indicated dependent variable, controlling for all variables listed above it.
- (2) * p < .05, ** p < .01, *** p < .001, **** p < .00001
- (3) The sign of the discriminant function coefficients shows the direction of relationship. A positive sign indicates that returning horizontal transfers were higher on dependent variables than nonreturning horizontal transfers.

and cumulative grade point average after controlling the variables prior to each (see Table IV) by stepwise discriminant analysis. As indicated by the discriminant coefficients in Table IV, returning horizontal transfer students were composed of more upper classmen, more individuals living in college residence halls, more males, and more full-time students than nonreturning horizontal transfers. The nonreturning horizontal transfer students were older and had more majors in the health care professions than the returning horizontal transfer students. After the variables prior to arts and science majors, race, off-campus room or apartment and cumulative grade point average were controlled, the returning horizontal transfer students had fewer arts and science majors, more black students, higher cumulative grade point averages and more individuals living in off-campus rooms or apartments than the nonreturning horizontal transfer students.

Comparison Between Nonreturning and Returning

Vertical Transfers on Background Variables

The means and common standard deviations (i.e. pooled across groups) of the background variables still in the analysis after step nineteen are presented in Table V. The nonreturning and returning vertical transfers were different with respect to their overall background (the multivariate F-ratio of 14.27 was significant at the .0001 level with 13 and 130 degrees of freedom, see Table VI). The differences were particularly substantial in enrollment status, major, purpose, classification, housing, type of tuition, length of enrollment, and race (see the univariate F-ratio for these variables in Table VI). Since the stepwise F-ratios on these variables were still significant at the .0001 level (see Table VI), the differences on these variables still existed even when some

TABLE V
 MEANS AND COMMON STANDARD DEVIATIONS FOR NONRETURNING AND
 RETURNING VERTICAL TRANSFER STUDENTS ON SIGNIFICANT
 BACKGROUND VARIABLES

BACKGROUND VARIABLES(1)	NONRETURNING VERTICAL TRANSFERS	RETURNING VERTICAL TRANSFERS	COMMON (2) STANDARD DEVIATIONS
Enrollment status (full vs part-time)	1.31	1.02	0.34
Health profession (vs other majors)	1.85	2.00	0.24
Purpose	7.62	8.00	0.90
Classification	2.68	3.27	0.77
Off-campus rooms or apartments vs other types of housing)	1.77	1.85	0.39
Home of parents or relative (vs other types of housing)	1.80	1.93	0.33
Business (vs other majors)	1.77	1.60	0.45
Hours employed/week	2.31	2.13	1.50
Type of tuition (in-state vs out-of-state)	1.05	1.18	0.32
Nonuniversity housing (vs university housing)	1.25	1.59	0.46
Cumulative grade point	4.71	4.75	1.21
Length of enrollment	3.11	4.25	1.29
Black (vs nonblack)	1.94	1.81	0.32
Sample Size N (3)	70	74	144

- (1) Background variables in the analysis after step 19.
 (2) The squares of these values are the within-group means of squares (the error terms for univariate analysis).
 (3) The differences in sample size in this analysis were due to missing data on background variables.

TABLE VI

TEST STATISTICS FOR COMPARISON BETWEEN NONRETURNING AND
RETURNING VERTICAL TRANSFER STUDENTS ON BACKGROUND
VARIABLES

BACKGROUND VARIABLES(1)	UNIVARIATE F(2) (df = 1, 142) p	STEPWISE F(2) p	STANDARDIZED DISCRIMINANT COEFFICIENTS(3)
Enrollment status (full vs part-time)	24.75 ****	57.20 ****	-1.31
Health profession (vs other majors)	12.16 ***	3.00 ****	0.22
Purpose	6.05 *	2.09 ****	0.18
Classification	20.37 ****	16.75 ****	0.58
Off-campus rooms or apartments (vs other)	1.53	27.33 ****	0.93
Home of parents or relative (vs other)	5.64 *	26.20 ****	0.88
Business (vs other)	4.54 *	17.42 ****	-0.55
Hours/week employed	0.50	6.98 ****	0.40
Type of tuition (in-state vs out)	5.88 *	11.90 ****	0.49
Nonuniversity housing (vs university housing)	18.64 ****	11.81 ****	-0.73
Cumulative grade point	0.04	6.11 ****	-0.34
Length of enrollment	28.11 ****	3.31 ****	0.24
Black (vs nonblack)	5.88 *	1.66 ****	-0.17
Multivariate F = 14.27 X = 120.16 (df = 13, 130) p < .0001 (df = 13) p < .0001			

- (1) Background variables in the analysis after step 19. Variables are listed in the order in which the stepwise analysis was performed. Thus, the stepwise F shows the significance of the indicated dependent variable, controlling for all variables listed above it.
- (2) * p < .05, ** p < .01, *** p < .001, **** p < .0001
- (3) The sign of the discriminant function coefficients shows direction of relationship. A positive sign indicates that returning vertical transfers were higher on the dependent variables than the nonreturning vertical transfers.

prior variables were controlled. Nonreturning and returning vertical transfers had significant differences on the variables hours per week employed and cumulative grade point average after controlling the variables prior to each (see Table VI) by stepwise discriminant analysis. As indicated by the discriminant coefficients in Table VI, the nonreturning vertical transfers consisted of more part-time and nonblack students than returning vertical transfer students. Tables V and VI show that returning vertical transfers were composed of more upper classmen, more students majoring in business, more out-of-state students, more students entering college with higher degree goals, and more students enrolled longer than the nonreturning vertical transfers. Anderson¹ found that education ranked first in order of major areas of study followed by business for vertical transfer students at Kansas Community Junior College. However, the nonreturning vertical transfers were composed of more health profession majors and lived in more nonuniversity housing.

Comparison Between Nonreturning and Returning Natives on Background Variables

The means and common standard deviations of the background variables still in the analysis after sixteen steps are presented in Tables VII and VIII. The nonreturning and returning natives were different in their overall background (the multivariate F-ratio of 21.99 was significant at the .0001 level with 16 and 491 degrees of freedom, see Table VIII). The differences were particularly substantial in the variables of housing, purpose, age, major, type of tuition, length of enrollment, sex,

¹Kenneth E. Anderson, pp. 280-281.

TABLE VII
 MEANS AND COMMON STANDARD DEVIATIONS FOR NONRETURNING AND
 RETURNING NATIVE STUDENTS ON SIGNIFICANT BACKGROUND
 VARIABLES

BACKGROUND VARIABLES (1)	NONRETURNING NATIVE	RETURNING NATIVE	COMMON (2) STANDARD DEVIATION
Own home (vs other housing)	1.80	1.99	0.24
Purpose	6.49	7.67	1.73
Age	4.27	3.11	1.59
Home of parents or relative (vs other housing)	1.81	1.92	0.31
Health profession (vs other majors)	1.78	1.91	0.32
Type of tuition (in-state vs out-of-state)	1.01	1.07	0.22
Classification	2.31	2.37	1.06
Length of enrollment	4.71	4.48	1.13
Sex (male vs female)	1.62	1.41	0.49
Cumulative grade point	4.60	4.97	1.26
Marital status (unmarried vs married)	1.28	1.06	0.33
Engineering (vs other majors)	1.89	1.90	0.29
Nonuniversity housing (vs university housing)	1.38	1.72	0.46
Off-campus room or apartment (vs other housing)	1.77	1.80	0.40
Campus-residence hall (vs other housing)	1.63	1.34	0.47
Arts & science (vs other majors)	1.82	1.78	0.39
Sample Size N (3)	175	333	508

- (1) Background variables in the analysis after step 16.
 (2) The squares of these values are the within-group means of squares (the error terms for univariate analysis).
 (3) The differences in sample size in this analysis and previous analyses were due to missing data on background variables.

TABLE VIII

TEST STATISTICS FOR COMPARISON BETWEEN NONRETURNING AND RETURNING NATIVE STUDENTS ON BACKGROUND VARIABLES

BACKGROUND VARIABLES(1)	UNIVARIATE F(2) (df = 1, 506) p	STEPWISE F(2) p	STANDARDIZED DISCRIMINANT COEFFICIENT(3)
Own home (vs other housing)	72.84 ****	4.16 ****	0.82
Purpose	52.94 ****	31.63 ****	-0.40
Age	60.89 ****	24.19 ****	0.50
Home of parents or relative (vs other housing)	16.06 ***	6.12 ****	1.25
Health profession (vs other majors)	17.17 ****	17.37 ****	-0.31
Type of tuition (in-state vs out)	9.36 **	21.39 ****	-0.34
Classification	0.37	22.97 ****	-0.75
Length of enrollment	4.50 *	16.07 ****	0.64
Sex (male vs female)	20.07 ****	6.36 ****	0.19
Cumulative grade point	9.61 **	6.16 ****	-0.18
Unmarried (vs married)	49.78 ****	5.29 ****	0.18
Engineering (vs other majors)	0.44	2.87 ****	-0.10
Nonuniversity housing (vs university housing)	62.49 ****	11.83 ****	-2.61
Off-campus room or apartment (vs other)	0.42	8.75 ****	1.94
Campus-residence hall (vs other housing)	41.82 ****	4.21 ****	-0.34
Arts & science (vs other majors)	1.08	1.92 ****	-0.13
Multivariate F = 21.99 X = 269.09 (df = 16, 491) p < .0001 (df = 16) p < .0001			

- (1) Background variables in the analysis after step 16. Variables are listed in the order in which the stepwise analysis was performed. Thus, the stepwise F shows the significance of the indicated dependent variable, controlling for all variables listed above it.
- (2) * p < .05, ** p < .01, *** p < .001, **** p < .0001
- (3) The sign of the discriminant function coefficients shows the direction of relationship. A positive sign indicates that nonreturning natives were higher on the dependent variables than returning native students.

cumulative grade point average and marital status (the univariate F-ratios for these variables were significant at the .001 and .05 levels with 1 and 506 degrees of freedom, see Table VIII). The differences on these variables existed even after prior variables were controlled (the stepwise F-ratios were significant at the .0001 level, see Table VIII). As indicated by the standardized discriminant scores in Table VIII, the nonreturning native students were composed of relatively more students who lived in nonuniversity housing. In fact, more nonreturning natives either lived in their own homes, or in the home of parents or relatives, or off-campus rooms or apartments. More returning native students lived in college residence halls. The nonreturning native students were composed of more older students, more females, more married students, slightly more in-state students, and more health profession majors. The returning native students were composed of more students with higher cumulative grade point averages. Also, more returning native students had higher degree goals than nonreturning native students. The returning natives had more students enrolled for a period of three or more years than the nonreturning native students, but fewer returning native students were enrolled for the period one year to three years.

Comparison of Nonreturning and Returning

Students on Background Variables

The means and common standard deviations of the background variables still in the analysis after step fifteen are presented in Tables IX and X. The nonreturning and returning students were different with respect to their overall background (the multivariate F-ratio of 23.185 was significant at the .0001 level with 15 and 774 degrees of freedom,

TABLE IX

MEANS AND COMMON STANDARD DEVIATIONS FOR NONRETURNING AND RETURNING STUDENTS ON SIGNIFICANT BACKGROUND VARIABLES

BACKGROUND VARIABLES (1)	NONRETURNING STUDENTS	RETURNING STUDENTS	COMMON (2) STANDARD DEVIATIONS
Noruniversity housing (vs university housing)	1.33	1.66	0.47
Purpose	6.82	7.69	1.64
Own home (vs other housing)	1.74	1.95	0.30
Sex (male vs female)	1.60	1.38	0.48
Cumulative grade point	4.67	4.95	1.21
Health profession (vs other majors)	1.82	1.94	0.29
Age	4.63	3.71	1.80
Classification	2.45	2.66	1.03
Home of parents or relative (vs other housing)	1.80	1.92	0.32
Type of tuition (in-state vs out-of-state)	1.03	1.10	0.26
Engineering (vs other majors)	1.90	1.91	0.28
Arts & science (vs other majors)	1.78	1.79	0.41
Enrollment status (full vs part-time)	1.13	1.01	0.22
Black (vs nonblack)	1.92	1.87	0.30
Sample Size N (3)	291	499	790

- (1) Background variables in the analysis after step 15.
 (2) The squares of these values are the within-group means of squares (the error terms for univariate analysis).
 (3) The differences in sample size in this analysis and previous analyses were due to missing data on background variables.

TABLE X

TEST STATISTICS FOR COMPARISON BETWEEN NONRETURNING AND
RETURNING STUDENTS ON BACKGROUND VARIABLES

BACKGROUND VARIABLES(1)	UNIVARIATE F(2) (df = 1, 788) p	STEPWISE F(2) p	STANDARDIZED DISCRIMINANT COEFFICIENTS(3)
Nonuniversity housing (vs university housing)	93.39 ****	7.52 ****	0.43
Purpose	51.26 ****	21.52 ****	0.30
Own home (vs other)	81.79 ****	3.85 ****	0.18
Sex (male vs female)	34.76 ****	28.45 ****	-0.37
Cumulative grade point	9.86 **	10.64 ****	0.23
Health profession (vs other majors)	30.02 ****	9.42 ****	0.27
Age	47.72 ****	26.78 ****	-0.50
Classification	7.50 **	17.67 ****	0.35
Home of parent or relative (vs other)	25.65 ****	9.42 ****	0.23
Type of tuition (in-state vs out)	12.02 ***	9.23 ****	0.20
Engineering (vs other)	0.17	5.44 ****	0.16
Arts & science (vs other majors)	0.06	2.56 ****	0.10
Enrollment status (full vs part-time)	54.30 ****	2.08 ****	-0.11
Black(vs nonblack)	4.97 *	1.27 ****	-0.07
Multivariate F = 23.185		X = 289.64	
(df = 15, 774) p < .0001		(df = 15) p < .0001	

- (1) Background variables in the analysis after step 15.
Variables are in the order in which the stepwise analysis was performed. Thus, the stepwise F shows the significance of the indicated dependent variable, controlling for all variables listed above it.
- (2) * p < .05, ** p < .01, *** p < .001, **** p < .0001
- (3) The sign of the discriminant function coefficients shows the direction of relationship. A positive sign indicates that returning students were higher on the dependent variable than nonreturning students.

see Table X). The differences were particularly substantial in housing, purpose, sex, cumulative grade point, age, classification, type of tuition, enrollment status and race (the univariate F-ratios for these variables were significant at the .001 and .05 levels with 1 and 788 degrees of freedom, see Table X). The difference on these variables existed even after prior variables were controlled (the stepwise F-ratios were significant at the .0001 level, see Table X). As indicated by the standardized discriminant scores in Table X, the nonreturning students were composed of more females, more older, more nonblack, more part-time, and more in-state students, and more students majoring in the health professions. Also, more nonreturning students lived in nonuniversity housing. In fact, more nonreturning students owned their homes or lived with a parent or relative. The returning students were made up of more upper classmen, more students with higher cumulative grade point averages and more students with higher degree goals.

Comparison Among the Nonreturning Natives,
Vertical Transfers and Horizontal
Transfers on Background Variables

The means and common standard deviations for the three groups, nonreturning natives, vertical transfers and horizontal transfers, of the background variables still in the analysis after step seventeen are presented in Table XI. The nonreturning natives, vertical transfers and horizontal transfers were different with respect to their overall background (the pairwise multivariate F-ratios were significant at the .0001 level with 17 and 272 degrees of freedom, see Table XII). A multiple discriminant analysis performed on the data yielded two discriminant

TABLE XI

MEANS AND COMMON STANDARD DEVIATIONS FOR NONRETURNING NATIVE,
VERTICAL TRANSFER AND HORIZONTAL TRANSFER STUDENTS ON
BACKGROUND VARIABLES

BACKGROUND VARIABLES(1)	NATIVE	VERTICAL TRANSFER	HORIZONTAL TRANSFER	COMMON (2) STANDARD DEVIATION
Length of enrollment	4.71	3.11	3.69	1.06
Classification	2.31	2.68	2.65	0.79
Sex (male vs female)	1.62	1.45	1.73	1.91
Purpose	6.49	7.62	6.86	0.48
Health Profession (vs other majors)	1.78	1.85	1.91	0.37
Education (vs other majors)	1.89	1.77	1.86	0.34
Type of Tuition (in-state vs out-of-state)	1.01	1.05	1.08	0.18
Age	4.27	5.11	5.26	1.79
Enrollment Status (full vs part-time)	1.05	1.31	1.17	0.32
Own Home (vs other housing)	1.80	1.68	1.65	0.43
Hours Employed/Week	2.29	2.31	1.95	1.56
Black (vs nonblack)	1.91	1.94	1.95	0.25
Unmarried (vs married)	1.28	1.37	1.39	0.46
Business (vs other major)	1.70	1.77	1.82	0.43
Agriculture (vs other major)	1.95	1.94	1.91	0.22
Home of parent or relative (vs other housing)	1.80	1.80	1.78	0.39
Cumulative grade point average	4.60	4.71	4.86	1.24
Sample Size N (3)	175	70	46	291

(1) Background variables in the analysis after step 17.

(2) The squares of these values are the within-group means of squares (the error terms for univariate analysis).

(3) The differences in sample size in this analysis and previous analyses were due to missing data on background variables.

TABLE XII

F STATISTICS AND SIGNIFICANCES BETWEEN PAIRS OF THE GROUPS
 NONRETURNING NATIVE, VERTICAL TRANSFER AND HORIZONTAL
 TRANSFER STUDENTS ON BACKGROUND VARIABLES

GROUPS	F-RATIOS	
	(df = 17, 272)	p
Active and vertical transfers	16.17	< .0001
Active and horizontal transfers	6.91	< .0001
Vertical transfer and horizontal transfers	3.43	< .0001

functions (see Table XIII), the first of which was statistically significant at the .0001 level and the second at the .001 level. The relative magnitudes of the two eigenvalues indicate the percentage of the total discriminating power of the battery as a whole that is apportioned to the two discriminant functions. The first function accounts for 87 percent and the second for 12.7 percent of the total discriminating power of the background variables (see Table XIII).

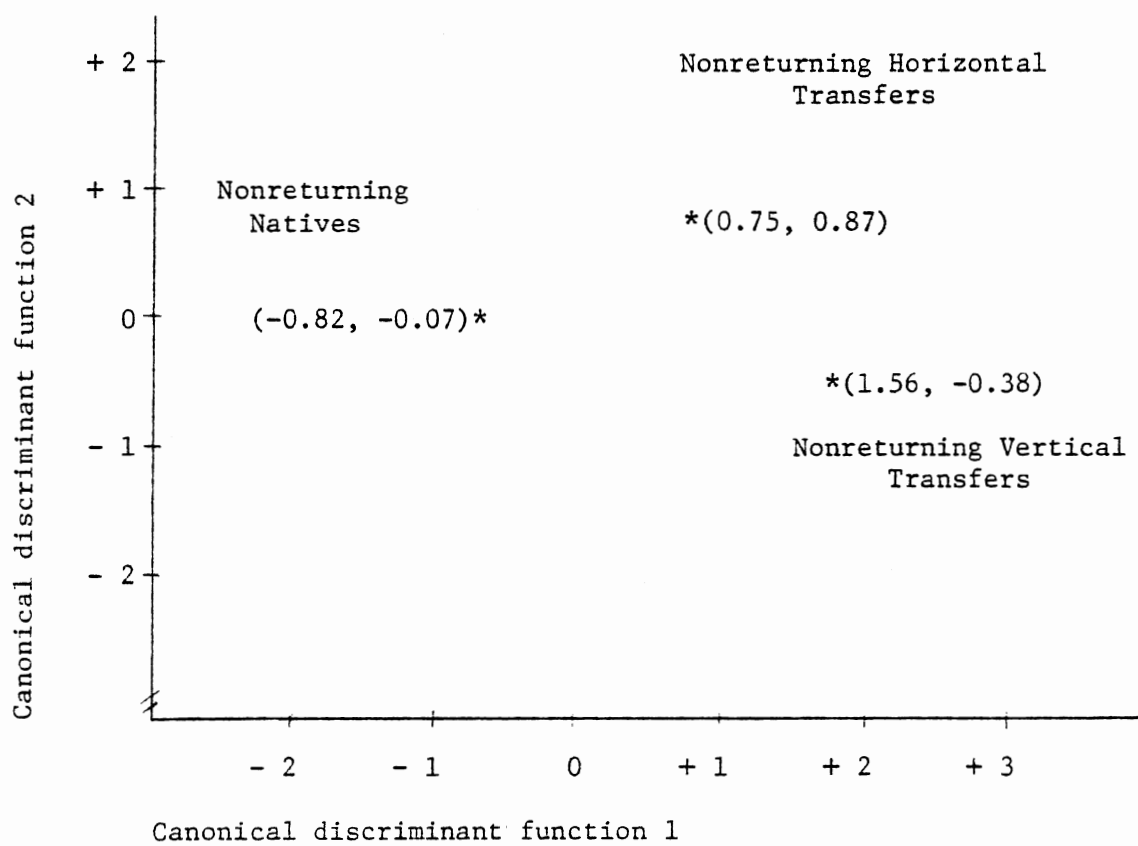
What was of greater interest, however, was to see if any meaningful interpretation could be given to the two discriminant functions treated as "factors" that underlie the group pattern of standardized weights (Table XIII), in conjunction with the observed configuration of group centroids in the discriminant space (Figure 2). The means (centroids) of the two discriminant functions for the three groups are plotted in Figure 2. The graph shows that the first discriminant function separated the three groups, ranking them from high to low, in the order (1) nonreturning vertical transfers, (2) nonreturning horizontal transfers, and (3) nonreturning natives. However, the difference between the vertical and horizontal transfer was relatively small. The second discriminant function, on the other hand, sets the nonreturning horizontal transfers (on the high end) from the other two groups which have less difference in their means in this dimension.

With this configuration of centroids in mind, examination of the pattern of weights in Table XIII provided a more meaningful interpretation of the two discriminant functions. The first discriminant function variables classification, enrollment status and owning a home, had the largest positive weights of .59, .39, and .49 respectively. The largest negative weight was length of enrollment (-.97). Therefore,

TABLE XIII
 TEST STATISTICS FOR COMPARISON AMONG NONRETURNING NATIVE,
 VERTICAL TRANSFER, AND HORIZONTAL TRANSFER STUDENTS
 ON BACKGROUND VARIABLES

BACKGROUND VARIABLES(1)	UNIVARIATE F(2) (df = 2, 288) p	STEPWISE F(2) p	DISCRIMINANT FUNCTIONS (3)	
			1	2
Length of enrollment	61.45 ***	69.24 ***	-0.97	0.003
Classification	7.05 **	18.86 ***	0.59	0.01
Sex (male vs female)	5.15 **	9.19 ***	-0.16	0.78
Purpose	8.71 ***	5.28 ***	0.23	-0.30
Health profession (vs other majors)	2.29	7.11 ***	0.15	0.67
Education (vs other)	3.38 *	3.91 ***	-0.02	0.52
Type of tuition (in-state vs out)	3.91 *	2.32 ***	0.12	0.26
Age	8.85 ***	5.92 ***	0.22	0.73
Enrollment status (full vs part-time)	16.87 ***	6.65 ***	0.39	-0.36
Own home (vs other)	3.13 *	6.91 ***	0.49	-0.18
Hours employed/week	0.94	3.34 ***	-0.20	-0.38
Black (vs nonblack)	0.63	1.28 ***	0.14	0.00
Unmarried (vs married)	1.42	1.75 ***	0.20	0.05
Business (vs other)	1.68	2.44 ***	0.20	0.17
Agriculture (vs other)	0.59	1.81 ***	0.14	-0.18
Home of parents or relatives (vs other)	0.10	1.58 ***	-0.10	-0.24
Cumulative grade point	0.86	1.01 ***	0.13	0.03
EIGENVALUE			1.10	0.16
PERCENT OF VARIANCE			87.29	12.71
FUNCTION 1	X = 250.06	df = 34	p < .0001	
FUNCTION 2	X = 41.75	df = 16	p < .001	

- (1) Background variables in the analysis after step 17.
 Variables are listed in the order in which the stepwise
 analysis was performed. Thus, the stepwise F shows the
 significance of the indicated dependent variable,
 controlling for all variables listed above it.
- (2) * p < .05, ** p < .01, *** p < .001, **** p < .0001
- (3) Standardized discriminant function coefficients.



*Indicates a group centroid.

Figure 2. Territorial Map of the Nonreturning Native, Vertical Transfer and Horizontal Transfer Students

the first discriminant function could be interpreted as a "factor" of enrollment and housing. The nonreturning vertical and horizontal transfers were composed of more upper classmen, more part-time students, and more home owning students than the nonreturning natives (see Table XI and Figure 2). However, the negative length of enrollment variable in this function indicates that nonreturning natives were enrolled longer than either nonreturning horizontal or vertical transfers, and the nonreturning horizontal transfers were enrolled longer than the nonreturning vertical transfers (see Table XI and Figure 2).

For the second discriminant function, the weights with the largest absolute magnitude were sex, age, and major (health profession and education, see Table XIII). This pattern of weights implies that a group of students scoring high on the second discriminant function is female, older, and is likely to major in something other than the health professions or education, than either the nonreturning native or vertical transfer in that order (Table XI and Figure 2). In like manner, the nonreturning natives are composed of more females, older and fewer students majoring in education and the health professions than the nonreturning vertical transfers.

Comparison Among Returning Natives, Vertical
Transfers, and Horizontal Transfers
on Background Variables

The means and common standard deviations for the three groups (returning native, vertical transfer and horizontal transfer) of the background variables still in the analysis after step twenty are presented in Table XIV. The returning natives, vertical transfers, and horizontal

TABLE XIV

MEANS AND COMMON STANDARD DEVIATIONS FOR RETURNING NATIVES,
VERTICAL TRANSFER AND HORIZONTAL TRANSFER STUDENTS FOR
BACKGROUND VARIABLES

BACKGROUND VARIABLES(1)	NATIVES	VERTICAL TRANSFER	HORIZONTAL TRANSFER	COMMON (2) STANDARD DEVIATIONS
Age	3.11	5.31	4.59	1.56
Length of enrollment	4.48	4.25	4.13	1.25
Classification	2.37	3.27	3.22	1.06
Type of tuition (in-state vs out-of-state)	1.07	1.18	1.13	0.30
Off-campus room or apartment (vs other housing)	1.80	1.85	1.77	0.39
Sex (male vs female)	1.41	1.24	1.40	0.48
Education (vs other majors)	1.87	1.71	1.86	0.35
Unmarried (vs married)	1.06	1.36	1.25	0.33
Black (vs nonblack)	1.87	1.81	1.92	0.32
Business (vs other majors)	1.63	1.60	1.67	0.48
Enrollment status (full vs part-time)	1.00	1.02	1.04	0.10
Own home (vs other housing)	1.99	1.86	1.89	0.19
Health profession (vs other majors)	1.91	2.00	2.00	0.22
Arts & science (vs other majors)	1.78	1.78	1.78	0.41
Agriculture (vs other majors)	1.90	1.93	1.89	0.28
Engineering (vs other majors)	1.90	1.95	1.90	0.27
Cumulative grade point	4.97	4.75	5.05	1.20
Campus-residence hall (vs other housing)	1.34	1.54	1.46	0.48
Nonuniversity housing (vs university housing)	1.72	1.59	1.53	0.14
Home of parent or relative (vs other housing)	1.92	1.93	1.90	0.26
Sample Size N (3)	333	74	92	499

(1) Background variables in the analysis after step 20.

(2) The squares of these values are the within-group means of squares (the error terms for univariate analysis).

(3) The differences in sample size in this analysis and previous analyses were due to missing data on background variables.

transfers were different with respect to their overall backgrounds (the pairwise multivariate F-ratios were significant at the .0001 level with 20 and 477 degrees of freedom, see Table XV). Also, the multiple discriminant analysis performed on the data yielded two discriminant functions (see Table XV), with both functions statistically significant at the .0001 level. The first function accounts for 90 percent and the second accounts for 10 percent of the total discriminant powers of the background variables (see Table XVI).

What is a meaningful interpretation of the standardized weights of these two discriminant functions? The means (centroids) of these two functions for the three groups are plotted in Figure 3. The graph shows that the first function separated the returning natives from the returning horizontal and vertical transfers, but the separation between the returning horizontal and vertical transfers was relatively small. In fact, Figure 3 shows the first discriminant function separated the three groups, ranking them from high to low in the order returning vertical, horizontal, and native. The second discriminant function separated the three groups, ranking them from high to low in the order returning horizontal, native, and vertical. However, this group separation by either function was relatively small.

With this configuration of centroids in mind, the pattern of standardized weights in Table XVI provides a more meaningful interpretation of the two discriminant functions. The first function variables classification, age and off-campus room or apartment had the largest positive weights of 1.4°, .58, and .58 respectively. The two negative weights with the largest magnitudes on the first function were length of enrollment (-1.62) and nonuniversity housing (-.63). Therefore, this first

TABLE XV

F STATISTICS AND SIGNIFICANCES BETWEEN THE PAIRS OF GROUPS
RETURNING NATIVE, VERTICAL, AND HORIZONTAL TRANSFER
STUDENTS FOR BACKGROUND VARIABLES

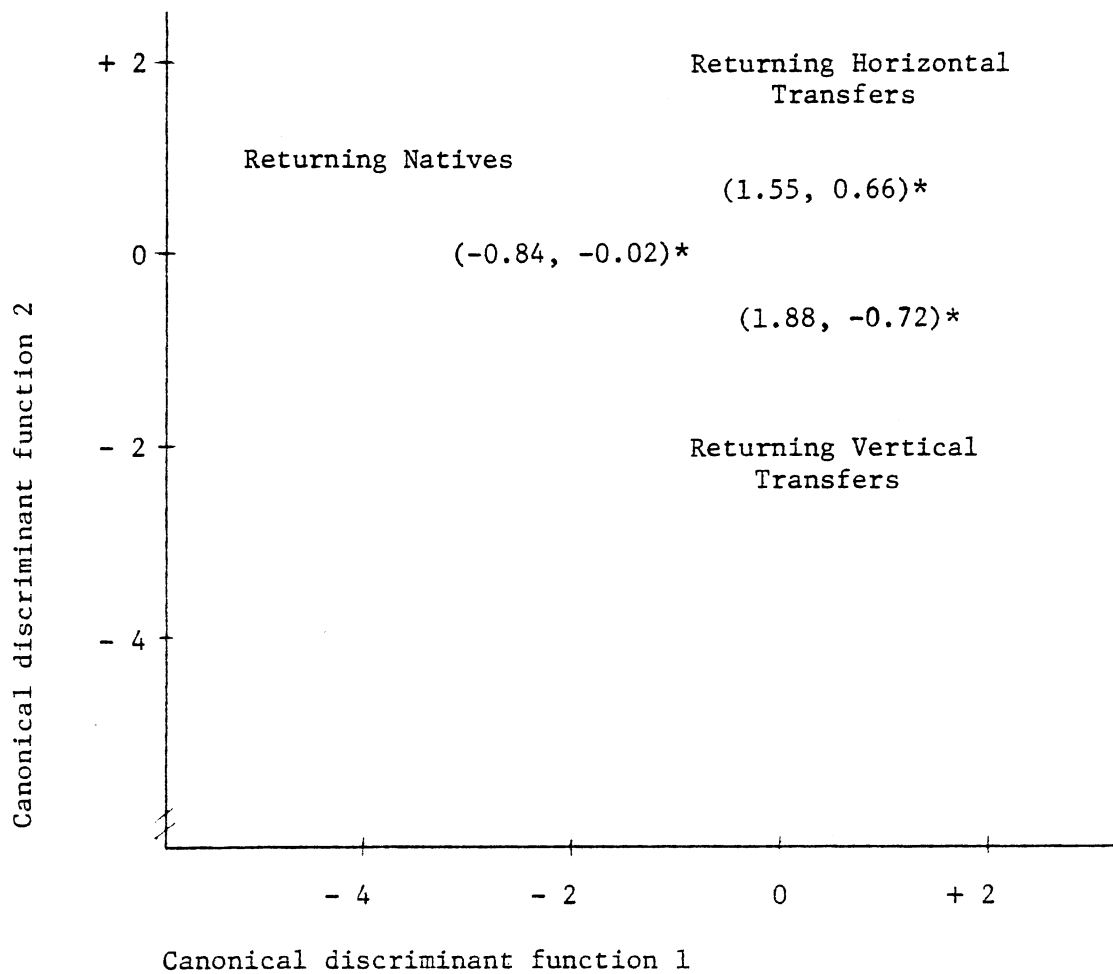
GROUPS	F-RATIOS (df = 20, 477)	p
Native and vertical transfers	23.24	< .0001
Native and horizontal transfers	21.73	< .0001
Vertical and horizontal transfers	4.01	< .0001

TABLE XVI

TEST STATISTICS FOR COMPARISON AMONG RETURNING NATIVE, VERTICAL
TRANSFER, AND HORIZONTAL TRANSFER STUDENTS ON BACKGROUND
VARIABLES

BACKGROUND VARIABLES(1)	UNIVARIATE F(2) (df = 2, 496) p	STEPWISE F(2) p	DISCRIMINANT FUNCTIONS (3)	
			1	2
Age	78.15 ***	25.02 ***	0.58	-0.57
Length of enrollment	3.42 *	157.95 ***	-1.62	-0.32
Classification	37.24 ***	93.40 ***	1.40	0.89
Type of tuition (in-state vs out)	4.85 **	9.35 ***	0.28	-0.02
Off-campus room or apartment (vs other)	0.83	4.15 ***	0.58	-0.47
Sex (male vs female)	3.94 *	7.56 ***	-0.19	0.33
Education (vs other)	6.18 **	15.62 ***	0.09	1.47
Unmarried (vs married)	30.09 ***	6.76 ***	0.28	0.02
Black (vs nonblack)	2.47	3.85 ***	-0.05	0.35
Business (vs other)	0.39	12.59 ***	0.22	1.60
Enrollment status (full vs part-time)	6.69 **	2.65 ***	0.16	0.02
Own home (vs other)	18.78 ***	4.98 ***	0.38	-0.13
Health profession (vs other majors)	7.57 **	9.24 ***	0.12	0.77
Arts & science (vs other majors)	0.01	9.26 ***	0.13	1.20
Agriculture (vs other)	0.41	5.09 ***	0.03	0.71
Engineering (vs other)	1.09	4.60 ***	0.14	0.60
Cumulative grade point	1.36	1.44 ***	-0.10	0.06
Campus-residence hall (vs other housing)	6.10 **	5.34 ***	-0.26	-0.72
Nonuniversity housing (vs university housing)	7.20 **	2.91 ***	-0.63	-0.23
Home of parents or relatives (vs other)	0.38	1.35 ***	0.21	-0.28
EIGENVALUES			1.46	0.16
PERCENT OF VARIANCE			90.13	9.87
FUNCTION 1	X = 511.76	df = 40	p < .0001	
FUNCTION 2	X = 72.48	df = 19	p < .0001	

- (1) Background variables in the analysis after step 20.
Variables are listed in the order in which the stepwise was performed. Thus, the stepwise F shows the significance of the indicated dependent variable, controlling for all variables listed above it.
- (2) * p < .05, ** p < .01, *** p < .001, **** p < .0001
- (3) Standardized discriminant function coefficients.



*Indicates group centroids.

Figure 3. Territorial Map of the Returning Native, Vertical Transfer and Horizontal Transfer Students for the Background Variables

function was interpreted as a factor of classification, age, and housing, similar to the first function of the nonreturning three groups in Table XIII. Using Figure 3 and Tables XVI and XIV, the returning vertical transfers were composed of more upper classmen and older students than either the returning horizontal or native students. Also, the returning natives were enrolled longer and had more students living in university controlled housing, such as campus residence halls, than either the returning horizontal or vertical transfers. For the second discriminant function, the weights with largest magnitude (see Table XVI) were those for education (1.47) and business (1.60). After an examination of the above weights, the second discriminant function was interpreted as a "factor" of students' majors. Therefore, the returning vertical transfers were composed more of education and business majors than either the returning horizontal transfers or native students (see Figure 3, Tables XVI and XIV). Also, the returning natives were composed of more education and business majors than the returning horizontal transfers.

Comparison Among the Six Groups: Nonreturning
Natives, Nonreturning Vertical Transfers,
Nonreturning Horizontal Transfers, Returning
Natives, Returning Vertical Transfers, and
Returning Horizontal Transfers on the
Background Variables

The means and common standard deviations of the background variables still in the analysis after twenty-two steps are presented in Table XVII, and the test statistics for group comparisons are included in Tables XVIII, XIX, and XX. The six groups, nonreturning and returning

TABLE XVII

MEANS AND COMMON STANDARD DEVIATIONS FOR THE SIX GROUPS: NONRETURNING NATIVE, NONRETURNING VERTICAL TRANSFER, NONRETURNING HORIZONTAL TRANSFER, RETURNING NATIVE, RETURNING VERTICAL TRANSFER, AND RETURNING HORIZONTAL TRANSFER STUDENTS FOR BACKGROUND VARIABLES

BACKGROUND VARIABLES (1)	NONRETURNING			RETURNING			COMMON STANDARD DEVIATIONS(2)
	NATIVE	VERTICAL TRANSFER	HORIZONTAL TRANSFER	NATIVE	VERTICAL TRANSFER	HORIZONTAL TRANSFER	
Age	4.27	5.11	5.26	3.11	5.31	4.59	1.65
Length of enrollment	4.71	3.11	3.69	4.48	4.25	4.13	1.19
Classification	2.31	2.68	2.65	2.37	3.27	3.22	0.97
Sex (male vs female)	1.62	1.45	1.73	1.41	1.24	1.40	0.48
Nonuniversity housing (vs university)	1.38	1.25	1.26	1.72	1.59	1.53	0.46
Enrollment status (full vs part-time)	1.05	1.31	1.17	1.00	1.02	1.04	0.21
Purpose	6.49	7.62	6.86	7.67	8.00	7.53	1.61
Type of tuition (in-state vs out)	1.01	1.05	1.08	1.07	1.18	1.13	0.26
Health profession (vs other majors)	1.78	1.85	1.91	1.91	2.00	2.00	0.29
Off-campus room or apartment (vs other)	1.77	1.77	1.86	1.80	1.85	1.77	0.40
Own home (vs other housing)	1.80	1.68	1.65	1.99	1.86	1.89	0.30
Unmarried (vs married)	1.28	1.37	1.39	1.06	1.36	1.25	0.38
Education (vs other)	1.89	1.77	1.86	1.87	1.71	1.86	0.34
Campus residence hall (vs other housing)	1.63	1.74	1.73	1.34	1.54	1.46	0.47
Cumulative grade point	4.60	4.71	4.86	4.97	4.75	5.05	1.21

TABLE XVII (Continued)

BACKGROUND VARIABLES (1)	NONRETURNING			RETURNING			COMMON STANDARD DEVIATIONS(2)
	NATIVE	VERTICAL TRANSFER	HORIZONTAL TRANSFER	NATIVE	VERTICAL TRANSFER	HORIZONTAL TRANSFER	
Business (vs other majors)	1.70	1.77	1.82	1.63	1.60	1.67	0.46
Home of parents or relative (vs other)	1.81	1.80	1.78	1.92	1.93	1.90	0.32
Arts & science (vs other majors)	1.82	1.74	1.65	1.78	1.78	1.78	0.41
Engineering (vs other majors)	1.89	1.91	1.95	1.90	1.95	1.90	0.28
Agriculture (vs other majors)	1.95	1.94	1.91	1.90	1.93	1.89	0.26
Black (vs nonblack)	1.91	1.94	1.95	1.87	1.81	1.92	0.96
Hours worked/week	2.29	2.31	1.95	1.88	2.13	1.94	1.29
Sample Size (3)	175	70	46	333	74	92	790

(1) Background variables in the analysis after step 22.

(2) The squares of these values are the within-group means of squares (the error terms for univariate analysis).

(3) The differences in sample size in this analysis and previous analyses were due to missing data on background variables.

TABLE XVIII

TEST STATISTICS FOR COMPARISON AMONG THE SIX GROUPS: NONRETURNING NATIVE, NONRETURNING VERTICAL TRANSFER, NONRETURNING HORIZONTAL TRANSFER, RETURNING NATIVE, RETURNING VERTICAL TRANSFER, AND RETURNING HORIZONTAL TRANSFER STUDENTS ON BACKGROUND VARIABLES

BACKGROUND VARIABLES (1)	UNIVARIATE F(2) (df = 5, 784) p	STEPWISE F(2) p	DISCRIMINANT FUNCTION COEFFICIENTS (3)				
			1	2	3	4	5
Age	43.64***	17.40***	0.45	-0.46	0.48	-0.32	0.23
Length of enrollment	22.59***	90.71***	-1.30	-0.16	0.20	-0.11	0.20
Classification	21.32***	52.84***	1.08	0.42	0.04	0.48	-0.52
Sex (male vs female)	10.71***	8.82***	-0.12	-0.38	-0.11	0.33	0.37
Nonuniversity (vs university housing)	22.89***	2.87***	-0.37	0.55	-1.16	-0.66	-0.37
Enrollment status (full vs part)	28.02***	14.19***	0.17	0.00	-0.90	-0.03	-0.02
Purpose	16.19***	8.23***	0.07	0.34	-0.29	-0.12	0.07
Type of tuition (in-state vs out)	5.71***	5.53***	0.19	0.19	0.20	0.03	0.20
Health profession (vs other major)	9.48***	1.28***	0.25	0.29	0.24	1.01	0.23
Off-campus room or apartment (vs other)	0.79	3.07***	0.25	-0.04	1.12	-0.18	1.22
Own home (vs other housing)	22.54***	3.20***	0.49	0.19	0.46	-0.23	0.55
Unmarried (vs married)	17.49***	4.66***	0.27	-0.06	0.16	-0.13	-0.32
Education (vs other majors)	3.88**	8.33***	0.11	0.04	0.30	1.33	-0.06
Campus-residence hall (vs other)	15.82***	3.66***	-0.20	0.27	-0.18	-0.88	1.00
Cumulative grade point	2.86*	3.19***	-0.02	0.24	-0.09	0.19	0.24
Business (vs other)	2.44*	5.81***	0.31	0.04	0.19	1.25	-0.12
Home of parents or relatives (vs other housing)	5.27**	2.25***	0.03	0.20	0.82	-0.14	0.78
Arts & science (vs other)	1.51	5.03***	0.16	0.14	0.36	1.01	-0.36
Engineering (vs other)	0.85	4.42***	0.18	0.18	0.36	0.58	0.13
Agriculture (vs other majors)	1.06	2.03***	0.12	0.05	0.16	0.45	-0.17

TABLE XVIII (Continued)

BACKGROUND VARIABLES (1)	UNIVARIATE F(2) (df = 5, 784) p	STEPWISE F(2) p	DISCRIMINANT FUNCTION COEFFICIENTS (3)				
			1	2	3	4	5
Black (vs nonblack)	2.33*	1.58***	0.04	-0.07	-0.15	0.23	-0.11
Hours worked/week	3.11*	1.28***	-0.11	-0.03	0.03	-0.09	-0.30
EIGENVALUES			1.13	0.46	0.19	0.10	0.02
PERCENT OF VARIANCE			58.68	24.15	10.07	5.58	1.52
FUNCTION 1	X = 1121.90	df = 110	p < .0001				
FUNCTION 2	X = 535.34	df = 84	p < .0001				
FUNCTION 3	X = 239.11	df = 60	p < .0001				
FUNCTION 4	X = 101.59	df = 38	p < .0001				
FUNCTION 5	X = 22.36	df = 18	p < .25				

(1) Background variables in the analysis after step 22.

Variables are listed in the order in which the stepwise analysis was performed. Thus, the stepwise F shows the significance of the indicated dependent variable, controlling for all variables listed above it.

(2) * p < .05, ** p < .01, *** p < .001, **** < .0001

(3) Standardized discriminant function coefficients.

TABLE XIX

F STATISTICS AND SIGNIFICANCES BETWEEN THE PAIRS OF GROUPS:
 NONRETURNING AND RETURNING NATIVES, VERTICAL TRANSFER,
 AND HORIZONTAL TRANSFER STUDENTS FOR BACKGROUND
 VARIABLES AFTER STEP 22

GROUP(1)	NONRETURN NATIVE	NONRETURN VERTICAL	NONRETURN HORIZONTAL	RETURNING NATIVE	RETURNING VERTICAL
NONRETURN VERTICAL	20.41*				
NONRETURN HORIZONTAL	7.82*	3.56*			
RETURNING NATIVE	13.02*	21.44*	11.19*		
RETURNING VERTICAL	18.83*	7.56*	5.49*	15.56*	
RETURNING HORIZONTAL	18.59*	6.81*	3.54*	14.66*	3.56*

(1) Each F statistic above has 22 and 763 degrees of freedom.

(2) * $p < .0001$

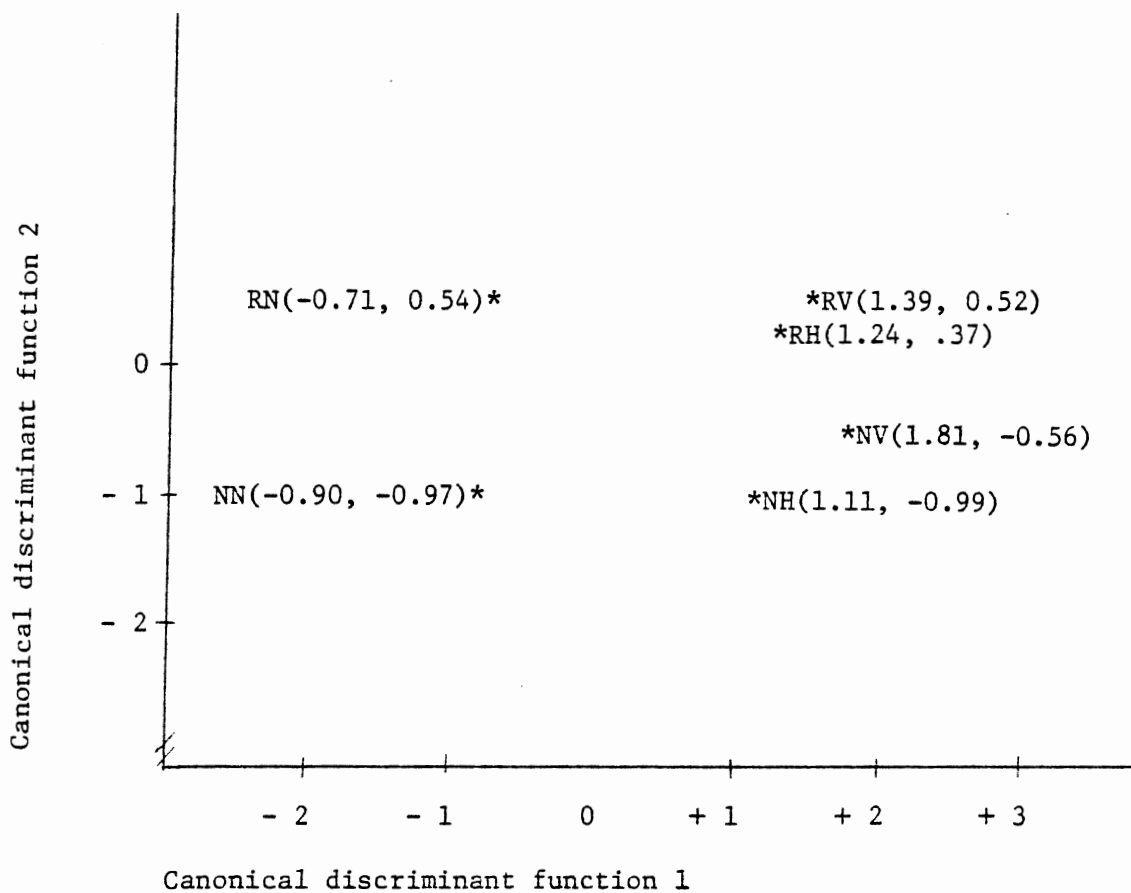
TABLE XX
 CANONICAL DISCRIMINANT FUNCTIONS IN TABLE XVIII EVALUATED AT
 GROUP MEANS (GROUP CENTROIDS)

GROUP	FUNCTION1	FUNCTION2	FUNCTION3	FUNCTION4	FUNCTION5
NONRETURN NATIVE	-0.90	-0.97	0.25	-0.06	-0.10
NONRETURN VERTICAL	1.81	-0.56	-1.01	-0.29	-0.12
NONRETURN HORIZONTAL	1.11	-0.99	0.07	0.46	0.56
RETURNING NATIVE	-0.71	0.54	-0.19	0.00	0.04
RETURNING VERTICAL	1.39	0.52	0.78	-0.65	0.06
RETURNING HORIZONTAL	1.24	0.37	0.33	0.62	-0.21

natives, vertical transfers, and horizontal transfers were different with respect to their overall background (the pairwise multivariate F-ratios were significant at the .0001 level with 22 and 763 degrees of freedom, see Table XIX). Also, the multiple discriminant analysis performed on the data yielded five discriminant functions (see Table XVIII), with the first four functions statistically significant at the .0001 level with 110, 84, 60, and 38 degrees of freedom respectively. The first function accounts for 58 percent, the second 24 percent, the third 10 percent, and the fourth 5 percent of the total discriminating power of the background variables (see Table XVIII).

A meaningful interpretation of the standardized weights of these four discriminant functions was very difficult. The means (centroids) of the third and fourth functions were plotted in Figure 5. The centroids of each group for each function are presented in Table XX. Figures 4 and 5 showed that rank order between each of the six groups did exist; however, it was relatively small among some groups. For example, the rank order on function three (Figure 5) between the six groups from low to high was nonreturning vertical, returning native, nonreturning horizontal, nonreturning native, returning horizontal, and returning vertical.

With this configuration of centroids in mind, the pattern of standardized weights in Table XVIII provides more meaning about the differences between the six groups. Function four has the largest positive weights 1.01, 1.33, 1.25, and 1.01 associated with the variables health professions, education, business, and arts and sciences respectively. Note that these variables have considerably lower weights on the other three functions. Function three has the weights with the largest



* Indicates group centroids.

NN = nonreturning native

RV = returning vertical

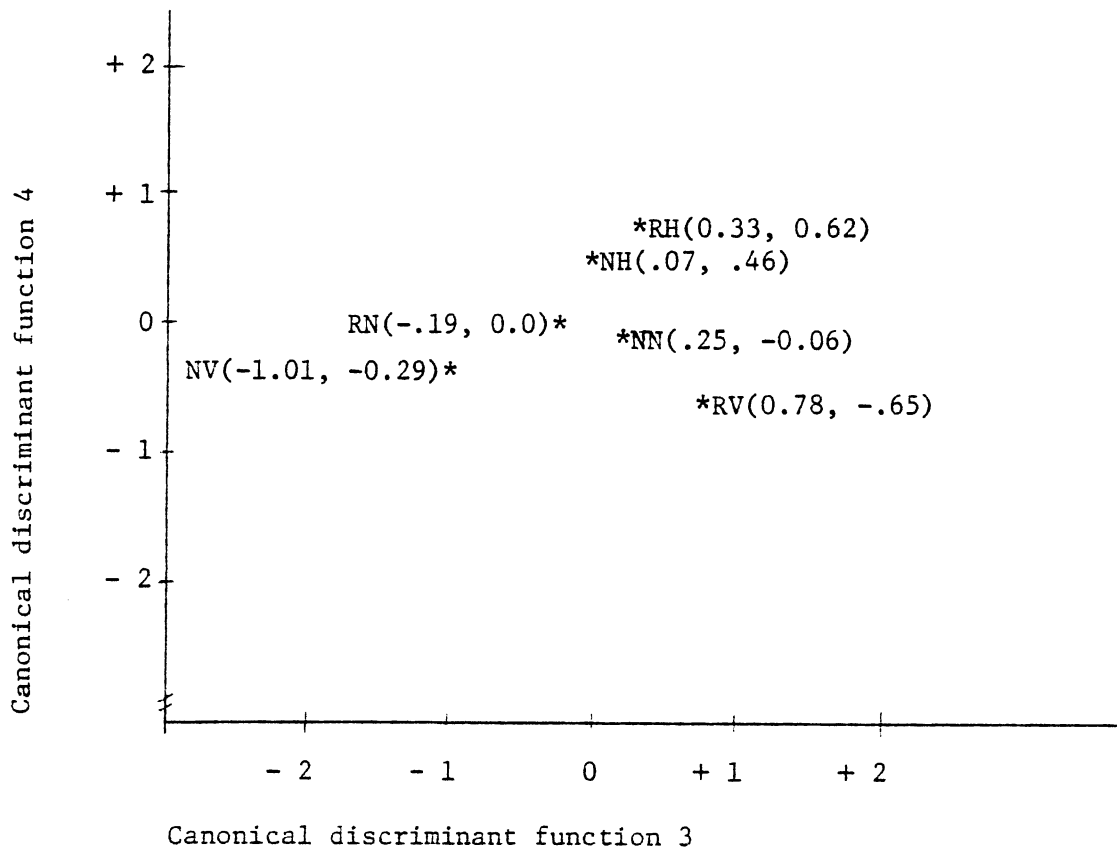
RN = returning native

NH = nonreturning horizontal

NV = nonreturning vertical

RH = returning horizontal

Figure 4. The Six Group Centroids Nonreturning and Returning Native, Vertical Transfer, and Horizontal Transfer Students in the Discriminant Space Assuming All Functions in Table XVIII But the First Two are Zero



*Indicates group centroids.

Figure 5. The Six Group Centroids Nonreturning and Returning Native, Vertical Transfer, and Horizontal Transfer Students in the Discriminant Space Assuming All Functions But Three and Four are Zero

magnitude on the housing variables: off-campus room or apartment (1.12), home of parent or relative (.82), and nonuniversity controlled housing (-1.16). Function two has relatively low magnitude weights on every variable. Function one has a high positive weight on the variable classification and a negative weight with high magnitude on length of enrollment. Therefore, functions four, three, and one were defined as major, housing, and classification with enrollment functions respectively. However, the analysis of the graphs in Figures 4 and 5, the function weights in Table XVIII, and the means in Table XVII was still extremely difficult. The interpretations from Figures 4 and 5, and Tables XVII and XVIII were as follows:

1. Returning vertical transfers were composed of more education and business majors than the other five groups.

2. Nonreturning native students were composed of more health profession majors and fewer upper classmen than the other five groups. Also, these students were enrolled longer than students of other groups.

3. The nonreturning horizontal transfers were composed of more arts and science majors than the other five groups.

4. The nonreturning vertical and horizontal transfers were composed of more students living in nonuniversity controlled housing, especially more students owning a home than the other five groups.

Comparison Among the Nonreturning Natives, Nonreturning Vertical Transfers, and Nonreturning Horizontal Transfers in Terms of Each Variable:

(1) Plans for Coming Year, (2) Length of Time Since Student Withdrew from School, and (3) Plan to Enroll at this School

To understand the analysis of the three variables on each of the

above groups, an examination of the coding of each variable is given in Appendix H. There were no differences in the three background variables, (1) plans for coming year, (2) length of time since student withdrew from school, and (3) plan to enroll at this school, between nonreturning natives, vertical transfers, and horizontal transfers. The pairwise multivariate F-ratio was only significant at the .05 level for the nonreturning vertical transfers and nonreturning horizontal transfers (see Table XXI). The multiple discriminant analysis performed on the data yielded one discriminant function statistically significant at the .05 level (see Table XXII). The variable, plans for the coming year (undecided vs. decided), had the only univariate F-ratio which revealed significant differences at the .05 level (see Table XXII). Thus, to draw any conclusions, it was necessary to examine further the differences between the nonreturning vertical and horizontal transfers.

The means and common standard deviations for the nonreturning vertical and horizontal transfer students for the above three background variables are presented in Table XXIII. There were differences in the variable, plan to re-enroll, between the nonreturning vertical and horizontal transfer students. (The multivariate F, the discriminant function, and the univariate F were all statistically significant at the .05 level, see Table XXIV.) More nonreturning horizontal transfer students planned not to re-enroll in college than nonreturning vertical transfer students (see Tables XXIII and XXIV). After the variable, plan to re-enroll, was controlled slightly more nonreturning horizontal transfers had plans for the coming year involving the care for a home or a family than the nonreturning vertical transfer students (see standardized discriminant coefficients, Table XXIV, and the group means, Table XXIII).

TABLE XXI

F STATISTICS AND SIGNIFICANCE LEVEL BETWEEN THE PAIRS OF GROUPS, NONRETURNING NATIVE, VERTICAL TRANSFER, AND HORIZONTAL TRANSFER STUDENTS, FOR THE BACKGROUND VARIABLES (1) PLANS FOR THE COMING YEAR, (2) LENGTH OF TIME SINCE STUDENT WITHDREW FROM SCHOOL, AND (3) PLAN TO RE-ENROLL AT THIS SCHOOL

Nonreturning Groups (1)	F-Ratio (df = 4, 293)	p
Native vs Vertical Transfer	2.09	0.091
Native vs Horizontal Transfer	2.30	0.058
Vertical vs Horizontal Transfer	2.43	0.047

(1) Sample size for native = 175, vertical transfer = 74, and horizontal transfer = 50.

TABLE XXII

TEST STATISTICS FOR COMPARISON BETWEEN NONRETURNING NATIVE,
VERTICAL TRANSFER, AND HORIZONTAL TRANSFER STUDENTS ON
THE BACKGROUND VARIABLES (1) PLANS FOR THE COMING
YEAR, (2) LENGTH OF TIME SINCE STUDENT WITH-
DREW FROM SCHOOL, AND (3) PLAN TO RE-
ENROLL AT THIS SCHOOL

BACKGROUND VARIABLES (1)	UNIVARIATE F(2) (df = 2, 296) p	STEPWISE F(2) P	DISCRIMINANT FUNCTION COEFFICIENTS (3)	
			1	2
Plans for the coming year (undecided vs decided)	3.41*	2.82*	0.01	0.86
Plans to re-enroll	2.68	3.15*	0.82	0.13
Plans for coming year (reason other vs work, college, home, undecided)	1.45	1.36*	-0.51	-0.17
Plans for coming year (enroll in college vs five other reasons)	1.44	1.28*	0.42	-0.35
EIGENVALUES			0.03	0.02
PERCENT OF VARIANCE			55.42	44.48
FUNCTION 1	X = 17.53	df = 8	p < .05	
FUNCTION 2	X = 7.81	df = 3	p = 0.05	

- (1) Background variables in the analysis after step 4.
Variables are listed in the order in which the stepwise
analysis was performed. Thus, the stepwise F shows the
significance of the indicated dependent variable,
controlling for all variables listed above it.
- (2) * p < .05.
- (3) Standardized discriminant function coefficients.

TABLE XXIII

TEST STATISTICS FOR COMPARISON BETWEEN NONRETURNING VERTICAL
AND HORIZONTAL TRANSFER STUDENTS ON BACKGROUND VARIABLES
(1) PLANS FOR THE COMING YEAR, (2) LENGTH OF TIME
SINCE STUDENT WITHDREW FROM SCHOOL, AND
(3) PLANS TO RE-ENROLL AT THIS SCHOOL

Background Variables (1)	Nonreturning Vertical Transfers	Nonreturning Horizontal Transfers	Common Standard Deviations (2)
Plans to re-enroll	2.21	2.56	0.83
Plans for coming year (care for home and family vs other responses)	1.94	1.92	0.24
Plans for coming year (response other vs work, college and work, home and family, undecided)	2.00	1.96	0.12
Sample Size (3)	74	50	124

- (1) Background variables in the analysis after step 3.
- (2) The squares of these values are the within-group means of the squares (the error terms for univariate analysis).
- (3) The differences in the sample size in this analysis and previous analyses were due to missing data on background variables.

TABLE XXIV

TEST STATISTICS FOR COMPARISON BETWEEN NONRETURNING VERTICAL
AND HORIZONTAL TRANSFER STUDENTS ON BACKGROUND VARIABLES
(1) PLANS FOR THE COMING YEAR, (2) LENGTH OF TIME
SINCE STUDENT WITHDREW FROM SCHOOL, AND
(3) PLANS TO RE-ENROLL AT THIS SCHOOL

Background Variables (1)	Univariate F(2) (df = 1, 122) p	Stepwise F(2) p	Standardized Discriminant Coefficients (3)
Plan to re-enroll	5.07*	5.57*	-0.82
Plans for coming year (care for home and family vs other re- sponses)	0.32	1.56*	0.44
Plans for coming year (response other vs work, college and work, home and family, unde- ecided)	3.03	2.45*	0.53
Multivariate F = 3.04 (df = 3, 120) p = 0.031		X = 8.83 (df = 3) p = 0.031	

- (1) Background variables in the analysis after step 3. Variables are listed in the order in which the stepwise was performed. Thus, the stepwise F shows the significance of the indicated dependent variable, controlling for all variables listed above it.
- (2) *p < .05.
- (3) The sign of the discriminant function coefficients shows the direction of the relationship. A positive sign indicates that nonreturning vertical transfers are higher on the dependent variables than the nonreturning horizontal transfer students.

Reasons for Leaving State University

The second question posed in this study was: What were the reasons why horizontal transfers, vertical transfers, and native students voluntarily dropped out of State University? To answer this question, the responses to the forty-eight reasons for leaving college (Questionnaire III, ACT Nonreturning Student Questionnaire) were coded as follows: major reason = 1; minor reason = 2; and not a reason = 3. The forty-eight reasons for leaving were partitioned into six categorical reasons: (1) personal, (2) family, (3) academic, (4) institutional, (5) financial, and (6) employment (see Appendix E). An SPSS principal component factor analysis program was applied to each of the six collections of reasons for each group of students (nonreturning native, vertical transfer, and horizontal transfer). After examination of the correlation coefficients matrix and each factor's eigenvalue, percentage of variances and factor score coefficients, the number of N factors was selected for the study for each of the six reasons (see Table XXV). An SAS-SPSS program for principal component analysis and stepwise discriminant analysis for reasons stored the N factor scores for each reason for each student on a raw-data file, added the N factor scores of each reason of each student into a composite score, and analyzed the six composite scores (personal, family, academic, institutional, financial, and employment) of each student with stepwise discriminant analysis. The results of the stepwise discriminant analysis on the six reasons for the groups nonreturning natives, vertical transfers and horizontal transfers are presented in Tables XXVI through XXVII.

There were no differences in the six reasons for voluntarily leaving college between the nonreturning natives, nonreturning vertical

TABLE XXV

NUMBER OF N FACTORS FOR EACH REASON FOR NONRETURNING NATIVE,
NONRETURNING VERTICAL TRANSFER, AND NONRETURNING HORIZONTAL
TRANSFER STUDENTS WITH EIGENVALUES GREATER THAN OR EQUAL
TO ONE

N FACTORS FOR EACH REASON						
NONRETURN GROUPS	PERSONAL	FAMILY	ACADEMIC	INSTITUTIONAL	FINANCIAL	EMPLOYMENT
NATIVES	3	1	1	2	1	1
VERTICAL	3	2	2	2	2	1
HORIZONTAL	3	1	2	3	1	2
NUMBER OF N FACTORS SELECTED	3	2	2	3	2	2

TABLE XXVI

TEST STATISTICS FOR COMPARISON AMONG NONRETURNING NATIVE,
VERTICAL TRANSFER AND HORIZONTAL TRANSFER STUDENTS
FOR REASONS FOR LEAVING COLLEGE

REASONS FOR LEAVING COLLEGE (1)	UNIVARIATE F(2) (df = 2, 310) p	STEPWISE F(2) p	DISCRIMINANT FUNCTIONS (3)	
			1	2
Academic	2.31	2.07	-0.45	1.31
Employment	1.92	3.98 *	1.38	0.00
Personal	0.87	1.80 *	-0.88	-0.53
EIGENVALUE			0.02	0.01
PERCENT OF VARIANCE			63.62	36.38
FUNCTION 1	X = 14.02 df = 6 p = .029			
FUNCTION 2	X = 5.12 df = 2 p = .07			

- (1) Reasons for leaving in the analysis after step 3. The reasons are listed in the order in which the stepwise analysis was performed. Thus, the stepwise F shows the significance of the indicated dependent reason, controlling for all reasons listed above it.
- (2) * $p < .01$
- (3) Standardized discriminant function coefficients.

TABLE XXVII

F STATISTICS AND SIGNIFICANCE LEVEL BETWEEN THE PAIRS OF GROUPS
NONRETURNING NATIVE, VERTICAL TRANSFER, AND HORIZONTAL
TRANSFER STUDENTS FOR THE REASONS FOR LEAVING COLLEGE

NONRETURNING GROUPS (1)	F-RATIOS (df = 3, 308)	p
Native vs vertical transfer	2.70	0.04
Native vs horizontal transfer	1.79	0.14
Vertical vs horizontal transfer	2.69	0.04

(1) Sample size for native = 187, vertical = 76, and
horizontal = 50.

transfers, and the nonreturning horizontal transfer students. The pairwise multivariate F-ratio of 1.79 was not significant at the .05 level for the nonreturning native and nonreturning horizontal transfer student (see Table XXVII). One discriminant function for the three groups was significant at the .05 level; however, the univariate F-ratios for the reasons for leaving were not significant (see Table XXVI). Also, there were no differences in the six reasons for leaving college between the nonreturning vertical transfers and the nonreturning horizontal transfers. The multivariate F-ratio of 2.41 was not significant at the .05 level (see Table XXVIII). The univariate F-ratios also failed to reveal any significant difference, and no significant discriminant function was obtained. Thus, it was concluded that, at least on the selected reasons for leaving college (personal, family, academic, institutional, financial, and employment), those native, vertical transfer and horizontal transfer students who voluntarily withdrew from State University were not statistically significantly different in their reasons for leaving.

The ten most important reasons why the nonreturning students withdrew from State University are listed in Table XXIX. The major reason for leaving, desired major was not offered by this college, was consistent with both the Peng and Bailey² and the Hite³ studies. Other reasons consistent with the Peng and Bailey study were (1) decided to attend a different college and (2) wanted to live nearer to my parents or loved ones.

²Peng and Bailey, Transfer Students in Institutions of Higher Education, National Longitudinal Study of High School Seniors, p. 44.

³Hite, pp. 80-84.

TABLE XXVIII

TEST STATISTICS FOR COMPARISON BETWEEN NONRETURNING VERTICAL AND HORIZONTAL TRANSFER STUDENTS FOR REASONS FOR LEAVING COLLEGE

REASONS FOR LEAVING COLLEGE (1)	UNIVARIATE F(2) (df = 1, 124) p	STEPWISE F(2) p	STANDARDIZED DISCRIMINANT COEFFICIENTS(3)
Employment	4.21	2.75 *	0.75
Personal	0.18	2.97	-0.92
Academic	1.33	1.20	0.65
Multivariate = F 2.41 X = 7.05 (df = 3, 122) p = .07 (df = 3) p = .07			

- (1) Reasons for leaving in this analysis after step 3. Reasons are listed in the order in which the stepwise analysis was performed. Thus, the stepwise F shows the significance of the indicated dependent reason, controlling for all reasons listed above it.
- (2) * $p < .05$
- (3) The sign of the discriminant coefficient shows the direction of the relationship. A positive sign indicates that nonreturning vertical transfers were higher on dependent reasons than horizontal transfers.
- (4) The sample sizes of nonreturning vertical and horizontal transfers are 76 and 50 respectively.

TABLE XXIX
TEN MOST IMPORTANT REASONS FOR LEAVING STATE UNIVERSITY

Reasons for Leaving	Percent Nonreturning Students
Desired major was not offered by this college	15.3
Marital situation changed my education plans	10.3
Decided to attend a different college	10.2
Wanted to move to (or was transferred to) a new location	8.3
Commuting distance to this college was too great	5.1
Conflict between demands of job and college	5.1
Health-related problem (family or personal)	4.6
Tuition and fees were more than I could afford	4.2
Wanted to live nearer to my parents or loved ones	3.7
Dissatisfied with my grades	3.7
Number of Nonreturning Students ¹	216

1. The nonreturning students consist of the native, vertical transfer, and horizontal transfer students. The differences in sample size in this analysis and previous analyses were due to missing data on the response, most important major reason for leaving.
2. The percentages in this column do not add up to 100 percent because only the reasons with the ten highest frequencies were listed.

Forty-Nine College Services and Environment

Characteristics

Introduction

The third question posed in this study was: How did nonreturning and returning native, vertical transfer and horizontal transfer students view the college services and environment at State University? To answer this question, comparisons between the following groups were made on the forty-nine variables listed on page thirty-seven:

1. Nonreturning horizontal transfers and returning horizontal transfers.
2. Nonreturning vertical transfers and returning vertical transfers.
3. Nonreturning natives and returning natives.
4. Nonreturning students and returning students.
5. Nonreturning natives, vertical transfers, and horizontal transfers.
6. Returning natives, vertical transfers, and horizontal transfers.
7. All six groups (nonreturning and returning natives, vertical transfers, and horizontal transfers).

To understand the analysis of the forty-nine college services and environment characteristics on each of the above groups, an examination of the coding of the variables is needed. Students responded to each of the forty-nine items by writing a number from 1 to 6 corresponding to the following continuum: does not apply, 1; very satisfied, 2; satisfied, 3; neutral, 4; dissatisfied, 5; and very dissatisfied, 6. The scale scoring

was based on a modified Likert response mode proposed by Shaw and Wright.⁴ This procedure scored the response "does not apply" (1) as 4 (neutral). Blank items were coded as zero and treated as a missing response. An item score ranged between two and six with two considered as very satisfied and six considered as very dissatisfied. The scale was scored by summing and weighted responses for each item.

An SPSS stepwise discriminant analysis program was used to analyze the forty-nine college services and environment characteristics with respect to each group comparison. Four sets of test statistics are presented for each comparison: the multivariate, F-ratio for overall group differences; the stepwise F-ratio for the test of an individual variable holding prior variables constant; the standardized discriminant function coefficients; and the discriminant functions for providing differentiation between groups. However, due to the large number of variables, only those variables which were significant at the .05 level for both the univariate F and stepwise F were presented.

Comparison Between Nonreturning and Returning
Horizontal Transfers on Forty-nine College
Services and Environment Characteristics

The means and common standard deviations of college services and environment characteristics statistically significant at the .05 level for both the univariate and stepwise F after step 83 are presented in Table XXX. The nonreturning and returning horizontal transfers were different with respect to their level of satisfaction with the college

⁴Marvin E. Shaw and Jack M. Wright, Scales for the Measurement of Attitudes (New York: McGraw-Hill Book Company, 1967), p. 179.

TABLE XXX

MEANS AND COMMON STANDARD DEVIATIONS FOR NONRETURNING AND
RETURNING HORIZONTAL TRANSFER STUDENTS ON SIGNIFICANT
COLLEGE SERVICES AND ENVIRONMENT CHARACTERISTICS

COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS(1)	NONRETURNING HORIZONTAL TRANSFERS	RETURNING HORIZONTAL TRANSFERS	COMMON STANDARD DEVIATIONS(2)
Student health insurance program	3.70	4.00	0.32
Financial services	4.20	3.57	0.86
Job placement services	3.83	4.13	0.61
Class size relative to type of course	3.12	2.83	0.72
Residence hall rules & regulations	3.91	4.32	0.94
Student health services	3.66	4.02	0.70
Testing/grading system	3.29	3.62	0.80
Student employment services	3.95	3.66	0.68
Sample Size N (3)	48	83	131

- (1) College services and environment characteristics which were statistically significant at the .05 level for both univariate and and stepwise F after step 83.
- (2) The squares of these values are the within-group means of squares (the error terms for univariate analysis).
- (3) The differences in the sample size in this analysis and previous analyses were due to missing data on college services and environment characteristics.

services and environment characteristics (the multivariate F-ratio of 105.09 was significant at the .0001 level with 43 and 87 degrees of freedom, see Table XXXI). The differences were particularly substantial in the following college services and environment characteristics: student health insurance program, financial services, job placement services, class size relative to type course, residence hall rules and regulations, student health services, testing/grading system, and student employment services (the univariate F-ratios for these variables were significant at the .05 or .01 or .001 or .0001 level with 1 and 129 degrees of freedom). Discriminant analysis supported the above findings even after all variables were considered. As indicated by the discriminant coefficients in Table XXXI and the means in Table XXX, more returning horizontal transfer students were more dissatisfied with the student health services, job placement services, and residence hall rules and regulations than nonreturning horizontal transfer students. However, more returning horizontal transfer students were more satisfied with the financial services than the nonreturning horizontal transfer students. More nonreturning horizontal transfer students were more satisfied with student health insurance programs and the testing/grading system used by professors than the returning horizontal transfer students. However, more nonreturning horizontal transfer students were less satisfied with the class size relative to type of course and student employment services than the returning horizontal transfers.

Comparison Between Nonreturning and Returning
Vertical Transfers on Forty-nine College
Services and Environment Characteristics

The means and common standard deviations of college services and

TABLE XXXI

TEST STATISTICS FOR COMPARISON BETWEEN NONRETURNING AND
RETURNING HORIZONTAL TRANSFER STUDENTS ON COLLEGE
AND SERVICES ENVIRONMENT CHARACTERISTICS

STEP ENTER	COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS(1)	UNIVARIATE F(2) (df = 1, 129) p	STEPWISE F(2) p	STANDARDIZED DISCRIMINANT COEFFICIENTS(3)
1	Student health insurance program	23.98****	42.25****	3.61
2	Financial services	16.19***	72.89****	-2.81
3	Job placement services	7.28**	1139.70****	10.65
18	Class size relative to type of course	5.05*	494.82****	-13.47
28	Residence hall rules & regulations	5.63*	631.01****	9.81
52	Student health services	7.75**	77.78****	2.34
62	Testing/grading system	5.27**	447.02****	9.62
66	Student employment services	5.67*	671.81****	-7.23
		Multivariate F = 105.09 (df = 43, 87) p < .0001	X = 426.69 (df = 43) p < .0001	

- (1) College services and environment characteristics which were statistically significant at the .05 level for both univariate and stepwise F after step 83. Characteristics are listed in the order in which the stepwise analysis was performed. Thus, the stepwise F shows the significance of the indicated dependent characteristic, controlling for all variables listed above it.
- (2) * p < .05, ** p < .01, *** p < .001, **** p < .0001
- (3) The sign of the discriminant function coefficients shows the direction of relationship. A positive sign indicates that more returning horizontal transfers had more dissatisfaction on the dependent variables than the nonreturning horizontal transfers.

environment characteristics statistically significant at the .05 level for both univariate and stepwise F after step 50 are presented in Table XXXII. As indicated in Tables XXXII and XXXIII, the nonreturning and returning vertical transfer students were distinctively different in their level of satisfaction with the college services and environment characteristics. Discriminant analysis supported the following findings even after all other college services and environment characteristics were considered. More returning vertical transfer students were more satisfied with racial harmony, instruction in major field, financial services, out-of-class availability of instructors, recreational and intramural programs, academic advising services, availability of their advisors, course content in their major, and athletics facilities, than nonreturning vertical transfers. However, more nonreturning vertical transfers were more satisfied with the veterans services and college orientation programs than returning vertical transfers. Also, the nonreturning vertical transfers were more dissatisfied with the value of the information provided by their advisors. The main difference between these groups was that returning vertical transfer students seemed more satisfied with the academic college services and environment characteristics than the nonreturning vertical transfers.

Comparison Between Nonreturning and Returning
Native Students on Forty-nine College Services
and Environment Characteristics

The third comparison focused on the differences between the nonreturning natives and the returning natives. As shown in Tables XXXIV

TABLE XXXII

TEST STATISTICS FOR COMPARISON BETWEEN NONRETURNING AND
RETURNING VERTICAL TRANSFER STUDENTS ON COLLEGE
SERVICES AND ENVIRONMENT CHARACTERISTICS

STEP ENTER	COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS(1)	UNIVARIATE F(2) (df = 1, 127) p	STEPWISE F(2) p	STANDARDIZED DISCRIMINANT COEFFICIENTS(3)
3	Racial harmony at this college	12.51***	110.70****	2.01
9	Instruction in major field	10.81**	8.35****	0.70
10	Financial services	17.96****	62.48****	1.42
11	Veterans services	5.09*	11.82****	-0.49
12	College orientation program	9.26**	11.83****	-0.60
15	Out-of-class avail- ability of instructor	7.97**	58.46****	1.66
17	Recreational & intramural programs	5.01*	3.49****	0.31
18	Academic advising services	18.58****	33.51****	1.38
28	Availability of your advisor	24.90****	20.78****	1.07
35	Value of information provided by advisor	26.48****	17.62****	-1.11
36	Course content in your major	6.42*	8.91****	0.68
48	Athletic facilities	11.69***	3.14****	0.37
		Multivariate F = 20.11 (df = 34, 94) p < .0001	X = 232.44 df = 34 p < .0001	

- (1) College services and environment characteristics which were statistically significant at the .05 level for both univariate and stepwise F after step 50. Characteristics are listed in the order in which the stepwise analysis was performed. Thus, the stepwise F shows the significance of the indicated dependent characteristic, controlling for all characteristics listed above it.
- (2) * p < .05, ** p < .01, *** p < .001, **** p < .0001
- (3) The sign of the discriminant function coefficient shows the direction of relationship. A positive sign indicates that more returning vertical transfers had more satisfaction on the dependent variables than the nonreturning vertical transfers.

TABLE XXXIII

MEANS AND COMMON STANDARD DEVIATIONS FOR NONRETURNING AND
RETURNING VERTICAL TRANSFER STUDENTS ON SIGNIFICANT
COLLEGE SERVICES AND ENVIRONMENT CHARACTERISTICS

COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS	NONRETURNING VERTICAL TRANSFERS	RETURNING VERTICAL TRANSFERS	COMMON STANDARD DEVIATIONS(2)
Racial harmony at this college	3.91	3.40	0.80
Instruction in major field	3.61	3.00	1.06
Financial services	4.02	3.29	0.98
Veterans services	3.70	3.93	0.57
College orientation program	3.70	4.00	0.54
Out-of-class availability of instructor	3.70	3.21	0.98
Recreational & intramural programs	3.47	3.11	0.90
Academic advising services	3.88	3.16	0.94
Availability of your advisors	3.97	3.11	0.97
Value of information provided by advisor	4.05	3.13	1.02
Course content in your major	3.70	3.21	1.10
Athletics facilities	3.32	2.80	0.86
Sample Size N (3)	68	61	129

- (1) College services and environment characteristics which were statistically significant at the .05 level for both univariate and stepwise F after step 50.
- (2) The squares of the values are the within-group means of squares (the error terms for univariate analysis).
- (3) The differences in the sample size in this analysis and previous analyses were due to missing data on college services and environment characteristics.

TABLE XXXIV

MEANS AND COMMON STANDARD DEVIATIONS FOR NONRETURNING AND
RETURNING NATIVE STUDENTS ON SIGNIFICANT COLLEGE
SERVICES AND ENVIRONMENT CHARACTERISTICS

COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS	NONRETURNING NATIVE STUDENTS	RETURNING NATIVE STUDENTS	COMMON STANDARD DEVIATIONS(2)
Student health insurance program	3.71	3.93	0.89
Parking facilities	3.66	4.21	1.14
Course content in your major	3.39	3.10	0.89
College-sponsored tutorial services	3.80	3.96	0.40
Cultural programs	3.62	3.82	0.56
Academic advising services	3.77	3.41	0.95
Personal security/ safety	3.00	3.36	0.87
Attitude of nonteaching staff toward student	3.42	3.74	0.82
Availability of courses you want at time you need them	3.80	4.13	1.17
Financial services	3.85	3.64	0.94
Honors programs	3.68	3.86	0.53
Value of information provided by advisor	4.01	3.51	1.12
Student health services	3.49	3.88	0.99
Library facilities	2.60	2.74	0.65
Out-of-class availability of your instructor	3.50	3.26	0.86
Sample Size N (3)	156	302	458

- (1) College services and environment characteristics which were statistically significant at the .05 college level for both univariate and stepwise F after step 28.
- (2) The squares for these values are the within-group means of squares (the error terms for univariate analysis).
- (3) The differences in the sample size in this analysis and previous analyses were due to missing data on college services and environment characteristics.

and XXXV these two groups of students were distinctively different in their level of satisfaction with the college services and environment characteristics. In particular, more returning native students were more dissatisfied with parking facilities and services and the availability of courses they wanted at the time they could take them than nonreturning native students. More returning native students were less satisfied with the student health insurance program, college-sponsored tutorial services, cultural programs, personal security/safety, attitude of nonteaching staff toward students, honors programs, student health services, and library services than the nonreturning native students. The nonreturning native students were less satisfied with course content in their major, academic advising services, financial services, value of the information provided by the students' advisors, and the out-of-class availability of their instructors than the returning native students.

Comparison Between Nonreturning and Returning
Students on Forty-nine College Services
and Environment Characteristics

A fourth comparison focused on the differences between the nonreturning and returning students on forty-nine college services and environment characteristics. As shown in Tables XXXVI and XXXVII, these two groups of students were distinctively different in their level of satisfaction with the college services and environment characteristics. In particular, more returning students were more dissatisfied with the availability of courses they want at the time they can take them, residence hall rules and regulations, and parking facilities and services than nonreturning students. Also, returning students were less satisfied with the student health insurance program, student health services,

TABLE XXXV

TEST STATISTICS FOR COMPARISON BETWEEN NONRETURNING AND
RETURNING NATIVE STUDENTS ON COLLEGE SERVICES AND
ENVIRONMENT CHARACTERISTICS

STEP ENTER	COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS(1)	UNIVARIATE F(2) (df = 1, 456) p	STEPWISE F(2) p	STANDARDIZED DISCRIMINANT COEFFICIENTS(3)
1	Student health insurance program	27.80****	16.34****	0.34
2	Parking facilities	23.78****	20.13****	0.39
3	Course content in major field	10.56**	10.53****	-0.32
4	College-sponsored tutorial services	15.53***	14.79****	0.31
5	Cultural programs	13.85***	7.62****	0.24
6	Academic advising	14.95***	1.42****	-0.13
7	Personal security/safety	16.28***	7.97****	0.25
9	Attitude of non-teaching staff toward students	15.37***	11.44****	0.30
12	Availability of courses you want at time you need them	8.04**	14.78****	0.41
15	Financial services	4.93*	9.50****	-0.27
20	Honors programs	12.06***	5.41****	0.20
22	Value of information provided by advisor	20.83****	2.95****	-0.20
23	Student health services	15.90***	2.23****	0.13
25	Library facilities	5.08*	2.74****	0.15
28	Out-of-class availability of your instructors	6.39*	1.14****	-0.11

Multivariate F = 8.96 X = 203.54
(df = 28, 429) p < .0001 df = 28 p < .0001

- (1) College services and environment characteristics which were statistically significant at the .05 level for both univariate and stepwise F after step 28. Characteristics are listed in the order in which the stepwise analysis was performed. Thus, the stepwise F shows the significance of the indicated dependent characteristic, controlling for all variables listed above it.
- (2) * p < .05, ** p < .01, *** p < .001, **** p < .0001
- (3) The sign of the discriminant function coefficients shows the direction of relationship. A positive sign indicates that more returning native students had more dissatisfaction on the dependent variables than the nonreturning native students.

TABLE XXXVI

MEANS AND COMMON STANDARD DEVIATIONS FOR NONRETURNING AND
RETURNING STUDENTS ON SIGNIFICANT COLLEGE SERVICES
ENVIRONMENT CHARACTERISTICS

COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS(1)	NONRETURNING STUDENTS	RETURNING STUDENTS	COMMON STANDARD DEVIATIONS(2)
Value of information provided by advisor	3.95	3.41	1.10
Student health insurance program	3.73	3.91	0.44
Availability of courses you want at time you need them	3.80	4.04	1.12
Financial services	3.95	3.58	0.94
Residence hall rules & regulations	3.81	4.06	0.92
Student health services	3.53	3.84	0.93
Course content in your major	3.48	3.20	0.98
College-sponsored tutorial services	3.86	3.95	0.38
Honors program	3.75	3.88	0.49
Class size relative to the type of course	3.07	2.92	0.77
Parking facilities	3.82	4.17	1.18
Cultural programs	3.70	3.83	0.56
Personal security/ safety	3.13	3.39	0.80
Instruction in major	3.50	3.20	0.97
Attitude of nonteaching staff toward students	3.49	3.61	0.81
Library facilities	2.66	2.82	0.54
Personal counseling services	3.96	3.38	0.65
Sample Size N (3)	272	446	718

- (1) College services and environment characteristics which were statistically significant at the .05 level for both univariate and stepwise F after step 31.
- (2) The squares for these values are the within-group means of squares (the error terms for univariate analysis).
- (3) The differences in the sample size in this analysis and previous analyses were due to missing data on college services and environment characteristics.

TABLE XXXVII

TEST STATISTICS FOR COMPARISON BETWEEN NONRETURNING AND RETURNING STUDENTS ON COLLEGE SERVICES AND ENVIRONMENT CHARACTERISTICS

STEP ENTER	COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS	UNIVARIATE F(2) (df = 1, 716) p	STEPWISE F(2) p	STANDARDIZED DISCRIMINANT COEFFICIENTS(3)
1	Value of information provided by advisor	41.01****	17.91****	-0.33
2	Student health insurance program	26.94****	21.12****	0.33
3	Availability of courses you need at time you can take them	7.42**	26.99****	0.45
4	Financial services	26.62****	40.09****	-0.46
5	Residence hall rules & regulations	11.88***	6.35****	0.18
6	Student health services	19.31****	7.85****	0.20
7	Course content in major	13.25***	4.27****	-0.19
10	College-sponsored tutorial services	9.94**	15.09****	0.27
11	Honors programs	11.54***	9.69****	0.22
12	Class size relative to type of course	6.45*	6.85****	-0.21
13	Parking facilities	15.12***	8.47****	0.21
16	Cultural programs	9.20**	7.47****	0.20
18	Personal security/safety	14.32***	6.09****	0.18
22	Instruction in major	15.37***	5.40****	-0.22
25	Attitude of nonteaching staff toward students	4.03*	3.30****	0.14
29	Library facilities	7.53**	1.77****	0.10
30	Personal counseling services	6.35*	1.17****	-0.08

Multivariate F = 10.64 X = 275.15
(df = 31, 686) p < .0001 df = 31 p < .0001

- (1) College services and environment characteristics which were statistically significant at the .05 level for both univariate and stepwise F after step 31. Characteristics are listed in the order in which the stepwise analysis was performed. Thus, the stepwise F shows the significance of the indicated dependent characteristic, controlling for all variables listed above it.
- (2) * p < .05, ** p < .01, *** p < .001, **** p < .0001
- (3) The sign of the discriminant function coefficients shows the directions of the relationships. A positive sign indicates that more returning students had more dissatisfaction on the dependent variable than the nonreturning students.

college-sponsored tutorial services, honors programs, cultural programs, personal security/safety, attitude of nonteaching staff toward students, and library facilities and services than nonreturning students. The nonreturning students were less satisfied with the value of information provided by the students' advisors, financial services, course content in their major, class size relative to the type of course, instruction in major field, and personal counseling services than the returning students.

Comparison Among the Nonreturning Natives,
Vertical Transfer and Horizontal Transfer
Students on Forty-nine College Services
and Environment Characteristics

The means and common standard deviations for the three groups of nonreturning students still in the analysis after step 31 and statistically significant at the .05 level for both the univariate and stepwise F are presented in Table XXXVIII. The nonreturning natives, vertical transfer and horizontal transfer students were different in their level of satisfaction with college services and environment characteristics (the pairwise multivariate F-ratios were significant at the .0001 level with 29 and 241 degrees of freedom, see Table XXXIX). A multiple discriminant analysis performed on the data yielded two discriminant functions (see Table XL), both of which were statistically significant at the .0001 level. The first function accounts for 57 percent and the second for 43 percent of the total discriminating power of the level of satisfaction with college services and environment characteristics (see Table XL).

TABLE XXXVIII

MEANS AND COMMON STANDARD DEVIATIONS FOR NONRETURNING NATIVE,
VERTICAL TRANSFER, AND HORIZONTAL TRANSFER STUDENTS ON
SIGNIFICANT COLLEGE SERVICES AND ENVIRONMENT
CHARACTERISTICS

COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS(1)	NONRETURNING NATIVE VERTICAL HORIZONTAL TRANSFER TRANSFER			COMMON STANDARD DEVIATIONS(2)
College orientation program	3.20	3.70	3.83	0.76
Veterans services	3.96	3.70	4.00	0.37
Availability of your advisor	3.74	3.97	3.45	1.05
Recreational & intramural programs	2.98	3.47	3.41	0.81
Racial harmony at this college	3.64	3.91	3.62	0.77
Personal security/ safety	3.00	3.32	3.29	0.67
Honors program	3.68	3.88	3.79	0.53
Student employment services	3.69	3.94	3.95	0.65
Athletic facilities	2.89	3.32	3.20	0.79
Parking facilities	3.66	4.17	3.83	1.11
Sample Size N (3)	156	68	48	272

- (1) College services and environment characteristics which were statistically significant at the .05 level for both univariate and stepwise F after step 31.
- (2) The squares for these values are the within-group means of squares (the error terms for univariate analysis).
- (3) The differences in the sample size in this analysis and previous analyses were due to missing data on college services and environment characteristics.

TABLE XXXIX

F STATISTICS AND SIGNIFICANCES BETWEEN THE PAIRS OF GROUPS
 NONRETURNING NATIVE, VERTICAL TRANSFER, AND HORIZONTAL
 TRANSFER STUDENTS FOR COLLEGE SERVICES AND
 ENVIRONMENT CHARACTERISTICS
 AFTER STEP 31

GROUPS	F-RATIOS (df = 29, 241)	p
Native and vertical transfer	3.29	< .0001
Native and horizontal transfer	3.49	< .0001
Vertical transfer and horizontal transfer	2.87	< .0001

TABLE XL

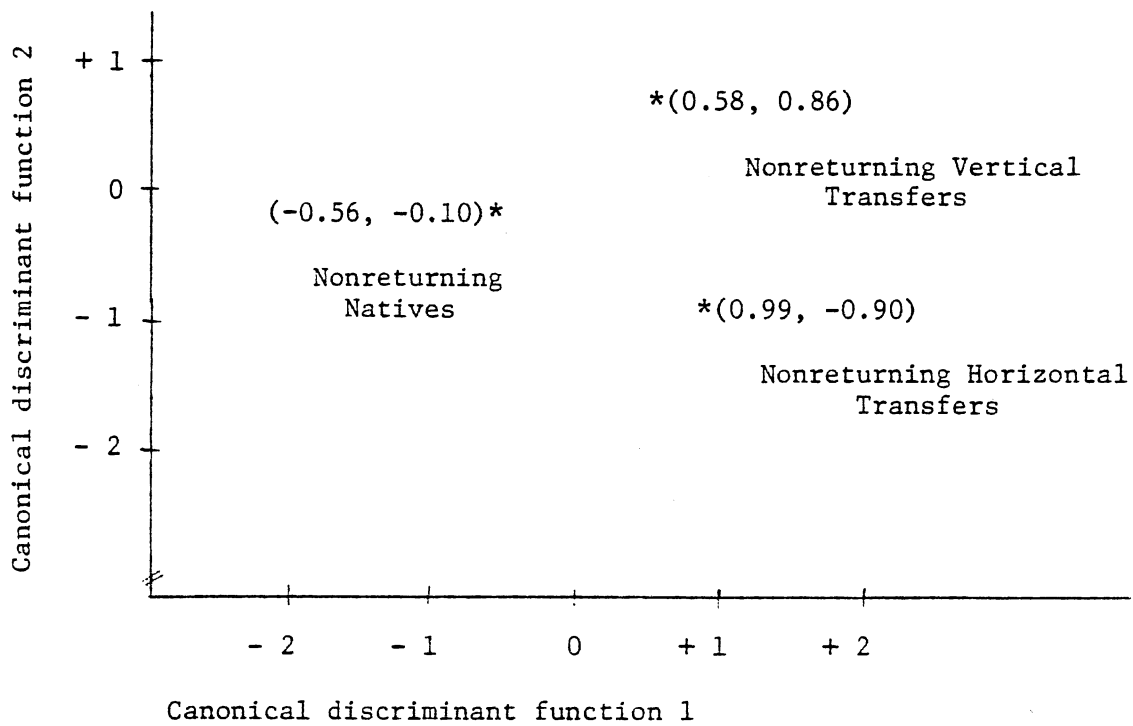
TEST STATISTICS FOR COMPARISON AMONG NONRETURNING NATIVE,
VERTICAL TRANSFER, AND HORIZONTAL TRANSFER STUDENTS ON
COLLEGE SERVICES AND ENVIRONMENT CHARACTERISTICS

STEP	COLLEGE SERVICES ENTER ENVIRONMENT CHARACTERISTICS	UNIVARIATE F(2) (df = 2, 269) p	STEPWISE F(2) p	DISCRIMINANT FUNCTION (3)	
				1	2
1	College orientation program	17.94****	6.39****	0.48	-0.13
2	Veterans services	11.73****	12.51****	-0.30	-0.59
3	Availability of your advisor	3.29*	1.74****	0.10	0.38
4	Recreational & intra- mural programs	10.95****	5.81****	0.51	0.03
7	Racial harmony at this college	3.21*	5.63****	-0.34	0.38
9	Personal security/ safety	4.56*	2.44****	0.31	0.01
21	Honors program	3.35*	2.68****	0.31	-0.14
25	Student employment services	5.11**	1.12****	-0.06	0.23
26	Athletic facilities	7.78***	1.57****	0.23	-0.14
28	Parking facilities	4.91**	1.52****	0.00	0.25
EIGENVALUES				0.44	0.34
PERCENT OF VARIANCE				56.74	43.26
FUNCTION 1		X = 169.23	df = 58	p < .0001	
FUNCTION 2		X = 74.89	df = 28	p < .0001	

- (1) College services and environment characteristics which were statistically significant at the .05 level for both univariate and stepwise F after step 31. Characteristics are listed in the order in which the stepwise analysis was performed. Thus, the stepwise F shows the significance of the indicated dependent characteristic, controlling for all variables listed above it.
- (2) * p < .05, ** p < .01, *** p < .001, **** p < .0001
- (3) Standardized discriminant coefficients.

What was a meaningful interpretation of the standardized weights of these two discriminant functions? The means (centroids) of these two functions from the three groups were plotted in Figure 6. The larger value for the centroid indicated less satisfaction with respect to the function. The graph showed that the first function separated the nonreturning natives from the nonreturning horizontal and vertical transfer students, but the separation between the transfers was relatively small. The second function separated the nonreturning vertical transfer from the nonreturning native and horizontal transfer students, but this separation between the latter two groups was relatively small.

With this configuration of centroids in mind, the pattern of standardized weights in Table XL and the means in Table XXXVIII provided a more meaningful interpretation of the two discriminant functions. The college programs college orientation, recreational and intramural sports, personal security and safety, and honors programs had the largest positive weights of .48, .51, .31, and .31 respectively on the first function and their corresponding weights on the second function were low. Therefore, this first function was interpreted as a program "factor". The nonreturning vertical and horizontal transfers were less satisfied with the orientation program, the recreational and intramural program, the honors program, and their personal safety and security than the nonreturning natives (see Tables XL and XXXIX). For the second discriminant function, the weights with the largest magnitude (see Table XL) were those for veterans services (-.59), availability of your advisor (.28), racial harmony (.38), and parking facilities and services (.25). However, veterans services were excluded, since the corresponding weight on the first function was negative with a large magnitude. After examining



*Indicates group centroid.

Figure 6. Territorial Map of the Nonreturning Native, Vertical Transfer and Horizontal Transfer Students for College Services and Environment Characteristics

the other above weights, the second discriminant function was interpreted as a "factor" of indication. The nonreturning vertical transfers were less satisfied with the availability of their advisors, racial harmony and parking services than either the nonreturning natives or the nonreturning horizontal transfers.

Comparison Among the Returning Native, Vertical
Transfer and Horizontal Transfer Students on
Forty-nine College Services and Environment
Characteristics

The means and common standard deviations for the three groups of returning students still in the analysis after step 38 and statistically significant at the .05 level for both univariate and the stepwise F are presented in Table XLI. The returning native, vertical transfer and horizontal transfer students were different in their level of satisfaction with college services and environment characteristics (the pairwise multivariate F-ratios were significant at the .0001 level with 38 and 406 degrees of freedom, see Table XLII). A multiple discriminant analysis performed on the data yielded two discriminant functions (see Table XLIII) both of which were statistically significant at the .0001 level. The first function accounts for 62 percent and the second for 38 percent of the total discriminating power of the level of satisfaction with college services and environment characteristics (see Table XLIII).

The means (centroids) of these two functions from the three groups were plotted in Figure 7. The graph showed that the first function separated the returning natives from the returning horizontal and vertical transfer students, but the separation between the transfers was relatively small. The second function separated the three groups on a

TABLE XLI

MEANS AND COMMON STANDARD DEVIATIONS FOR RETURNING NATIVE,
VERTICAL TRANSFER, AND HORIZONTAL TRANSFER STUDENTS
ON SIGNIFICANT COLLEGE SERVICES AND ENVIRONMENT
CHARACTERISTICS

COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS(1)	RETURNING NATIVE	RETURNING VERTICAL TRANSFER	RETURNING HORIZONTAL TRANSFER	COMMON STANDARD DEVIATION(2)
College orientation	3.17	4.00	4.00	0.70
Availability of courses you want at time you need them	4.13	4.01	3.73	1.08
Course content in field	3.10	3.21	3.56	0.89
Value of information provided by advisor	3.51	3.13	3.25	0.59
Career planning services	3.82	4.00	3.85	0.46
Student health services	3.88	3.42	4.02	0.93
Flexibility to design your own program	3.44	3.18	3.68	0.89
Parking facilities	4.21	4.40	3.87	1.21
Computer services	3.54	3.78	3.71	0.77
Racial harmony	3.64	3.40	3.79	0.84
Athletic facilities	2.90	2.80	3.22	0.90
Job placement services	3.85	3.85	4.13	0.59
Instruction in major	3.16	3.00	3.51	0.91
Rules governing student conduct at college	3.68	3.49	4.04	0.92
Attitude of nonteaching staff toward students	3.74	3.39	3.33	0.86
Testing/grading system	3.33	3.94	3.62	0.69
Variety of courses offered by this college	3.38	3.13	3.55	0.85
Credit-by-examination	3.83	4.00	3.89	0.46
Library facilities	2.74	2.77	3.14	0.73
Academic advising	3.41	3.16	3.53	0.89
Opportunities for personal involvement in campus activities	3.24	3.45	3.53	0.80
Preparation receiving for future occupation	3.30	3.18	3.55	0.89
Sample Size N (3)	302	61	83	446

- (1) College services and environment characteristics which were statistically significant at the .05 level for both univariate and stepwise F after step 38.
- (2) The squares for these values are the within-group means of squares (the error terms for univariate analysis).
- (3) The differences in the sample size in this analysis and previous analyses were due to missing data on college services and environment characteristics.

TABLE XLII

F STATISTICS AND SIGNIFICANCES BETWEEN PAIRS OF GROUPS
 RETURNING NATIVE, VERTICAL TRANSFER, AND HORIZONTAL
 TRANSFER STUDENTS FOR COLLEGE SERVICES AND
 ENVIRONMENT CHARACTERISTICS AFTER
 STEP 38

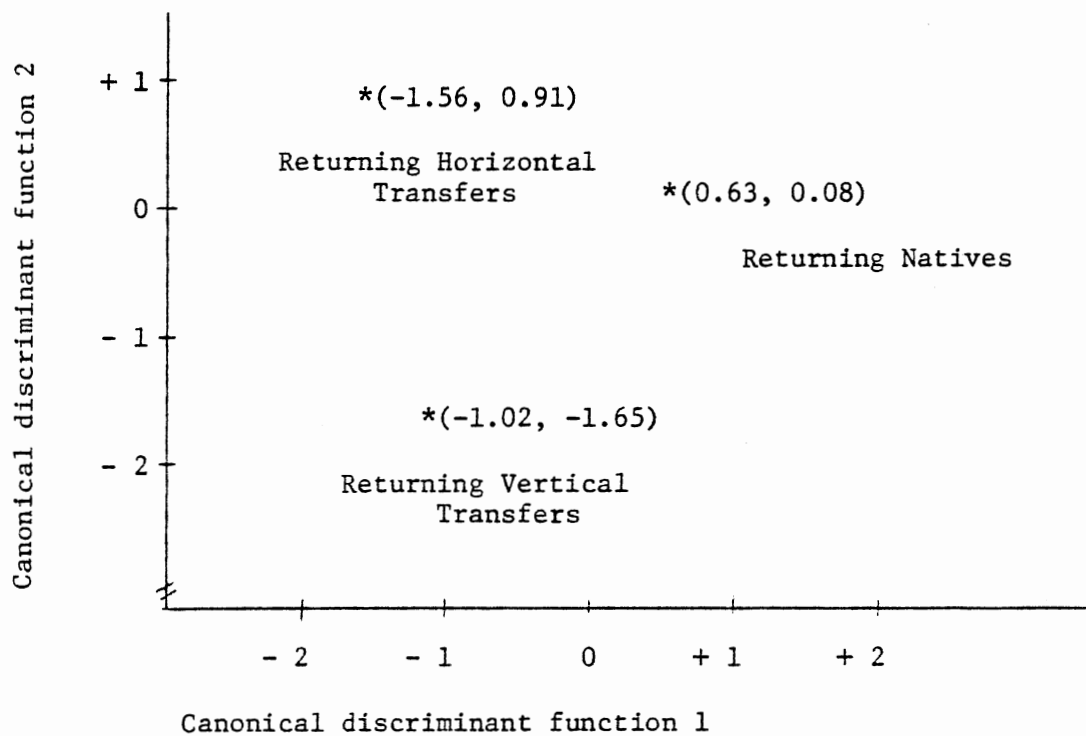
RETURNING GROUPS	F-RATOIS (df = 38, 406)	p
Native and vertical transfers	7.07	< .0001
Native and horizontal transfers	8.74	< .0001
Vertical and horizontal transfers	5.85	< .0001

TABLE XLIII

TEST STATISTICS FOR COMPARISON AMONG RETURNING
NATIVE, VERTICAL TRANSFER, AND HORIZONTAL
TRANSFER STUDENTS ON COLLEGE SERVICES
ENVIRONMENT CHARACTERISTICS

STEP ENTER	COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS	UNIVARIATE F(2) (df = 2, 443) p	STEPWISE F(2) p	DISCRIMINANT FUNCTIONS(3)	
				1	2
1	College orientation	66.70****	59.97****	-0.78	-0.20
3	Availability of courses you want at time you need them	4.45*	12.83****	0.42	-0.08
4	Course content in major	8.50***	3.30****	-0.16	-0.24
6	Value of information provided by advisor	4.29*	8.32****	0.48	-0.03
7	Career planning services	3.68*	6.31****	-0.20	-0.23
9	Student health services	7.97***	8.96****	0.11	0.36
10	Flexibility to design your own program	6.62**	8.24****	-0.10	0.37
11	Parking facilities	3.72*	5.49****	0.16	-0.27
13	Computer services	3.38*	4.39****	-0.24	-0.03
16	Racial harmony	3.70*	7.39****	0.11	0.38
17	Athletic facilities	5.09**	7.39****	0.11	0.41
19	Job placement services	7.20***	3.88****	-0.18	0.16
20	Instruction in major	6.63**	1.86****	-0.07	0.23
23	Rules governing student conduct at college	7.26***	2.74****	-0.01	0.22
24	Attitude of nonteaching staff toward students	9.47***	2.32****	0.18	0.05
26	Testing/grading system	5.91**	1.70****	-0.09	0.15
27	Variety of courses offered by this college	4.32*	2.83****	0.00	0.25
29	Credit-by-examination	3.28*	1.59****	0.07	-0.14
32	Library facilities	9.55***	1.71****	-0.17	0.00
33	Academic advising	3.04*	1.49****	-0.17	0.02
35	Opportunities for personal involvement in campus activities	4.88*	1.51****	-0.16	-0.09
37	Preparation receiving for future occupation	3.60*	1.35***	0.09	0.16
EIGENVALUES				0.88	0.53
PERCENT OF VARIANCE				62.10	37.90
FUNCTION 1		X = 451.67	df = 76	p < .0001	
FUNCTION 2		X = 183.00	df = 37	p < .0001	

- (1) College services and environment characteristics which were statistically significant at the .05 level for both univariate and stepwise F after step 38. Characteristics are listed in the order in which the stepwise analysis was performed. Thus, the stepwise F shows the significance of the indicated dependent characteristic, controlling for all variables listed above it.
- (2) * p < .05, ** p < .01, *** p < .001, **** p < .0001
- (3) Standardized discriminant function coefficients.



*Indicates group centroid.

Figure 7. Territorial Map of the Returning Native, Vertical Transfer and Horizontal Transfer Students for College Services and Environment Characteristics

continuum from low to high in the order, returning vertical transfer, returning native, and returning horizontal transfer respectively.

With this configuration of centroids in mind, the pattern of standardized weights in Table XLIII and the means in Table XLI provide a more meaningful interpretation of the two discriminant functions. The information services, the college orientation program, the availability of courses you want at the time you want them, and the value of information provided by the advisor had the largest magnitude of the standardized weights of $-.78$, $.42$, and $.48$ respectively (see Table XLIII). Therefore, this first function was interpreted as an information "factor". The returning native students were less satisfied with the availability of courses they wanted at the time they wanted them and the value of information provided by the advisor than either the returning vertical or horizontal transfer students (see Tables XLI and XLIII and Figure 7). However, the returning native students were more satisfied with the orientation program than the returning vertical or horizontal transfer students. For the second discriminant function the weights with the largest magnitude were those for student health services ($.36$), flexibility to design your own program ($.37$), racial harmony ($.38$), athletic facilities ($.41$) and parking facilities and services ($-.27$). After examining the above weights the second function was interpreted as a "factor" of facilities (see Table XLIII). The returning horizontal transfer students were less satisfied with the student health services, the flexibility to design their own program, racial harmony, and the athletic facilities than the returning natives. However, the returning natives were less satisfied with the student health services, the flexibility to design their own program, racial harmony, and the athletic facilities than the returning vertical transfer students. The returning horizontal students

were the most satisfied and the returning vertical transfer students were the most dissatisfied with the university parking facilities.

Comparison Among the Six Groups: Nonreturning Native, Nonreturning Vertical Transfer, Nonreturning Horizontal Transfer, Returning Native, Returning Vertical Transfer, and Returning Horizontal Transfer Students on Forty-nine College Services and Environment Characteristics

The means and common standard deviations for the six groups still in the analysis after step 43 and statistically significant at the .05 level for both univariate and stepwise F are presented in Table XLIV. The six groups nonreturning and returning natives, vertical transfers and horizontal transfers were different with respect to their level of satisfaction with college services and environment characteristics (the pairwise multivariate F-ratios were significant at the .001 level with 43 and 670 degrees of freedom, see Table XLV). Also, the multiple discriminant analysis performed on the data yielded five discriminant functions (see Table XLVI), with the first four functions statistically significant at the .0001 level with 215, 168, 123, and 80 degrees of freedom respectively. The fifth function was statistically significant at the .001 level with 39 degrees of freedom. The first function accounts for 37 percent, the second 30 percent, the third 18 percent, the fourth 9 percent, and fifth 6 percent of the total discriminating power of the college services and environment characteristics (see Table XLVI). Since the total discriminating power (total variance) of function four and five was relatively small, the discussion of the functions was limited to the first three.

TABLE XLIV

MEANS AND COMMON STANDARD DEVIATIONS FOR THE SIX GROUPS, NONRETURNING AND RETURNING
NATIVE, VERTICAL TRANSFER, AND HORIZONTAL TRANSFER STUDENTS ON COLLEGE SERVICES
AND ENVIRONMENT CHARACTERISTICS

COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS(1)	NONRETURNING			RETURNING			COMMON STANDARD DEVIATIONS(2)
	NATIVE	VERTICAL	HORIZONTAL	NATIVE	VERTICAL	HORIZONTAL	
College orientation	3.20	3.70	3.83	3.17	4.00	4.00	0.72
Value of information provided by advisor	4.10	4.05	3.62	3.51	3.13	3.25	1.10
Veterans services	3.96	3.70	4.00	4.00	3.93	3.78	0.33
Availability of courses you need at time you can take them	3.80	3.88	3.70	4.13	4.01	3.73	1.12
Financial services	3.85	4.02	4.20	3.64	3.29	3.57	0.93
Instruction in major	3.44	3.61	3.54	3.16	3.00	3.51	0.97
Parking facilities	3.66	4.17	3.83	4.21	4.40	3.87	1.17
Student health services	3.49	3.52	3.66	3.88	3.42	4.02	0.92
Attitude of nonteaching staff toward students	3.42	3.61	3.54	3.74	3.39	3.33	0.84
Testing/Grading system	3.33	3.32	3.29	3.33	3.39	3.62	0.76
College-sponsored tutorial program	3.80	3.91	4.00	3.96	3.93	3.96	0.38
Racial harmony	3.64	3.91	3.62	3.64	3.40	3.79	0.81
Recreational & intramural program	2.98	3.47	3.41	3.04	3.11	3.19	0.84
Rules governing student conduct at college	3.54	3.55	3.83	3.68	3.49	4.04	0.88
Availability of your advisor	3.74	3.97	3.45	3.35	3.11	3.45	1.02
Residence hall services	3.36	3.79	3.62	3.55	3.32	3.63	0.82
Honors programs	3.68	3.88	3.79	3.86	3.90	3.92	0.49

TABLE XLIV (Continued)

COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS(1)	NONRETURNING			RETURNING			COMMON STANDARD DEVIATIONS(2)
	NATIVE	VERTICAL	HORIZONTAL	NATIVE	VERTICAL	HORIZONTAL	
Flexibility to design your own program	3.32	3.38	3.45	3.34	3.18	3.68	0.90
Job placement services	3.85	3.91	3.83	3.85	3.85	4.13	0.58
Classroom facilities	3.03	3.29	3.12	3.00	3.06	3.07	0.63
Personal security/safety	3.00	3.32	3.29	3.36	3.34	3.55	0.89
Cultural programs	3.62	3.85	3.75	3.82	3.83	3.85	0.56
Variety of courses offered by this college	3.22	3.23	3.50	3.38	3.13	3.55	0.87
Course content in major	3.39	3.70	3.45	3.10	3.21	3.56	0.97
Student employment	3.69	3.94	3.95	3.77	3.78	3.66	0.43
Academic advising	3.77	3.60	3.60	3.51	3.59	3.67	0.96
Out-of-class avail- ability of instructor	3.50	3.70	3.37	3.26	3.21	3.36	0.92
Residence hall rules & regulations	3.73	3.94	3.91	4.00	3.98	4.32	0.92
Athletic facilities	2.89	3.32	3.20	2.90	2.80	3.22	0.86
Library facilities	3.60	2.79	2.70	2.74	2.77	3.14	0.72
Preparation receiving for future occupation	3.51	3.44	3.54	3.30	3.18	3.55	0.92
Opportunities for personal involvement in campus activities	3.30	3.61	3.50	3.24	3.45	3.53	0.17
Sample size N (3)	156	68	48	302	61	83	718

- (1) College services and environment characteristics which were statistically significant at the .05 level for both univariate and stepwise F after step 43.
- (2) The squares for these values are the within-group means of squares (the error terms for univariate analysis).
- (3) The differences in the sample size in this analyses and previous analysis were due to missing data on college services and environment characteristics.

TABLE XLV

F STATISTICS AND SIGNIFICANCE BETWEEN THE PAIRS OF GROUPS
 NONRETURNING AND RETURNING NATIVE, VERTICAL TRANSFER,
 AND HORIZONTAL TRANSFER STUDENTS FOR COLLEGE
 SERVICES AND ENVIRONMENT CHARACTERISTICS
 AFTER STEP 43

GROUP	NONRETURN NATIVE	NONRETURN VERTICAL	NONRETURN HORIZONTAL	RETURNING NATIVE	RETURNING VERTICAL
NONRETURN VERTICAL	2.69**				
NONRETURN HORIZONTAL	2.13*	2.09*			
RETURNING NATIVE	5.72**	5.57**	3.77**		
RETURNING VERTICAL	5.79**	4.28**	2.81**	5.10**	
RETURNING HORIZONTAL	6.80**	4.01**	3.28**	7.45**	4.65**

(1) Each F statistic above has 43 and 670 degrees of freedom.

(2) * $p < .001$, ** $p < .0001$

TABLE XLVI

TEST STATISTICS FOR COMPARISON AMONG THE SIX GROUPS, NONRETURNING AND RETURNING NATIVE,
VERTICAL TRANSFER, AND HORIZONTAL TRANSFER STUDENTS ON COLLEGE SERVICES AND
ENVIRONMENT CHARACTERISTICS

STEP ENTER	COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS (1)	UNIVARIATE F(2) (df = 5, 712) p	STEPWISE F(2) p	DISCRIMINANT FUNCTIONS (3)				
				1	2	3	4	5
1	College orientation	32.92****	28.38****	-0.69	0.34	-0.28	-0.17	0.12
2	Value of information provided by advisor	11.04****	4.82****	0.32	-0.45	-0.04	0.00	0.12
3	Veterans services	12.89****	11.27****	0.38	-0.05	-0.10	-0.49	0.08
5	Availability of courses you need at time you can take them	3.30****	12.62****	0.62	0.15	-0.09	0.19	-0.27
6	Financial services	7.97****	10.42****	-0.21	-0.42	0.03	-0.04	0.48
7	Instruction in major	5.80****	3.01****	-0.27	-0.09	0.30	-0.09	0.23
8	Parking facilities	6.44****	4.55****	0.15	0.16	-0.21	0.34	-0.10
9	Student health services	7.45****	4.27****	0.14	0.10	0.32	-0.11	0.14
10	Attitude of nonteaching staff toward students	5.82****	3.97****	0.31	0.01	-0.01	0.21	0.12
11	Testing/grading system	2.25*	4.98****	-0.02	0.32	0.20	-0.21	-0.23
12	College-sponsored tutorial program	4.32****	4.86****	0.14	0.25	-0.07	0.15	0.29
15	Racial harmony	2.93*	7.04****	-0.11	-0.27	0.44	0.19	0.20
17	Recreational & intramural program	4.95****	2.49****	-0.16	-0.09	-0.16	0.08	0.31
18	Rules governing student conduct at college	4.71****	2.43****	-0.01	-0.04	0.18	-0.43	0.17
20	Availability of your advisor	7.73****	2.02****	-0.27	0.01	0.11	0.25	-0.11
22	Residence hall services	3.81**	3.44****	0.12	-0.18	0.33	0.05	0.13
23	Honors programs	4.09**	2.62****	0.09	0.24	0.00	0.06	0.10

TABLE XLVI (Continued)

STEP ENTER	COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS (1)	UNIVARIATE F(2) (df = 5, 712) p	STEPWISE F(2) p	DISCRIMINANT FUNCTIONS (3)				
				1	2	3	4	5
24	Flexibility to design your own program	2.77*	2.96****	-0.09	0.11	0.31	-0.06	0.09
25	Job placement services	3.26**	3.16****	-0.16	0.14	0.22	0.01	-0.14
27	Classroom facilities	2.58*	2.30****	-0.12	-0.20	-0.13	0.18	0.04
28	Personal security/safety	5.08***	2.03****	0.00	0.20	0.10	-0.05	0.19
29	Cultural programs	3.56**	1.88****	0.15	0.13	-0.05	0.13	0.09
32	Variety of courses offered	2.85*	2.73****	0.03	0.11	0.20	-0.25	0.31
33	Course content in major	6.49****	2.12****	-0.13	-0.10	-0.28	0.20	-0.06
34	Student employment	2.58*	1.99****	0.10	0.03	-0.19	0.22	0.13
35	Academic advising	6.63****	1.85****	-0.16	0.00	0.10	0.10	-0.40
38	Out-of-class availability of instructor	3.49**	1.61****	0.10	-0.14	0.17	0.06	-0.22
39	Residence hall rules & regulations	4.67***	1.49****	0.00	0.23	0.23	0.12	-0.12
40	Athletic facilities	5.37***	1.51****	-0.01	0.00	0.27	-0.01	0.11
41	Library facilities	6.16****	1.62****	-0.07	0.09	0.00	0.25	-0.25
42	Preparation receiving for future occupation	2.49*	1.48****	0.05	-0.07	0.02	-0.37	-0.09
43	Opportunities for personal involvement in campus activities	3.72**	1.39****	-0.17	0.06	-0.11	-0.01	-0.25
EIGENVALUES				0.57	0.46	0.28	0.13	0.09
PERCENT OF VARIANCE				36.84	29.78	18.94	8.94	6.20
FUNCTION 1		X = 906.91	df = 215	p < .0001				
FUNCTION 2		X = 592.34	df = 168	p < .0001				
FUNCTION 3		X = 327.95	df = 123	p < .0001				

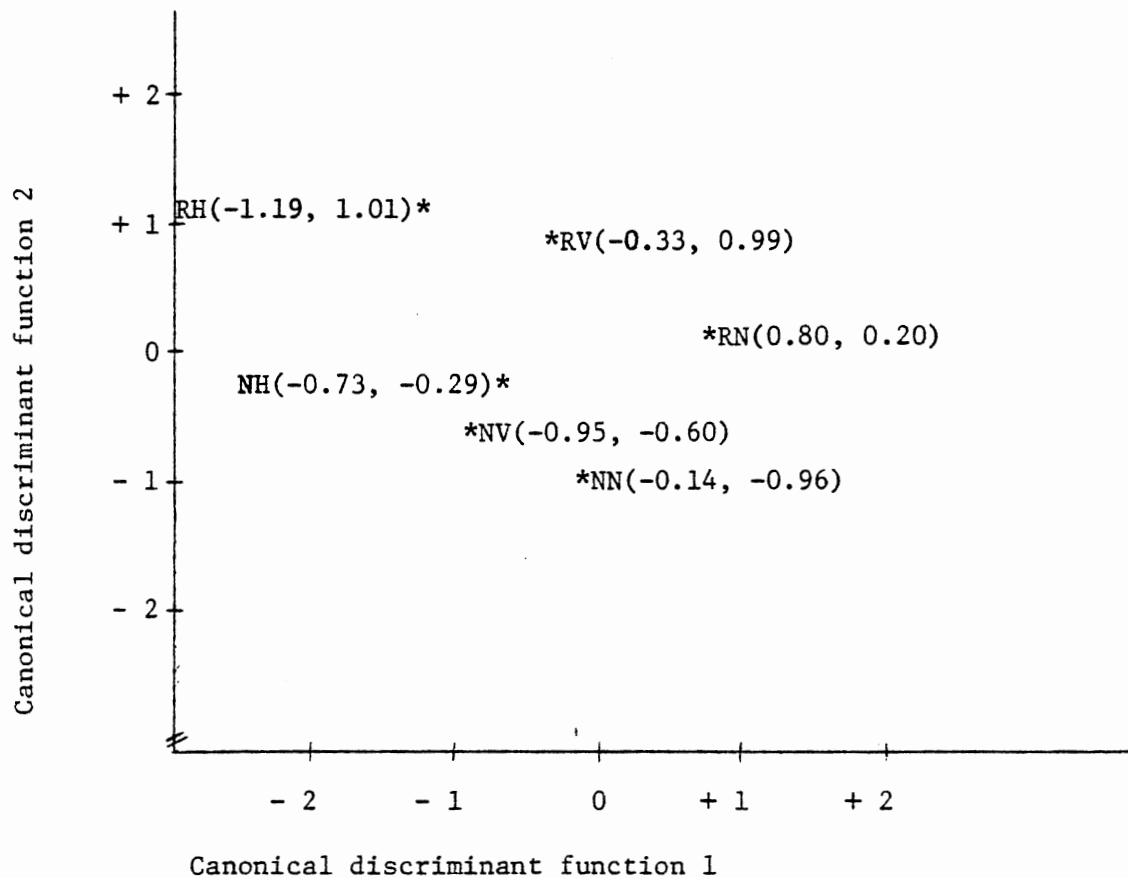
TABLE XLVI (Continued)

FUNCTION 4	X = 154.46	df = 80	p < .0001
FUNCTION 5	X = 64.02	df = 39	p < .007

- (1) College services and environment characteristics which were statistically significant at the .05 level for both univariate and stepwise F after step 43. Characteristics are listed in the order in which the stepwise analysis was performed. Thus, the stepwise F shows the significance of the indicated dependent characteristic, controlling for all variables listed above it.
- (2) * p < .05, ** p < .01, *** p < .001, **** p < .0001
- (3) Standardized discriminant function coefficients.

A meaningful interpretation of the standardized weights of these three discriminant functions was very difficult. The means (centroids) of the first two functions were plotted in Figure 8. The centroids of each group for each of the three functions were given in Table XLVII. Table XLVII and Figures 8 and 9 showed that rank order among the six groups on each function did exist; however, it was relatively small among some groups on each function. The pattern of the standardized weights in Table XLVI provided more meaning about the differences among the six groups. The services college orientation program (-.69), availability of courses you want at the time you need them (.62), and attitude of non-teaching staff toward students (.31) had the largest magnitude of the standardized weights on the discriminant function one (see Table XLVI) with corresponding weights on the other four functions relatively smaller (Table XLVI). Figures 8 and 9 indicated that function one separated the returning natives from the other five groups. Therefore, it was apparent from the means in Table XLIV, the weights in Table XLVI, and line graphs in Figure 9 for function one that the returning native students were less satisfied with the attitude of the nonteaching staff toward the students and the availability of the courses students want at the time they want them, than the other five groups of students. However, the returning native student was more satisfied with the college orientation program than the other five groups.

Discriminant function two (see Table XLVI) has the largest magnitude of standardized weights associated with the services value of information provided by the student advisor (-.45) and the testing and grading system (.32). Figures 8 and 9 showed that function two separated the returning vertical and horizontal transfers from the other four



* Indicates group centroid

NN = nonreturning native

NV = nonreturning vertical

NH = nonreturning horizontal

RN = returning native

RV = returning vertical

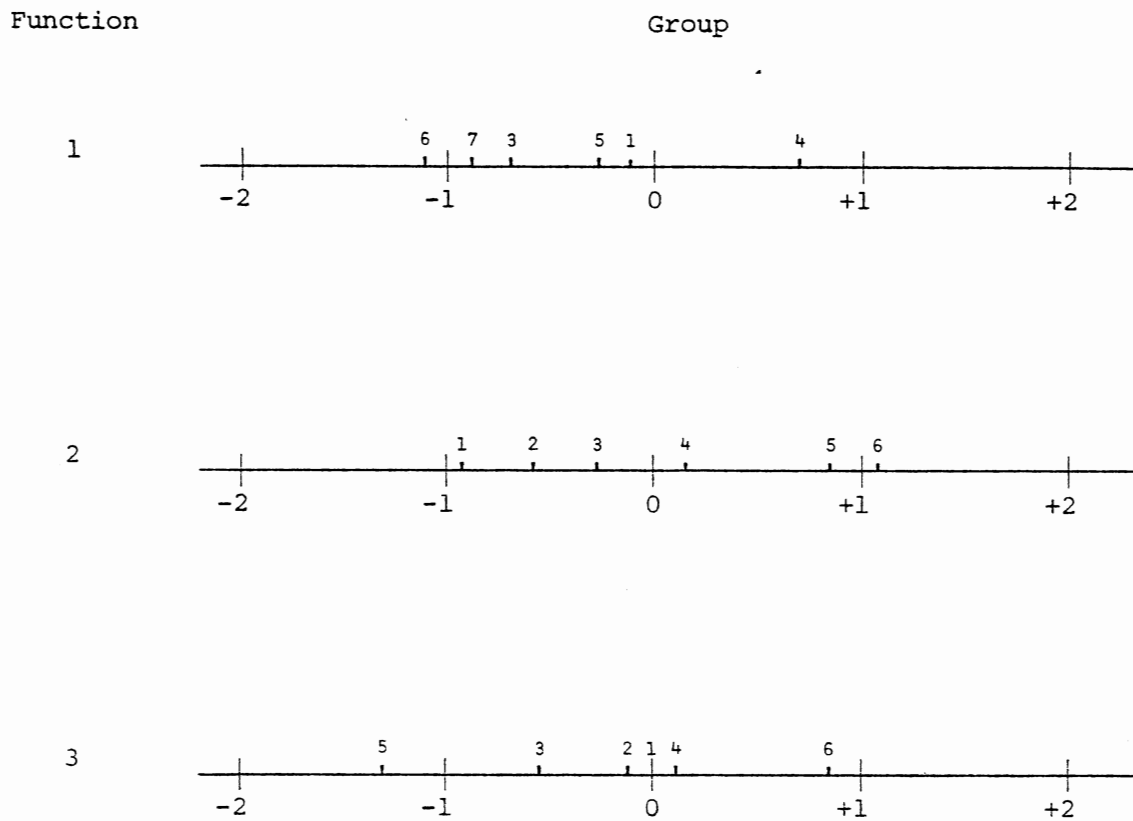
RH = returning horizontal

Figure 8. The Six Group Centroids Nonreturning and Returning Native, Vertical Transfer and Horizontal Transfer Students in the Discriminant Space Assuming All Functions But One and Two are Zero

TABLE XLVII

CANONICAL DISCRIMINANT FUNCTIONS IN TABLE LVIII EVALUATED AT THE
GROUP MEANS (GROUP CENTROIDS)

GROUP	FUNCTION1	FUNCTION2	FUNCTION3	FUNCTION4	FUNCTION5
NONRETURN NATIVE	-0.14	-0.96	0.00	-0.29	-0.29
NONRETURN VERTICAL	-0.95	-0.60	-0.05	0.98	0.12
NONRETURN HORIZONTAL	-0.73	-0.29	-0.44	-0.55	0.97
RETURNING NATIVE	0.80	0.20	0.14	0.07	0.06
RETURNING VERTICAL	-0.33	0.99	-1.45	-0.01	-0.30
RETURNING HORIZONTAL	-1.19	1.01	0.83	-0.18	-0.12



Note: 1 = nonreturning native
 2 = nonreturning vertical transfer
 3 = nonreturning horizontal transfer
 4 = returning native
 5 = returning vertical transfer
 6 = returning horizontal transfer

Figure 9. Comparison of Group Centroids on the First Three Discriminant Functions in Table XLVI Assuming the Other Four Functions are Zero

groups. Therefore, from the means in Table XLIV, the standardized weights in Table XLVI, and the line graph in Figure 9 for function two, it can be seen that the returning vertical and horizontal transfer students were less satisfied with the testing and grading system but were more satisfied with the value of the information provided by their advisor than the other four groups.

The services racial harmony at this college (.44), residence hall services (.33), student health services (.32), and flexibility to design your own program (.31) had the largest magnitude of the standardized weights on discriminant function three (see Table XLVI). The line graph for function three (Figure 9) showed that there existed a separation of the six groups along a continuum (low to high) into three groups: (1) returning vertical transfers; (2) nonreturning natives, nonreturning vertical transfers, nonreturning horizontal transfers and returning natives; and (3) returning horizontal transfers. Thus, the returning vertical transfer students were more satisfied with student health services, racial harmony, residence hall services, and the flexibility to design their own program than all the other groups. At the other end of the continuum, the returning horizontal transfer students were less satisfied with the student health services and the flexibility to design their own program than all the other groups. There was a noticeable overlap in the means of the nonreturning vertical transfers and the returning horizontal transfers for the variables racial harmony and residence hall services (Table XLIV).

After the examination of the forty-nine services and environment characteristics on combinations of student groups of six, three and two, an even more meaningful interpretation of these services and environment

characteristics can be obtained by reducing them to five variables:

(1) academic, (2) rules and regulations, (3) registration, (4) general, and (5) services.

College Services and Environment Characteristics

Reduced to Five Variables

Introduction

The fourth question posed in this study was: How do the nonreturning and returning native, vertical transfer and horizontal transfer students view the college services and environment characteristics at State University when those forty-nine characteristics are reduced to five services? Each of the forty-nine services and environment characteristics was placed into one of the five categories: (1) academic, (2) rules and regulations, (3) registration, (4) general, and (5) services. An SPSS principal component factor analysis program was applied to each of the five categories for each of the six groups. After examination of the correlation coefficient matrix and each factor's eigenvalue, percentage of variance and factor score coefficients, the number of N factors was selected for the study for each of the five categorical services (see Table XLVIII). An SAS-SPSS program for principal component analysis and stepwise discriminant analysis for services stored the N factor scores for each of the five services for each student of each group on a raw-data file, added the N factor scores of each of the five services into a composite score, and analyzed the five composite scores, academic, rules and regulations, registration, general and services of each student with stepwise discriminant analysis. The results of the stepwise

TABLE XLVIII

NUMBER OF N FACTORS FOR EACH SERVICE FOR NONRETURNING AND
RETURNING NATIVE, VERTICAL TRANSFER, AND HORIZONTAL
TRANSFER STUDENTS WITH EIGENVALUES GREATER THAN
OR EQUAL TO ONE

GROUPS	ACADEMIC	RULES & REGULATIONS	REGISTRATION	GENERAL	SERVICES
NONRETURN NATIVES	3	1	1	1	7
NONRETURN VERTICAL	4	1	1	1	8
NONRETURN HORIZONTAL	3	2	1	2	8
RETURNING NATIVE	2	1	1	1	8
RETURNING VERTICAL	4	1	1	2	8
RETURNING HORIZONTAL	3	2	1	1	7
NUMBER OF FACTORS SELECTED	3	2	1	1	7

discriminant analysis on the five composite characteristics for the six groups are presented in Tables XLIX through LXI.

Comparison Between Nonreturning and Returning
Horizontal Transfers on the Composite College
Services and Environment Characteristics

The means and common standard deviations of the composite college services and environment characteristics still in the analysis after step 3 are presented in Table XLIX. The nonreturning and returning horizontal transfer students were different with respect to the composite college services and environment characteristics (the multivariate F-ratio of 6.01 was significant at the .001 level with 3 and 154 degrees of freedom (see Table L). The differences were particularly substantial in services, and rules and regulations (see the univariate F-ratios for the characteristics in Table L. The differences in these characteristics still existed even when some prior characteristics were controlled (that is, the stepdown ratios of these variables were still significant at the .001 level). After services and rules and regulations were controlled, returning horizontal transfer students were less satisfied with the academic environment than the nonreturning transfer students. As indicated by the discriminant coefficients in Table L and the means in Table XLIX, more returning horizontal transfer students were less satisfied with the services environment than the nonreturning horizontal transfer students. However, more returning horizontal transfer students were more satisfied with the rules and regulations at State University than the nonreturning horizontals.

TABLE XLIX

MEANS AND COMMON STANDARD DEVIATIONS FOR NONRETURNING AND
RETURNING HORIZONTAL TRANSFER STUDENTS FOR THE
COMPOSITE COLLEGE SERVICES AND ENVIRONMENT
CHARACTERISTICS

COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS(1)	NONRETURNING HORIZONTAL TRANSFER	RETURNING HORIZONTAL TRANSFER	COMMON STANDARD DEVIATIONS(2)
Services	319.68	1628.00	2821.14
Rules and regulations	79.00	-0.09	221.66
Academic	0.00	222.05	761.59
Sample Size N (3)	50	108	158

- (1) College services and environment characteristic composites in the stepwise discriminant analysis after step 3.
- (2) The squares of these values are the within-group means of squares (the error terms for univariate analysis).
- (3) The differences in the sample size in this analysis were due to missing data on the college services and environment characteristics.

TABLE L

TEST STATISTICS FOR COMPARISON BETWEEN NONRETURNING AND
RETURNING HORIZONTAL TRANSFER STUDENTS FOR THE
COMPOSITE COLLEGE SERVICES AND ENVIRONMENT
CHARACTERISTICS

COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS FACTORS (1)	UNIVARIATE F(2) (df = 1, 156) p	STEPWISE F(2) p	STANDARDIZED DISCRIMINANT COEFFICIENTS(3)
Services	7.35**	10.28**	0.82
Rules & regulations	4.45*	8.69***	-0.75
Academic	2.90	1.69***	0.25
Multivariate F = 6.01 X = 17.10 (df = 3, 154) p < .001 df = 3 p < .001			

- (1) The composite variables in the analysis after step 3. Composite variables are listed in the order in which the stepwise discriminant analysis was performed. Thus, the stepwise F shows the significance of the indicated dependent variables, controlling for all variables listed above it.
- (2) * p < .05, ** p < .01. *** p < .001
- (3) The sign of the discriminant function coefficients shows the direction of the relationship. A positive sign indicates that the returning horizontal transfers were less satisfied on the dependent variables than the nonreturning horizontal transfers.

TABLE LI

MEANS AND COMMON STANDARD DEVIATIONS FOR NONRETURNING AND
RETURNING VERTICAL TRANSFER STUDENTS FOR THE COMPOSITE
COLLEGE SERVICES AND ENVIRONMENT CHARACTERISTICS

COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS(1)	NONRETURNING VERTICAL TRANSFER	RETURNING VERTICAL TRANSFER	COMMON STANDARD DEVIATIONS(2)
Services	210.31	517.46	2426.09
Rules and regulations	105.15	50.58	386.95
General	52.57	26.45	415.94
Sample Size N (3)	76	79	155

- (1) College services and environment characteristic composites in the stepwise discriminant analysis after step 3.
- (2) The squares of these values are the within-group means of squares (the error terms for univariate analysis).
- (3) The differences in the sample size in this analysis and previous analyses were due to missing data on the college services and environment characteristics.

TABLE LII

TEST STATISTICS FOR COMPARISON BETWEEN NONRETURNING AND
RETURNING VERTICAL TRANSFER STUDENTS FOR THE
COMPOSITE COLLEGE SERVICES AND ENVIRONMENT
CHARACTERISTICS

COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS FACTORS (1)	UNIVARIATE F(2) (df = 1, 153) p	STEPWISE F(2) p	STANDARDIZED DISCRIMINANT COEFFICIENTS(3)
Services	11.24*	11.69**	0.91
Rules & regulations	0.77	2.77**	-0.47
General	1.22	1.33**	0.32
Multivariate F = 4.88 X = 14.03 (df = 3, 151) p < .01 df = 3 p < .01			

- (1) The composite variables in the analysis after step 3. Composite variables are listed in the order in which the stepwise discriminant analysis was performed. Thus, the stepwise F shows the significance of the indicated dependent variables, controlling for all variables listed above it.
- (2) * p < .05, ** p < .01
- (3) The sign of the discriminant function coefficients shows the direction of the relationship. A positive sign indicates that the returning vertical transfers were less satisfied on the dependent variables than the nonreturning vertical transfers.

TABLE LIII

MEANS AND COMMON STANDARD DEVIATIONS FOR NONRETURNING AND
RETURNING NATIVES FOR THE COMPOSITE COLLEGE SERVICES
AND ENVIRONMENT CHARACTERISTICS

COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS FACTORS (1)	NONRETURNING NATIVES	RETURNING NATIVES	COMMON STANDARD DEVIATIONS(2)
Services	505.22	1310.84	2686.23
Rules & regulations	-0.02	15.85	146.98
Academic	183.74	126.82	747.61
General	11.45	5.27	120.24
Sample Size N (3)	174	378	552

- (1) College services and environment characteristics composites in the stepwise discriminant analysis after step 4.
- (2) The squares of these values are the within-group means of squares (the error terms for univariate analysis).
- (3) The differences in the sample size in this analysis and previous analyses were due to missing data on the college services and environment characteristics.

TABLE LIV

TEST STATISTICS FOR COMPARISON BETWEEN NONRETURNING AND
RETURNING NATIVE STUDENTS FOR THE FACTORS OF THE
COLLEGE SERVICES AND ENVIRONMENT
CHARACTERISTICS

COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS FACTORS (1)	UNIVARIATE F(2) (df = 1, 550)	STEPWISE F(2) p	STANDARDIZED DISCRIMINANT COEFFICIENT(3)
Services	10.72**	12.10**	0.89
Rules & regulations	1.39	3.08**	0.48
Academic	0.69	2.22**	-0.41
General	0.31	1.23**	-0.28

Multivariate F = 3.95 X = 15.62			
(df = 4, 547) p < .01 df = 4 p < .01			

- (1) The composite variables in the analysis after step 4. Composite variables are listed in the order in which the stepwise discriminant analysis was performed. Thus, the stepwise F shows the significance of the indicated dependent variable, controlling for all variables listed above it.
- (2) * p < .05, ** p < .01
- (3) The sign of the discriminant function coefficients shows the direction of the relationship. A positive sign indicates that the returning natives were less satisfied on the dependent variables than the nonreturning natives.

TABLE LV

MEANS AND COMMON STANDARD DEVIATIONS FOR NONRETURNING AND
RETURNING STUDENTS FOR THE COMPOSITE COLLEGE SERVICES
AND ENVIRONMENT CHARACTERISTICS

COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS FACTORS (1)	NONRETURNING	RETURNING	COMMON STANDARD DEVIATIONS(2)
Services	399.58	1400.36	2664.20
Rules & regulations	39.94	17.65	223.88
Sample Size N (3)	300	565	865

- (1) College services and environment characteristics composites in the stepwise discriminant analysis after step 2.
- (2) The squares of these values are the within-group means of squares (the error terms for univariate analysis).
- (3) The differences in sample size in this analysis and previous analyses were due to missing data on the college services and environment characteristics.

TABLE LVI

TEST STATISTICS FOR COMPARISON BETWEEN NONRETURNING AND
RETURNING STUDENTS FOR THE COMPOSITE COLLEGE SERVICES
AND ENVIRONMENT CHARACTERISTICS

COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS FACTORS (1)	UNIVARIATE F(2) (df = 1, 863) p	STEPWISE F(2) p	STANDARDIZED DISCRIMINANT COEFFICIENTS(3)
Services	27.65****	29.07****	0.97
Rules & regulations	1.94	3.35****	-0.33
Multivariate F = 15.53 X = 30.53 (df = 2, 862) p < .0001 df = 2 p < .0001			

- (1) The composite variables in the analysis after step 2. Composite variables are listed in the order in which the stepwise discriminant analysis was performed. Thus, the stepwise F shows the significance of the indicated dependent variables, controlling for all variables listed above it.
- (2) **** p < .0001
- (3) The sign of the discriminant function coefficients shows the direction of the relationship. A positive sign indicates that the returning students were less satisfied on the dependent variables than the nonreturning students.

TABLE LVII

F STATISTIC AND SIGNIFICANCE LEVEL BETWEEN THE PAIRS OF
 GROUPS NONRETURNING NATIVE, VERTICAL TRANSFER, AND
 HORIZONTAL TRANSFER STUDENTS FOR THE COMPOSITE
 COLLEGE SERVICES AND ENVIRONMENT
 CHARACTERISTICS AFTER STEP 4

NONRETURNING GROUPS	F-RATIOS (df = 4, 294)	p
Native and vertical transfer	4.16	**
Native and horizontal transfer	2.21	
Vertical and horizontal transfer	0.83	

(1) ** P < .01

TABLE LVIII

TEST STATISTICS FOR COMPARISON AMONG THE THREE GROUPS
NONRETURNING NATIVE, VERTICAL TRANSFER, AND
HORIZONTAL TRANSFER STUDENTS FOR THE
COMPOSITE COLLEGE SERVICES AND
ENVIRONMENT CHARACTERISTICS

STEP ENTER	COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS(1)	UNIVARIATE F(2) (df = 2, 297) p	STEPWISE F(2) p	DISCRIMINANT FUNCTIONS(3)	
				1	2
1	Rules & regulations	4.43*	7.07*	0.91	-0.09
2	Academic	1.35	2.71**	-0.50	0.64
3	Services	0.81	2.19**	-0.50	-0.19
4	General	1.43	1.86**	0.33	0.79
EIGENVALUES				0.064	0.009
PERCENT OF VARIANCE				86.77	13.23
FUNCTION 1		X = 21.41	df = 8	p < .001	
FUNCTION 2		X = 2.89	df = 3	p < .05	

- (1) The composite variables in the analysis after step 4. Composite variables are listed in the order in which the stepwise discriminant analysis was performed. Thus, the stepwise F shows the significance of the indicated dependent variable, controlling for all variables listed above it.
- (2) * p < .05, ** p < .01, *** p < .001, **** p < .0001
- (3) Standardized discriminant function coefficients.

TABLE LIX

F STATISTIC AND SIGNIFICANCE LEVEL BETWEEN THE PAIRS OF
 GROUPS RETURNING NATIVE, VERTICAL TRANSFER, AND
 HORIZONTAL TRANSFER STUDENTS FOR THE COMPOSITE
 COLLEGE SERVICES AND ENVIRONMENT
 CHARACTERISTICS AFTER STEP 3

RETURNING GROUPS	F-RATIOS (df = 3, 560)	p
Native and vertical transfer	8.38	****
Native and horizontal transfer	1.29	
Vertical and horizontal transfer	7.85	****

(1) **** P < .0001

TABLE LX

TEST STATISTICS FOR COMPARISON AMONG THE THREE GROUPS
RETURNING NATIVE, VERTICAL TRANSFER, AND HORIZONTAL
TRANSFER STUDENTS FOR FACTORS OF THE COLLEGE
SERVICES AND ENVIRONMENT CHARACTERISTICS

STEP	COLLEGE SERVICES ENTER ENVIRONMENT CHARACTERISTICS FACTORS(1)	UNIVARIATE F(2) (df = 2, 562) p	STEPWISE F(2) p	DISCRIMINANT FUNCTIONS(3)	
				1	2
1	General	12.64****	11.05****	0.93	0.47
2	Academic	0.83	2.81****	-0.40	0.98
3	Rules & regulations	1.72	1.34****	0.20	-0.93
EIGENVALUES				0.05	0.005
PERCENT OF VARIANCE				89.76	10.24
FUNCTION 1		X = 30.84	df = 6	P < .0001	
FUNCTION 2		X = 3.22	df = 2	p = 0.19	

- (1) The factor variables in the analysis after step 3.
Factor variables are listed in the order in which the
stepwise discriminant analysis was performed. Thus, the
stepwise F shows the significance of the indicated dependent
variable, controlling for all variables above it.
- (2) ** p < .01, *** p < .001, **** p < .0001
- (3) Standardized discriminant function coefficients.

TABLE LXI

F STATISTICS AND SIGNIFICANCE LEVEL BETWEEN THE PAIRS OF GROUPS
 NONRETURNING AND RETURNING NATIVE, VERTICAL TRANSFER,
 AND HORIZONTAL TRANSFER STUDENTS FOR THE COMPOSITE
 COLLEGE SERVICES AND ENVIRONMENT CHARACTERISTICS
 AFTER STEP 4

GROUP	NONRETURN NATIVE	NONRETURN VERTICAL	NONRETURN HORIZONTAL	RETURNING NATIVE	RETURNING VERTICAL
NONRETURN VERTICAL	4.79***				
NONRETURN HORIZONTAL	3.14*	0.66			
RETURNING NATIVE	3.36**	6.97****	3.62**		
RETURNING VERTICAL	6.90****	4.57**	5.01***	6.27***	
RETURNING HORIZONTAL	3.14*	8.18****	5.24***	1.03	5.83***

(1) Each F statistic above has 4 and 856 degrees of freedom.

(2) * $p < .05$, ** $p < .01$, *** $p < .001$, **** $p < .0001$

Comparison Between Nonreturning and Returning
Vertical Transfers on the Composite College
Services and Environment Characteristics

The means and common standard deviations of the composite college services and environment characteristics still in the analysis after step 3 are presented in Table LI. The nonreturning and returning vertical transfer students were different with respect to the composite college services and environment characteristics (the multivariate F-ratio of 4.88 was significant at the .01 level with 3 and 151 degrees of freedom, see Table LII). The difference was particularly substantial in services (see the univariate F-ratios for the characteristics in Table LII). The difference in this characteristic still existed even after stepwise discriminant analysis was performed. After services were controlled, more returning vertical transfers were more satisfied with rules and regulations than the nonreturning vertical transfers. Also, after both services and rules and regulations were controlled, more nonreturning vertical transfers were less satisfied with the general characteristics of the university than the returning vertical transfer students. As indicated by the discriminant coefficients in Table LII and the means in Table LI, more returning vertical transfers were less satisfied with the services environment than the nonreturning vertical transfers.

Comparison Between Nonreturning and Returning
Natives on the Composite College Services
and Environment Characteristics

The means and common standard deviations of the composite college

and service characteristics still in the analysis after step 4 are presented in Table LIII. The nonreturning and returning native students were different with respect to the composite college services and environment characteristics (the multivariate F-ratio of 3.95 was significant at the .01 level with 4 and 547 degrees of freedom, see Table LIV). The difference was particularly substantial in services (see the univariate F-ratio for the characteristics in Table LIV). The difference in this characteristic still existed even after stepwise discriminant analysis was performed. After services was controlled, more returning natives were less satisfied with rules and regulations than the nonreturning natives. However, after both services and rules and regulations were controlled, the returning natives were more satisfied with the academic environment than the nonreturning natives. When all three variables were controlled (services, rules and regulations, and academic), the returning natives were more satisfied with the general characteristics of the university than the nonreturning natives. As indicated by the discriminant coefficients in Table LIV and the means in Table LIII, more returning natives were less satisfied with the service environment of the university than the nonreturning natives.

Comparison Between Nonreturning and Returning
Students on the Composite College Services
and Environment Characteristics

The means and common standard deviations of the composite college services and environment characteristics still in the analysis after step 2 are presented in Table LV. The nonreturning and returning

students were different with respect to the composite college services and environment characteristics (the multivariate F-ratio of 15.53 was significant at the .01 level with 2 and 862 degrees of freedom, see Table LVI). The difference was particularly substantial in services (see the univariate F-ratios for the characteristics in Table LV). The difference in this characteristic still existed even after stepwise discriminant analysis was performed. After services was controlled, more returning students were more satisfied with the rules and regulations of the university than the nonreturning students. As indicated by the discriminant coefficients in Table LVI and the means in Table LV, more returning students were less satisfied with the services of the university than the nonreturning students.

Comparison Among the Three Groups Nonreturning Natives, Vertical Transfers, and Horizontal Transfers on the Composite College Services and Environment Characteristics

There were no differences among the three groups nonreturning native, nonreturning vertical transfer, and nonreturning horizontal transfer students on the composite environment characteristics: academic, rules and regulations, registration, general, and services. The pairwise multivariate F-ratio was only significant at the .05 level for the nonreturning native and nonreturning vertical transfer student (see Table LVII). The test statistics in Table LVIII imply that the nonreturning vertical transfers were less satisfied with the rules and regulations at State University than the returning natives.

Comparison Among the Three Groups Returning
Native, Vertical Transfer, and Horizontal
Transfer Students on the Composite College
Services and Environment Characteristics

There were no differences among the three groups returning native, returning vertical transfer, and returning horizontal transfer students on the composite environment characteristics: academic, rules and regulations, registration, general, and services. The pairwise multivariate F-ratio was not significant at the .05 level for the returning natives and returning horizontal transfer students (see Table LIX). The means of the returning natives, vertical transfers, and horizontal transfers on the composite variable general were 5.27, 26.45, and -0.11, respectively. The means, F-ratios in Table LIX, and the test statistics in Table LX implied that the returning vertical transfer students were less satisfied with the general environment characteristics of the university than either the returning natives or the returning horizontal transfers.

Comparison Among the Six Groups: Nonreturning
Native, Nonreturning Vertical Transfer,
Nonreturning Horizontal Transfer, Returning
Native, Returning Vertical Transfer, Returning
Horizontal Transfer Students on the Composite
College Services and Environment Characteristics

There were no differences among the six groups nonreturning and returning native, vertical transfer, and horizontal transfer students on the composite college service and environment characteristics: academic, rules and regulations, registration, general, and services. The pairwise

multivariate F-ratios were not significant at the .05 level for the groups: (1) nonreturning vertical transfers and nonreturning horizontal transfers and (2) returning natives and returning horizontal transfers (see Table LXI).

Summary

The analysis of the six groups (nonreturning and returning native, vertical transfer and horizontal transfer students) with the large number of variables was very complex. To simplify these results a profile of each of the six groups was presented on the background, service, and environment variables having a .05 level of significance for both the univariate F and discriminant stepwise F for the two group and six group analyses. These results are presented in Tables LXII and LXIII and are discussed in the following paragraphs.

The first group, nonreturning native students, consisted of more females (except for the nonreturning horizontal transfer students), more in-state students, and more health profession majors than any of the other five groups. The nonreturning native students had lower cumulative grade point averages, lower goal aspirations, were employed more hours per week (except for the nonreturning vertical transfer students), and were enrolled longer than any of the other five groups. The nonreturning native students had more students living in nonuniversity housing than any of the other returning groups and had more married students than the returning native students. The nonreturning native students were more dissatisfied with the value of the information provided by their advisors than any of the other five groups, except the nonreturning vertical transfer students. The nonreturning native students were more

TABLE LXII

NUMERIC RANKING OF THE MEANS OF THE SIX
GROUPS NONRETURNING AND RETURNING
NATIVE, VERTICAL TRANSFER, AND
HORIZONTAL TRANSFER STUDENTS
ON THE BACKGROUND
CHARACTERISTICS

BACKGROUND CHARACTERISTICS	a)						b)			c)	d)
	NRN	NRV	NRH	RSN	RSV	RSH	H	V	N	R	6G
Age	2	3	5	1	6	3			*	*	*
Classification	1	4	3	2	6	5	*	*	*	*	*
Purpose	1	4	2	5	6	3		*	*	*	*
Enrollment status	4	6	5	1	2	3	*	*	*	*	*
Male vs Female	5	4	6	3	1	2	*		*	*	*
Black vs nonblack	3	5	6	2	1	4		*			*
Unmarried vs Married	3	5	6	1	4	2			*		*
Type of tuition (in-state vs out)	1	2	4	3	6	5		*	*	*	*
Hours work/week	5	6	3	1	4	2			*		*
Cumulative grade point	1	2	4	5	3	6			*	*	*
Length of enrollment	6	1	2	5	4	3		*	*		*
Campus residence vs other housing	4	6	5	1	3	2	*		*		*
Home of parents vs other housing	3	2	1	5	6	4		*	*	*	*
Own home vs other Nonuniversity	3	2	1	6	4	5		*	*	*	*
housing vs other	3	1	2	6	5	4	*	*	*		*
Business vs other	4	5	6	2	1	3		*			*
Education vs other	5	2	3	4	1	3					*
Health profession vs other major	1	2	3	4	5	5	*	*	*	*	*

- a) NRN means nonreturning native students; NRV means nonreturning vertical transfers; NRH means nonreturning horizontal transfers; RSN means returning native students; RSV means returning vertical transfers; and RSH means returning horizontal transfers.
- b) H, V, and N means comparing the two groups of nonreturning and returning horizontal transfers, vertical transfers, and native students respectively.
- c) R means comparing all nonreturning students and all returning students.
- d) 6G means comparing all six groups (nonreturning and returning natives, vertical transfers and horizontal transfers).
- e) * $p < .05$ for both the univariate and discriminant analysis
- f) 1 implies lowest and 6 implies highest value for the group. Example, for variable age 1 implies youngest group and 6 implies oldest group. However, for the variables involving the form A vs B the lowest value 1 implies more of A and the highest 6 implies more of B. Example, under RSV the variable Male vs Female has a value 1, this says that the returning vertical transfers has more males than the other groups.

TABLE LXIII

NUMERIC RANKING OF THE MEANS OF THE SIX GROUPS NONRETURNING
AND RETURNING NATIVE, VERTICAL TRANSFER, AND HORIZONTAL
TRANSFER STUDENTS ON THE COLLEGE SERVICES AND
COLLEGE ENVIRONMENT CHARACTERISTICS

COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS	NRN	NRV	NRH	RSN	RSV	RSH	H	V	N	R	6G
	a)			b)				c)		d)	
Testing/grading	4	2	1	3	5	6	*				*
Course content in major	3	6	4	1	2	5		*	*	*	*
Instruction in major	3	6	5	2	1	4		*		*	*
Out-of-class availability of instructor	5	6	4	2	1	3		*	*		*
Class size relative to type of course	5	4	6	3	2	1	*			*	
Availability of advisor	5	6	4	2	1	3			*		*
Value of information provided by advisor	5	6	4	3	1	2		*	*	*	*
Residence hall rules and regulations	1	3	2	5	4	6	*			*	*
Personal security/ safety	1	3	2	5	4	6			*	*	*
Availability of courses you want at time you can take	2	4	3	6	5	1			*	*	*
Attitude of nonteaching staff toward students	3	5	4	6	2	1			*	*	*
Racial harmony	4	6	2	3	1	5		*			*
Academic advising	5	6	3	2	1	4		*	*		*
Job placement	2	4	1	3	2	5	*				*
Recreational & intramural programs	1	6	5	2	3	4		*			*
Library facilities	1	5	2	3	4	6			*	*	*
Student health services	2	3	4	5	1	6	*		*	*	*

TABLE LXIII (Continued)

COLLEGE SERVICES ENVIRONMENT CHARACTERISTICS	NRN	NRV	NRH	RSN	RSV	RSH	H	V	N	R	6G
	a)						b)			c)	d)
Student health insurance program	3	4	2	5	1	6	*		*	*	
College-sponsored tutorial services	1	2	6	4	3	5			*	*	*
Financial aid services	4	5	6	3	1	2	*	*	*	*	*
Student employment services	2	5	6	3	4	1	*				*
Cultural programs	1	5	2	3	4	6			*	*	*
College orientation	2	3	4	1	5	5		*			*
Honors programs	1	4	2	3	5	6			*	*	*
Parking facilities	1	2	3	5	6	4			*	*	*
Veterans services	4	1	5	5	3	2		*			*
Athletic facilities	2	6	4	3	1	5		*			*

- a) NRN means nonreturning native students; NRV means nonreturning vertical transfers; NRH means nonreturning horizontal transfers; RSN means returning native students; RSV means vertical transfers; and RSH means horizontal transfers.
- b) H, V, and N means comparing the two groups of nonreturning and returning horizontal transfers, vertical transfers, and native students respectively.
- c) R means comparing all nonreturning students and returning students.
- d) 6G means comparing all six groups (nonreturning and returning natives, vertical transfers, and horizontal transfers).
- e) * $p < .05$ for both the univariate and discriminant analysis.
- f) 1 implies very satisfied and 6 implies very dissatisfied.

dissatisfied with the out-of-class availability of their instructors and the financial aid services than any of the returning groups. The nonreturning natives were more dissatisfied with the course content in their major field and the academic advising services than the returning natives. The nonreturning native students were more satisfied with the personal security/safety of their campus, the library facilities and services, the college-sponsored tutorial services, the cultural programs, the honors programs, and the parking facilities and services than any of the other five groups. The nonreturning native students were more satisfied with the availability of the courses they wanted at the time they could take them, the attitude of the college nonteaching staff toward the students, the student health services, and the student health insurance program than the returning native students. Even after both the composite variables services and rules and regulations were controlled, the nonreturning native students were more dissatisfied with the academic environment than the returning natives (Table LXVII). Hence, the nonreturning natives were more dissatisfied with their academic environment and academic services than any other environment or service.

The second group, nonreturning vertical transfer students, consisted of more part-time students, more business majors (except for nonreturning horizontal transfer students), more students enrolled for a shorter period of time, more nonblack students (95 percent except for the nonreturning horizontal transfer students with 96 percent), more health profession majors (except for nonreturning native students), and more students living in nonuniversity housing (especially off-campus rooms or apartments) than any of the other five groups. The nonreturning vertical transfer students had more in-state students than any of

the returning student groups. The nonreturning vertical transfer students were more dissatisfied with the course content of their major, the instruction in their major field, the out-of-class availability of their instructors, the availability of their advisors, the value of the information provided by their advisors, the racial harmony at their institution, the academic advising services, the recreational and intramural programs, the financial aid services (except for the nonreturning horizontal transfer students), and the athletic facilities than any of the other five student groups. The nonreturning vertical transfer students were more satisfied with the veterans services than any of the other five groups and more satisfied with the college orientation program than any of the three returning student groups. The nonreturning vertical transfer students were more dissatisfied with the academic environment and services than any other environment or services.

The third group, nonreturning horizontal transfer students, consisted of older students (except for the returning vertical transfer students), more part-time students (except for the nonreturning vertical transfer students), and more females than any of the other five student groups. The nonreturning horizontal transfer students had more health profession majors and fewer students living in college residence halls than any of the three returning student groups. The nonreturning horizontal transfers had more lower classmen than the returning horizontal transfer students. The nonreturning horizontal transfer students were more dissatisfied with class size relative to the type of course, financial aid services, and student employment services than any other of the five student groups. The nonreturning horizontal transfer students were more satisfied with the testing and grading system and the job placement

services than the other five student groups. The nonreturning horizontal transfer students were more satisfied with the residence hall rules and regulations than the three returning student groups. The nonreturning horizontal transfers were more satisfied with the student health services and the student health program than the returning horizontal transfer students.

The fourth group, returning native students, was composed of more full-time, unmarried, and younger students than the other five groups. The native students had higher cumulative grade point averages (except for the returning horizontal transfer students) and had more students living in campus residence halls than the other five groups. The returning native students had higher goal aspirations, more males, and fewer health profession majors than any of the nonreturning groups. The returning natives were enrolled longer than any of the other returning groups. The returning native students were more dissatisfied with the availability of the courses they wanted at the time they could take them and the attitude of the nonteaching staff toward students than any of the other five groups. The returning natives were more dissatisfied with the student health services, the student health program, and the parking facilities than any of the three nonreturning groups. The returning natives were more dissatisfied with the library facilities and services, the college-sponsored tutorial services, the cultural programs, and the honors program than the nonreturning native students. The returning natives were more satisfied with the course content in their major than any of the other five groups. The returning natives were more satisfied with the out-of-class availability of their instructors, the value of the information provided by their advisors, the

academic advising services, and the financial aid services than any of the nonreturning groups of students.

The fifth group, the returning vertical transfer students, had more upper classmen, higher goal aspirations, more out-of-state students, more business majors, fewer students living in the homes of parents or relatives, and more black students than any of the other five groups. The returning vertical transfer student enrollment was seventeen percent black. The returning vertical transfer students had more full-time students enrolled than any of the three nonreturning groups. The returning vertical transfer students were more dissatisfied with the college orientation program than any of the other five groups except the returning horizontal transfer students. The returning vertical transfer students were more satisfied with the instruction in their major, the out-of-class availability of their instructors, the availability of their advisors, the value of the information provided by their advisors, the racial harmony at their college, the academic advising system, the financial and services, and the athletic facilities at their college than any of the other five groups. The returning vertical transfers were more satisfied with the course content in their major than any of the three nonreturning groups. The returning vertical transfers were more satisfied with the recreational and intramural programs than the nonreturning vertical transfer students. The returning vertical transfers were the most satisfied with the academic environment at State University.

The sixth group, the returning horizontal transfers, were composed of more upper classmen, more males, more full-time students, and more students living in college residence halls than any of the three nonreturning student groups. The returning horizontal transfer students

were more dissatisfied with the testing and grading system, the residence hall rules and regulations, the job placement services, student health services, and the student health insurance program than any other of the five groups. The returning horizontal transfer students were more satisfied with the class size relative to the type of class and the student employment services than any other of the five groups. The returning horizontal transfer students were more satisfied with the financial aid services than any of the three nonreturning student groups.

The nonreturning students were older than the returning students in two groups (native and horizontal transfers). This concurred with the conclusions of Astin⁵, Astin⁶, Cope⁷, and Devecchio⁸, that older native students were more apt to drop out than younger native students. The returning students had higher degree goals upon entering college than the nonreturning, except for the returning and nonreturning horizontal transfers where there was no difference. Peng and Bailey⁹ found that both natives and horizontal transfers had higher degree goals upon entering college than vertical transfer students. Acero¹⁰ found that vertical transfers aspired to a bachelor's degree. Astin¹¹ and Cope¹²

⁵Astin, Predicting Academic Performance in College, pp. 101-180.

⁶Astin, Preventing Students from Dropping Out, pp. 170-182.

⁷Cope, pp. 253-256.

⁸Devecchio, pp. 429-432.

⁹Peng and Bailey, Transfer Students in Institutions of Higher Education, National Longitudinal Study of High School Seniors, pp. 30-42.

¹⁰Acero, pp. 42-51.

¹¹Astin, Preventing Students from Dropping Out, pp. 170-182.

¹²Cope, pp. 253-256.

found that nonreturning natives had low degree goals. The nonreturning students consisted of more female students than the returning students. Astin¹³ and Cope and Hannah¹⁴ found a higher proportion of men finish college degree programs than women. Peng and Bailey¹⁵ found that more horizontal transfers were female, but Hite¹⁶ found that more were male. The nonreturning native students consisted of more married students than the returning native students. Astin¹⁷ found that married females were more likely to drop out and married males were more likely to stay in college. More nonreturning students lived in nonuniversity housing than returning students. In fact, more nonreturning students owned their homes or lived with a parent or relative. These results support Astin's¹⁸ findings that students enhance their chances of finishing college by living in a college dormitory.

Other background characteristics of interest for nonreturning and returning students were major course of study, race, type of enrollment and grade point average. The nonreturning students had more students majoring in the health professions than the returning students. Also, the returning vertical transfers had more business majors than any of the nonreturning groups. Knoell and Medsker¹⁹ found that eighteen

¹³Astin, Predicting Academic Performance in College, pp. 205-231.

¹⁴Cope and Hannah, pp. 121-157.

¹⁵Peng and Bailey, Transfer Students in Institutions of Higher Education, National Longitudinal Study of High School Seniors, pp. 21-30.

¹⁶Hite, p. 20 ff.

¹⁷Astin, Preventing Students from Dropping Out, pp. 89-108.

¹⁸Ibid.

¹⁹Knoell and Medsker, pp. 42-47.

percent of all vertical transfers majored in business. Peng and Bailey²⁰ found that business ranked second for the type of majors selected by native students. The nonreturning students were composed of more nonblack, more part-time, more in-state, fewer upper classmen, and more students with lower cumulative grade point averages than the returning students.

The nonreturning students were more dissatisfied with the course content in their major, the instruction in their major, the class size relative to the type of course, the value of information provided by the student's advisors, the personal counseling services, and the financial aid services than the returning students. The nonreturning students were more satisfied with the residence hall rules and regulations, the personal security and safety of their campus, the availability of courses they wanted at the time they needed them, the attitude of the nonteaching staff toward the students, the library facilities and services, the student health services, the student health insurance program, the college-sponsored tutorial services, the cultural programs, the honors program, and the parking facilities and services than the returning students. In general, the nonreturning students were more satisfied with the services at State University than the returning students.

²⁰Peng and Bailey, Transfer Students in Institutions of Higher Education, National Longitudinal Study of High School Seniors, pp. 49-51.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Introduction

The results of this study had three major implications. First, the faculty interaction in both a formal and informal manner with the students in the academic environment was a major factor in retaining students at a university. This formal and informal faculty interaction with students occurred both in and out of the classroom through instruction and advisement. Faculty interaction with students was especially important in the retention of native and vertical transfer students. The second important factor in student retention was peer interaction. The most important peer interaction occurred through college residence and major course of study. For the retention of vertical transfer students, peer interaction through athletic facilities and intramural and recreational programs was also very important. The third major factor for retention at a school of higher education was that appropriate financial aid services be available for students. Also, the retention of more horizontal transfer students required appropriate student employment services. One major factor not influencing retention and attrition was the over-all college services.

Model of Retention

The above three implications of this study suggest the conceptual retention model that will provide for both individual and group needs (Figure 10). Picture this model as two right circular cones, one inscribed inside the other. This model, like Tinto's¹ model, is based upon the theory that retention is achieved through the student's commitment to the goal of college completion and his/her commitment to the institution. These commitments are represented by the slant heights of the cones (Figure 10). It is the student's integration into the academic and social systems of the college that strengthens and refines the student's commitment to the goal of college completion and his/her commitment to the institution. The volumes of the cones represent the academic and social systems of the institutions. The student's integration into the academic and social systems of the college is achieved by three major factors: (1) faculty-student interaction, (2) peer-group interaction, and (3) financial aid services. The lateral surface area of the outside cone represents the formal and informal faculty interaction with students both in and out of the classroom. The lateral surface area of the inscribed cone represents the student peer-group interaction. The altitude of the outside cone represents the student's financial aid services. The bases of the cones represent the student's family background, pre-college schooling, and background characteristics. The student's goal of college completion and institutional commitment becomes more refined toward the top of the cone. If there remains a proper balance between the faculty-student interaction, peer-group interaction, and

¹Tinto, pp. 91-123.

- A** Greater commitment to completion of college
- B** Greater institutional commitment
- C** Faculty-student interaction
- D** Financial aid services

- E** Student peer-group interaction
- F** Background characteristics
- G** Family background
- H** Pre-college schooling

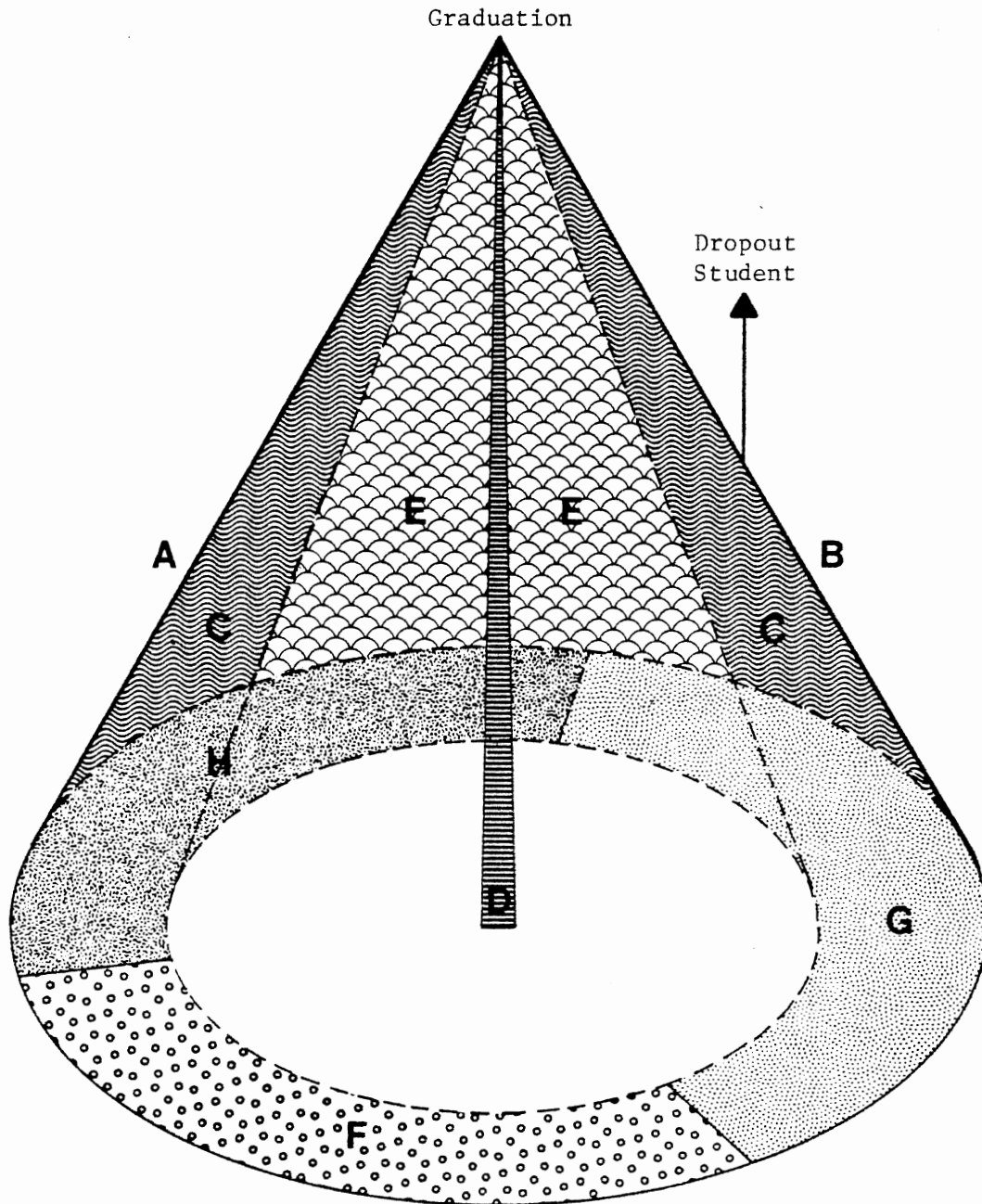


Figure 10. A Conceptual Model for Retention

financial aid services, the student will reach the apex of the cone which is graduation. However, if these three factors become inconsistent with the student's needs, the student's commitment to the goal of graduation and his/her commitment to the institution diminishes or changes and the student drops out.

The retention model factors (faculty-student interaction, student peer-group interaction, and financial aid) are each made up of several variables which provide for individual and group differences. The variables which achieve faculty-student interaction in the model may be classified under two headings, advising and instruction (see Figure 11). Advising consists of the variables: (1) academic advising services, (2) availability of your advisor, and (3) value of information provided by your advisor. Instruction consists of the variables: (4) instruction in major, (5) out-of-class availability of instructor, (6) course content in major, and (7) class size relative to the type of course. This study found that the native students achieved faculty-student interaction through the variables 1, 3, 5, and 6. The vertical transfer students achieved faculty-student interaction through the variables 1, 2, 3, 4, 5, and 6. The horizontal transfer students achieved faculty-student interaction through variable 7 (see Figure 11). Therefore, this model accounts for the group differences in achieving faculty-student interaction. The variables which achieve student peer-group interaction are college residence, major course of study, athletic facilities, and recreational and intramural programs (see Figure 12). The findings of this study concurred with Astin² that students living in university

²Astin, Preventing Students from Dropping Out, pp. 89-108.

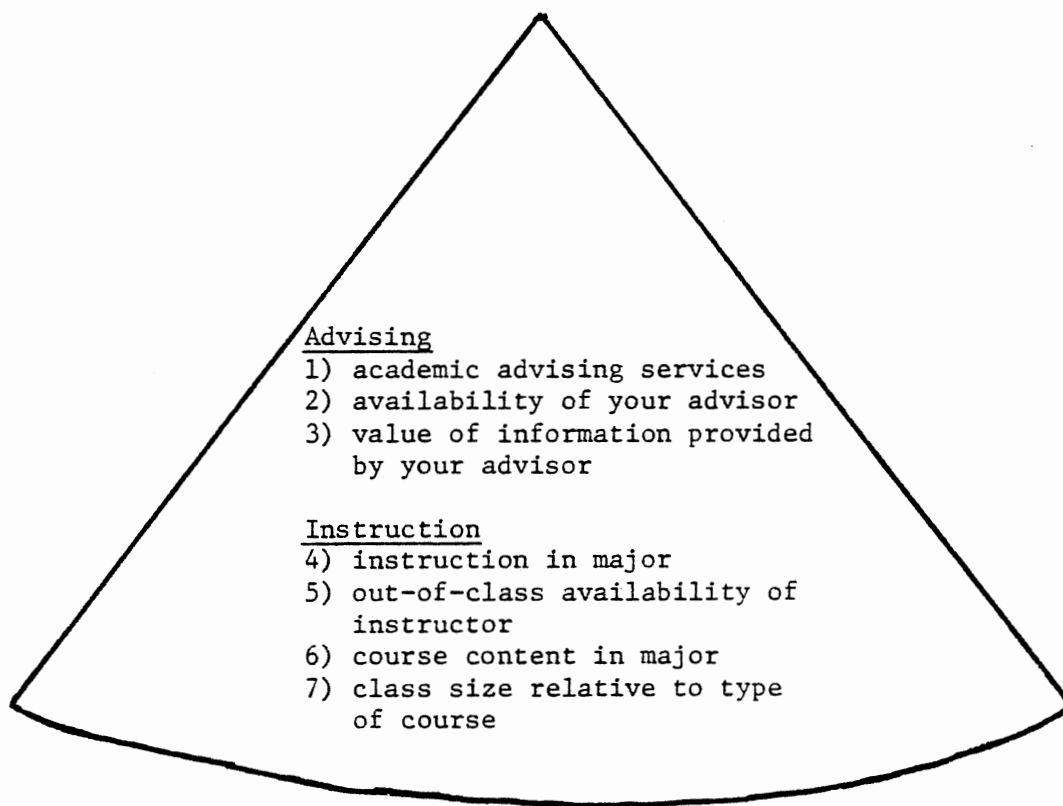
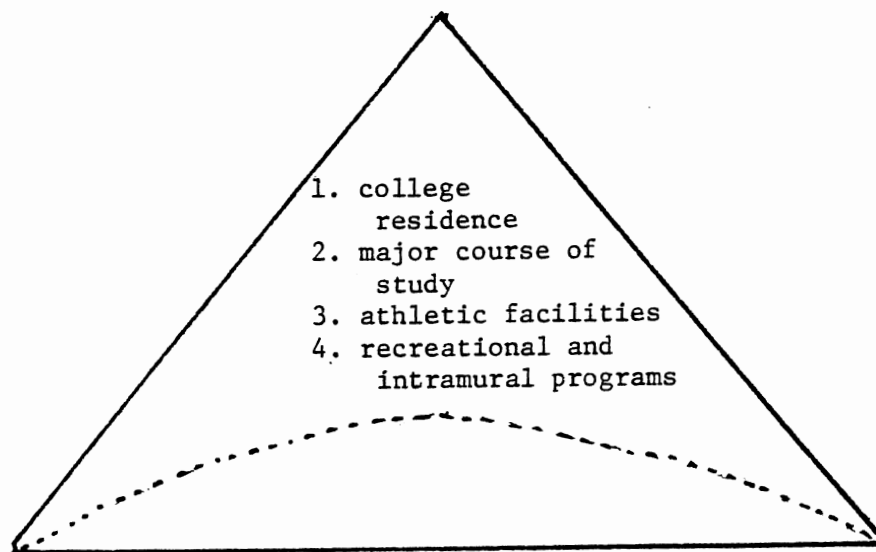


Figure 11. Variables of Faculty-Student Interaction



FINANCIAL AID SERVICES (INCLUDING SOURCES)



1. Sources of aid
 - a. family
 - b. grants and scholarships
 - c. loans
 - d. student employment
2. Services

Figure 12. Variables of Student Peer-Group Interaction

housing improve their chances of staying in college. The college-residential housing may be short-term residential experiences built into the educational plans of students. The residential period should be flexible and does not have to be continuous, frequent, or scheduled on a regular basis. The facilities themselves are unimportant. The college residence should get students together so that those exchanges (eating, talking, sleeping, writing, reading, sharing ideas and information) which add to learning can be mobilized and sustained long enough to have meaning to each student. The college residence variable was important to all three student groups (native, vertical transfer, and horizontal transfer) in attaining peer-group interaction. The variable major course of study in the student peer-group interaction set means the common interests and ideas students find in their major. This variable, like the college residence variable, was important for each student group (native, vertical transfer, and horizontal transfer) to achieve student peer-group interaction. The variables athletic facilities and recreational intramural programs were only necessary for vertical transfer students to fulfill their peer-group interactions. The third major factor of the model, financial aid services (see Figure 12), includes those financial sources suggested by Astin³. Those sources are family, grants and scholarships, loans, and student employment. This study concurred with Astin⁴ that campus jobs for students, involving twenty hours per week or less, increase the student's chances of finishing college. The functions and services provided by the campus financial aid office is a very important part of the financial aid services factor. The financial aids

³Astin, Preventing Students from Dropping Out, pp. 47-71.

⁴Ibid.

services factor was utilized by all three student groups in achieving retention. In particular, student employment was a very important financial aid in retaining horizontal transfer students.

The model in this study substantiates the voluntary attrition theories of Rootman⁵, Spady⁶, and Tinto⁷. The three major factors of the retention model in this study describe what the person-role fit is between the student and the normative environment of the institutional world in Rootman's⁸ model. Tinto's model is an extension of Spady's model. The findings of this study have refined and improved Tinto's model in the following ways: (1) added the major factor financial aid services, (2) described the major factors of Tinto's model (faculty-student interaction and peer-group interaction) in a more meaningful visual form (Figure 10), and (3) defined variables of each major factor (faculty-student interaction and peer-group interaction) which is necessary for the different student groups (native, vertical transfer, and horizontal transfer) to achieve retention. The nonreturning students from each group have dissatisfaction with at least one variable in each major factor of this model. Thus, the findings of this study imply that for voluntary student attrition to occur, there must be dissatisfaction in all three major factors (faculty-student interaction, student peer-group interaction and financial aid services) of this model.

⁵Rootman, pp. 258-270.

⁶Spady, Interchange, Volume 2, pp. 41-59.

⁷Tinto, pp. 92-123.

⁸Rootman, pp. 258-270.

Recommendations

The following recommendations are to be implemented by State University to improve the effectiveness of the retention model:

1. State University should conduct a review of its academic advising services by academic major. Since the findings of this study indicated a significant number of horizontal and vertical transfer student dropouts majoring in the health professions and a significant number of vertical transfer student dropouts majoring in business administration, particular attention should be given to the review of these majors. Faculty work load should be analyzed and each full-time faculty member should be assigned not more than twenty student advisees. Each faculty advisor should advise only native, vertical transfer, or horizontal transfer students. Easy-to-use student tracking sheets should be created by each major. A copy of this tracking sheet should be kept by both the student and the advisor. This tracking sheet would list all the student requirements for graduation, along with an indication of what the advisee has completed. Each faculty advisor should have at least two conferences per quarter with each advisee. Faculty advisors should have yearly departmental conferences to review department and school requirements for graduation and discuss advising problems. The tracking sheet for advising should be utilized until a computerized advising system can be installed. A computerized advising system would require more computer software, hardware and personnel than is now available at State University. A realistic time frame for implementing a computerized advising system at State University would be two years.
2. There should be separate orientation programs for native, vertical transfer and horizontal transfer students. The faculty advisor

should be involved in the program. For example, study skill classes could be taught by faculty advisors to small groups of students.

3. A study of the structural reorganization of the academic units should be conducted. Reorganization should achieve more efficient use of administrative staff and funds. This reorganization would result in more funds being available to improve instruction. An example of this reorganization is merging the Department of Physical Education and Health with Recreational Sports under a single director. Also, consideration should be given to organizing the professional schools such as engineering and nursing under one dean.

4. Student suggestion boxes for instructional improvement could be placed in an appropriate location in each department. Small cash awards could be provided for constructive suggestions which are utilized.

5. Departments in each discipline should sponsor monthly student-faculty dutch treat luncheons to improve faculty-student interactions at State University. Topics of discussion for this luncheon could be suggested by the students.

6. The present faculty development program at State University should include more workshops and seminars on improving instruction.

7. This study found a significant proportion of nonreturning native, vertical transfer, and horizontal transfer students were part-time students living in nonuniversity housing. To improve the peer-group interaction for these students, short-term residential experiences should be incorporated into the student's curriculum. Inexpensive accommodations could be employed by using the vacant dormitory rooms or apartments during the spring quarter and summer sessions. The funding for this short-term residential experience should be provided by charging all students a modest fee each quarter.

8. Many part-time students work and find it difficult to register at the appropriate time. Consequently many of these students register late and have less choice in choosing courses. To eliminate this problem, part-time students could register by telephone using the WATS line.

9. For a student to be matched with curricular alternatives relevant to his/her interests, skills, abilities, and goals, a wide range of learning resources must be available. One such learning resource is the human resource (fellow students, faculty, and other professionals). Basic directories, which are simple to develop and maintain, can make this human talent and other resources accessible to both part-time and full-time students. State University has very good student and faculty directories. To supplement these directories, a community resources directory needs to be developed. This directory should provide information about the varied agencies, organizations, and volunteer activities in the community which the student can informally make part of his/her college program. The community resources directory should include the name, address, and telephone number of each organization, together with information about the contact person, and a brief description of the available educational resources.

10. State University should conduct a review of its student employment services, intramural and recreational programs, and athletic facilities. Particular attention should be devoted to the procedures and policies in these areas regarding transfer students. New and innovative ways of creating more student part-time jobs on campus is necessary. One solution for student employment would be to involve even more students in organizing and assisting in student orientation programs and recreational and intramural programs.

11. Further research at State University should be initiated to investigate the dissatisfactions of returning students with (a) the availability of courses students want at the time they need them, (b) parking facilities, (c) the attitude of nonteaching staff toward students, (d) college-sponsored tutorial services, and (e) library facilities and services. These dissatisfactions could lead to discontentment and confusion, resulting in incomplete academic and social student integration into the academic and social systems. One partial solution to the parking problem would be to assign both faculty and students color-coded parking stickers for a particular lot between 8 a.m. and 5 p.m. At present a car with a staff sticker may park in any legal parking space.

12. Further research is needed to address the issues related to student and faculty interaction. The issues involve both the academic and social interaction and the research should consider the specific nature of contact, the processes involved and the outcomes of the interactions. The context of this interaction will need to address structural considerations of the advising and instructional systems, the faculty reward system, faculty educational philosophies, faculty hiring criteria, faculty development and faculty attitudes. This study might also assess the characteristics of both the students and the faculty members which assist in providing successful interaction and retention. A pilot study should first be conducted in two specific areas such as agriculture or business administration.

13. Further research is needed to address issues of peer interaction which leads to better student retention. This study should consider both the academic and social interaction in the classroom, the college residence (short-term residential experiences) and recreational

programs. These issues in these interactions should include the specific nature of the contact, the process involved and the outcomes of the interactions.

Concluding Remarks

This study has found that the six groups (nonreturning and returning native, vertical transfer, and horizontal transfer students) were different with respect to their background characteristics and their satisfaction and dissatisfaction with the college services and college environment. The results of these findings formulated a conic model of student retention based upon the principles of Tinto's model. The model consists of three major factors (faculty-student interaction, student peer-group interaction, and financial aid services). Each of these major factors is achieved through a set of prescribed variables which provide for individual and group differences. If there remains a proper balance between the faculty-student interaction, student peer-group interaction, and financial aid services, the student will persist. However, if these three factors become inconsistent with the needs of the student, the student's commitment to college graduation and to the institution diminishes and the student drops out.

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APPENDIX A
QUESTIONNAIRES

QUESTIONNAIRE I
BOWER AND MEYERS
NONRETURNING STUDENT QUESTIONANIRE

10. How many months has it been since you withdrew from school? (PLEASE CHECK ONE) (✓)
- (1) One month or less
 - (2) Two to six months
 - (3) Seven months to one year
 - (4) One year or more, but less than two years
 - (5) Two years or more, but less than three years
 - (6) Three years or more
11. What was your status at the time you left? (PLEASE CHECK ONE) (✓)
- (1) Freshman
 - (2) Sophomore
 - (3) Junior
 - (4) Senior
 - (5) Graduate
 - (6) Special Student
12. During the last three quarters (or less) that you were enrolled, were you primarily: (PLEASE CHECK ONE) (✓)
- (1) A full-time student
 - (2) A part-time student
 - (3) Both during the last three quarters
13. During the last three quarters (or less) that you were enrolled, were you employed in a job: (PLEASE CHECK ONE) (✓)
- (1) Not employed at all
 - (2) Employed 1-10 hours/week
 - (3) Employed 11-20 hours/week
 - (4) Employed 21-35 hours/week
 - (5) Employed 36 or more hours/week
14. Which of the following types of financial aid were you receiving at any time during the last three quarters (or less): (CHECK ALL THAT APPLY) (✓)
- (1) None
 - (2) Scholarship
 - (3) Loan
 - (4) Work/Study
 - (5) GI Bill
 - (6) Other (please specify) _____
15. What was your cumulative overall grade point average (GPA) at the time you left school? (PLEASE CHECK ONE) (✓)
- (1) 1.00 or less
 - (2) 1.01-1.50
 - (3) 1.51-2.00
 - (4) 2.01-2.50
 - (5) 2.51-3.00
 - (6) 3.01-3.50
 - (7) 3.51-4.00

	Major Reason	Moderate Reason	Minor Reason	Not a Reason
	4	3	2	1
<u>Employment</u>				
(10) Conflict between job and studies				
(11) Accepted a job and did not need more school				
(12) Went into military service				
(13) Could not find a job				
<u>Financial</u>				
(14) Not enough money to go to school				
(15) Applied but could not obtain financial aid				
(16) Financial aid was not sufficient				
(17) Child care not available or too costly				
(18) This school too expensive				
<u>Personal Circumstances</u>				
(19) Found study too time-consuming				
(20) Home responsibilities were too great				
(21) Illness, personal or family				
(22) Personal problems				
(23) Fulfilled my personal goals in schooling				
(24) Marital situation changed my education plans				
(25) Moved out of the area				
Other (please specify) _____				

21. Please check the appropriate box describing your degree of satisfaction with the following aspects of the school you left.

	Degree of Satisfaction					Does not Apply
	None	Little	Moderate	Much	Great	
(1) Counseling/guidance services						
(2) Academic advising services						
(3) Library services						
(4) Employment opportunities						
(5) Financial aid opportunities						
(6) Cost of attending this school						
(7) Enrollment size of this school						
(8) Rules and regulations at this school						

	Degree of Satisfaction					Does Not Apply
	None	Little	Moderate	Much	Great	
(9) Extra-curricular opportunities						
(10) Intellectual stimulation						
(11) Cultural opportunities						
(12) Social opportunities						
(13) Religious environment						
(14) Recreational facilities						
(15) Location of this school						
(16) Residence/living accommodations						
(17) Grading system						
(18) Course content in your major field						
(19) Teaching in your major field						
(20) Amount of contact with your teachers						
(21) Scheduling of classes						
(22) Relevance of your major field to your career goals						
(23) Information given to you about this school before enrolling						
(24) Quality of students						
(25) The school in general						

22. Please select from the list above three factors which, if changed for the better, would have most encouraged you to stay at The University of Tennessee at Martin. (LIST IN ORDER OF IMPORTANCE.)

a. _____ b. _____ c. _____

QUESTIONNAIRE II
BOWER AND MEYERS
RETURNING STUDENT QUESTIONNAIRE

10. What is your present status (PLEASE CHECK ONE) (✓)
- (1) Freshman
 - (2) Sophomore
 - (3) Junior
 - (4) Senior
 - (5) Graduate
 - (6) Special Student
11. During the last three quarters (or less) were you primarily:
(PLEASE CHECK ONE) (✓)
- (1) A full-time student
 - (2) A part-time student
 - (3) Both during the last three quarters
12. During the last three quarters (or less) were you employed in a job:
(PLEASE CHECK ONE) (✓)
- (1) Not employed at all
 - (2) Employed 1-10 hours/week
 - (3) Employed 11-20 hours/week
 - (4) Employed 21-35 hours/week
 - (5) Employed 36 or more hours/week
13. Which of the following types of financial aid were you receiving at any time during the last three quarters (or less): (CHECK ALL THAT APPLY) (✓)
- (1) None
 - (2) Scholarship
 - (3) Loan
 - (4) Work/Study
 - (5) GI Bill
 - (6) Other (please specify) _____
14. What was your cumulative overall grade point average (GPA) at the time you left school? (PLEASE CHECK ONE) (✓)
- (1) 1.00 or less
 - (2) 1.01-1.50
 - (3) 1.51-2.00
 - (4) 2.01-2.50
 - (5) 2.51-3.00
 - (6) 3.01-3.50
 - (7) 3.51-4.00
15. Were you ever on academic probation while enrolled? (PLEASE CHECK ONE) (✓)
- (1) Yes (2) No
16. What is your major? _____ If major undeclared, check here .

17. How many different times did you change majors (PLEASE CHECK ONE)
(✓)

- (1) Never declared a major field of study
- (2) Never changed majors
- (3) One time
- (4) Two or more times

18. Please check the appropriate box describing your degree of satisfaction with the following aspects of this school.

	Degree of Satisfaction					Does not Apply
	None	Little	Moderate	Much	Great	
(1) Counseling/guidance services						
(2) Academic advising services						
(3) Library services						
(4) Employment opportunities						
(5) Financial aid opportunities						
(6) Cost of attending this school						
(7) Enrollment size of this school						
(8) Rules and regulations at this school						
(9) Extra-curricular opportunities						
(10) Intellectual stimulation						
(11) Cultural opportunities						
(12) Social opportunities						
(13) Religious environment						
(14) Recreational facilities						
(15) Location of this school						
(16) Residence/living accommodations						
(17) Grading system						
(18) Course content in your major field						
(19) Teaching in your major field						
(20) Amount of contact with your teachers						
(21) Scheduling of classes						
(22) Relevance of your major field to your career goals						
(23) Information given to you about this school before enrolling						
(24) Quality of students						
(25) The school in general						

19. Please select from the list above three factors which have encouraged you to stay at The University of Tennessee at Martin. (LIST IN ORDER OF IMPORTANCE).

a. _____ b. _____ c. _____

QUESTIONNAIRE III
ACT NONRETURNING
STUDENT QUESTIONNAIRE

SECTION II—REASONS FOR LEAVING THIS COLLEGE

I listed below one or a number of reasons why I checked out of this college. Please check the most important reason by completely blackening the circle. If you checked more than one reason, a blacken the next most important reason by blackening the circle containing the number "19" as illustrated below. (Blacken only one circle.)

	MAJOR REASON	MINOR REASON	NOT A REASON
1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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29	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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34	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
37	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
38	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
42	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
43	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
44	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
45	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
46	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
47	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
48	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

PERSONAL

ACADEMIC

FINANCIAL

EMPLOYMENT

OTHER

Wanted to travel

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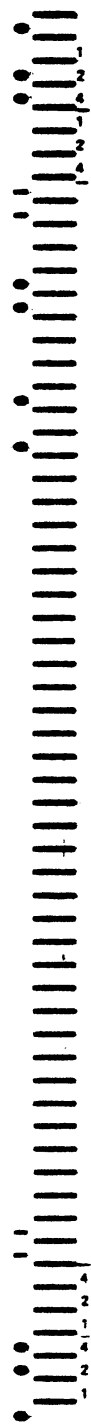
Wanted to travel

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PLEASE DO NOT TEAR OR STAPLE THIS FORM





PAGE 3

MAKE NO STRAY MARKS ON THIS FORM

SECTION III—COLLEGE SERVICES AND CHARACTERISTICS

Please check the oval that indicates your level of satisfaction with each of the following services and characteristics of this college. If any item is not applicable to you or to this college, fill in the oval in the "Does Not Apply" column and

proceed to the next item. Please respond to each item by choosing only one of the six alternatives.

	DOES NOT APPLY	VERY SATISFIED	SATISFIED	NEUTRAL	DISSATISFIED	VERY DISSATISFIED
1 Academic advising services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2 Personal counseling services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3 Career planning services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4 Job placement services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5 Recreational and intramural programs and services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6 Library facilities and services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7 Student health services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8 Student health insurance program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9 College sponsored tutorial services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10 Financial aid services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11 Student employment services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12 Residence hall services and programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13 Food services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14 College sponsored social activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15 Cultural programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16 College orientation program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17 Credit-by-examination program (PEP, CLEP, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18 Honors programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19 Computer services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20 College mass transit services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21 Transcript services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22 Veterans services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23 Day care services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	DOES NOT APPLY	VERY SATISFIED	SATISFIED	NEUTRAL	DISSATISFIED	VERY DISSATISFIED
24 Testing/grading system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25 Course content in your major field	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26 Out-of-class availability of your instructors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27 Instruction in your major field	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28 Class size relative to the type of course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29 Variety of courses offered by this college	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30 General registration procedures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31 Availability of the courses you want at times you can take them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
32 Flexibility to design your own program of study	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
33 Availability of your adviser	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
34 Value of the information provided by your adviser	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35 Preparation you are receiving for your future occupation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36 Student voice in college policies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
37 College rules governing student conduct	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
38 Residence hall rules and regulations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39 Classroom and laboratory facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40 Athletic facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41 Parking facilities and services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
42 Attitude of college non-teaching staff toward students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
43 Racial harmony at this college	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
44 Concern for you as an individual	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
45 Opportunities for personal involvement in campus activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
46 Personal security/safety on this campus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

SECTION IV

PLEASE ANSWER THESE ADDITIONAL QUESTIONS ON THE BACK OF THE SURVEY FORM UNDER SECTION IV, PAGE 4.

1. During the last three quarters (or less) that you were enrolled, were you employed in a job?
 - (A) Employed 0 hours or only occasional jobs
 - (B) Employed 1-10 hours/week
 - (C) Employed 11-20 hours/week
 - (D) Employed 21-30 hours/week
 - (E) Employed 31-40 hours/week
 - (F) Employed over 40 hours/week

2. What was your cumulative overall grade point average (GPA) at the time you left school?
 - (A) 1.00 or less
 - (B) 1.01-1.50
 - (C) 1.51-2.00
 - (D) 2.01-2.50
 - (E) 2.51-3.00
 - (F) 3.01-3.50
 - (G) 3.51-4.00

3. How long were you enrolled before you left school?
 - (A) Less than one quarter
 - (B) One quarter, but less than two quarters
 - (C) Two quarters, but less than one year
 - (D) One year or more, but less than two years
 - (E) Two years or more, but less than three years
 - (F) Three years or more

4. How many months has it been since you withdrew from school?
 - (A) One month or less
 - (B) Two to six months
 - (C) Seven months to one year
 - (D) One year or more, but less than two years
 - (E) Two years or more, but less than three years
 - (F) Three years or more

SECTION IV

PLEASE ANSWER THESE ADDITIONAL QUESTIONS ON THE BACK OF THE SURVEY FORM UNDER SECTION IV, PAGE 4.

5. Attitude of the faculty toward students

- (A) Does not apply
- (B) Very satisfied
- (C) Satisfied
- (D) Neutral
- (E) Dissatisfied
- (F) Very dissatisfied

6. Academic calendar for this college

- (A) Does not apply
- (B) Very satisfied
- (C) Satisfied
- (D) Neutral
- (E) Dissatisfied
- (F) Very dissatisfied

7. Study areas

- (A) Does not apply
- (B) Very satisfied
- (C) Satisfied
- (D) Neutral
- (E) Dissatisfied
- (F) Very dissatisfied

8. Religious activities and programs

- (A) Does not apply
- (B) Very satisfied
- (C) Satisfied
- (D) Neutral
- (E) Dissatisfied
- (F) Very dissatisfied

LIST OF COLLEGE MAJORS AND OCCUPATIONAL CHOICES

Since we could not list all possible occupations and programs of study, you may not be able to find an exact description of the one that applies to you. If that is the case, you should select a general area—for example, 100 (Agricultural Fields), 200 (Engineering Fields), 220 (Fine and Applied Arts).

If you are completely undecided about your answer, mark 000.

- 000 Undecided
- 100 **AGRICULTURE, general**
 101 Agricultural Business
 102 Agricultural Economics
 103 Agricultural and Farm Management (farming and ranching)
 104 Agriculture, Forestry, and Wildlife Technologies
 105 Agronomy (field crops and crop management)
 106 Animal Science (husbandry)
 107 Fish, Game, and Wildlife Management
 108 Food Science and Technology
 109 Forestry
 110 Horticulture/Ornamental Horticulture
 111 Natural Resources Management (soil conservation)
- 120 **ARCHITECTURE, general**
 121 Architecture Technology
 122 City, Community, and Regional Planning
 123 Environmental Design, general
 124 Interior Design
 125 Landscape Architecture
- 130 **BIOLOGICAL SCIENCES, general**
 131 Biology
 132 Biochemistry
 133 Botany
 134 Ecology
 135 Microbiology
 136 Zoology
- 140 **BUSINESS AND COMMERCE, general**
 141 Accounting
 142 Banking and Finance
 143 Business Economics
 144 Business Management and Administration
 145 Food Marketing
 146 Hotel and Restaurant Management
 147 Labor and Industrial Relations
 148 Office Management
 149 Marketing and Purchasing (sales and retailing)
 150 Real Estate and Insurance
 151 Recreation and Tourism
 152 Secretarial Studies
 153 Transportation and Public Utilities
- 160 **COMMUNICATIONS, general**
 161 Journalism
 162 Radio, Television (related to broadcasting)
 163 Advertising
 164 Library Science
- 170 **COMPUTER AND INFORMATION SCIENCES, general**
 171 Computer Programming
 172 Information Systems and Sciences
 173 Systems Analysis
 174 Data Processing Technology
 175 Computer Operating
 176 Data Systems Repair
- 180 **EDUCATION, general**
 181 Agricultural Education
 182 Art Education
 183 Business, Commerce, and Distributive Education
 184 Educational Administration
 185 Elementary Education
 186 English Education
 187 Home Economics Education
 188 Industrial Arts, Vocational/Technical Education
 189 Mathematics Education
 190 Music Education
 191 Physical Education
 192 Postsecondary Education, general
 193 Science Education
- 194 Secondary Education, general
 195 Social Science Education
 196 Special Education
 197 Speech Education
 198 Student Guidance and Counseling
- 200 **ENGINEERING, general**
 201 Aerospace, Aeronautical, and Astronautical Engineering
 202 Agricultural Engineering
 203 Architectural Engineering
 204 Chemical Engineering
 205 Civil Engineering
 206 Electrical, Electronics, and Communications Engineering
 207 Environmental and Ecological Engineering
 208 Geological Engineering
 209 Industrial and/or Management Engineering
 210 Mechanical Engineering
 211 Metallurgical and Materials Engineering
 212 Mining and Mineral Engineering
 213 Nuclear Engineering
 214 Ocean Engineering
 215 Petroleum Engineering
- 220 **FINE AND APPLIED ARTS, general**
 221 Applied Design (ceramics, weaving, commercial art)
 222 Art (painting, drawing, sculpture)
 223 Art History and Appreciation
 224 Dance
 225 Dramatic Arts (theater arts)
 226 Music (liberal arts)
 227 Music (performing, composition theory)
 228 Music History and Appreciation
 229 Photography/Cinematography
- 230 **FOREIGN LANGUAGES, general**
 231 French
 232 German
 233 Italian
 234 Latin
 235 Spanish
 236 Russian
- 240 **HEALTH PROFESSIONS, general**
 241 Dentistry
 242 Dental Assistant
 243 Dental Hygiene
 244 Dental Lab Technology
 245 Environmental Health Technologies
 246 Medicine, general
 247 Medical Assistant or Medical Office Assistant
 248 Medical or Laboratory Technology
 249 Nursing (registered)
 250 Nursing (licensed practical nurse)
 251 Occupational Therapy
 252 Optometry
 253 Pharmacy
 254 Physical Therapy
 255 Public Health
 256 Radiology
 257 X-ray Technology
 258 Surgical Technology (surgeon's assistant, etc.)
 259 Veterinary Medicine
- 260 **HOME ECONOMICS, general**
 261 Clothing and Textiles
 262 Consumer Economics and Home Management
 263 Family Relations and Child Development
 264 Foods and Nutrition (including Dietetics)
 265 Institutional Management
- 270 **LETTERS (humanities), general**
 271 Classics
 272 Comparative Literature
 273 Creative Writing
 274 English, general
- 275 Linguistics
 276 Literature, English
 277 Philosophy
 278 Religion and Theology
 279 Speech, Debate, Forensic Science
- 280 **MATHEMATICS, general**
 281 Applied Mathematics
 282 Statistics (mathematical and theoretical)
- 285 **PHYSICAL SCIENCE, general**
 286 Astronomy
 287 Chemistry
 288 Earth Sciences
 289 Geology
 290 Oceanography
 291 Physics
- 300 **COMMUNITY SERVICE, general**
 301 Criminal Justice and Law Enforcement (police science, corrections, etc.)
 302 Parks and Recreation Management
 303 Public Administration
 304 Social Work
 305 Military
- 310 **SOCIAL SCIENCES, general**
 311 Anthropology
 312 Area Studies (American civilization, American studies, etc.)
 Criminal Justice (see code 301)
 313 Economics
 314 Ethnic Studies (Asian studies, Black studies, Chicano studies, etc.)
 315 Geography
 316 History
 317 International Relations
 318 Law (prelaw)
 319 Political Science
 320 Psychology
 321 Sociology
- 330 **TRADE, INDUSTRIAL, AND TECHNICAL, general**
 331 Agricultural Mechanics and Technology
 332 Air Conditioning, Refrigeration, and Heating Technology
 333 Aeronautical and Aviation Technology
 334 Appliance Repair
 335 Automobile Body Repair
 336 Automobile Mechanics
 337 Business Machine Maintenance
 338 Carpentry and Construction
 339 Drafting/Engineering Graphics
 340 Electricity and Electronics
 341 Engineering Technology—Aeronautical
 342 Engineering Technology—Automotive
 343 Engineering Technology—Civil
 344 Engineering Technology—Industrial/Manufacturing
 345 Engineering Technology—Mechanical
 346 Graphic Arts (printing, typesetting)
 347 Heavy Equipment Operating
 348 Dry Cleaning, Laundry and Clothing Technology
 349 Industrial Arts
 350 Leatherworking (shoe repair, etc.)
 351 Machinework (tool and die, etc.)
 352 Masonry (brick, cement, stone, etc.)
 353 Metalworking
 354 Plumbing and Pipefitting
 355 Radio, TV Repair
 356 Small Engine Repair
 357 Upholstering
 358 Watch Repair and Other Instrument Maintenance and Repair
 359 Welding
 360 Woodworking (cabinetmaking, millwork)
- 370 **GENERAL STUDIES**

QUESTIONNAIRE IV
ACT RETURNING
STUDENT QUESTIONNAIRE

DO NOT TEAR OR STAPLE THIS FORM

SECTION II—COLLEGE SERVICES

For each service (or program) listed below, indicate whether or not you have used the service, and if you have used the service, your level of satisfaction with the service. If a service is not offered at this college, mark "Not Available at This College" and leave part

B blank. If a service is offered but you have not used it, mark "I Have Not Used This Service" and also leave part B blank. Indicate your level of satisfaction (part B) only if you HAVE used the service.

PART A: USAGE			COLLEGE SERVICE OR PROGRAM	PART B: LEVEL OF SATISFACTION				
NOT AVAILABLE AT THIS COLLEGE	I HAVE NOT USED THIS SERVICE	I HAVE USED THIS SERVICE		VERY SATISFIED	SATISFIED	NEUTRAL	DISSATISFIED	VERY DISSATISFIED
()	()	()	1 Academic advising services	U	()	()	()	()
()	()	()	2 Personal counseling services	U	()	()	()	()
()	()	()	3 Career planning services	U	()	()	()	()
()	()	()	4 Job placement services	U	()	()	()	()
()	()	()	5 Recreational and intramural programs and services	U	()	()	()	()
()	()	()	6 Library facilities and services	U	()	()	()	()
()	()	()	7 Student health services	U	()	()	()	()
()	()	()	8 Student health insurance program	U	()	()	()	()
()	()	()	9 College sponsored tutorial services	U	()	()	()	()
()	()	()	10 Financial aid services	U	()	()	()	()
()	()	()	11 Student employment services	U	()	()	()	()
()	()	()	12 Residence hall services and programs	U	()	()	()	()
()	()	()	13 Food services	U	()	()	()	()
()	()	()	14 College sponsored social activities	U	()	()	()	()
()	()	()	15 Cultural programs	U	()	()	()	()
()	()	()	16 College orientation program	U	()	()	()	()
()	()	()	17 Credit by examination program (PEP, CLEP, etc.)	U	()	()	()	()
()	()	()	18 Honors programs	U	()	()	()	()
()	()	()	19 Computer services	U	()	()	()	()
()	()	()	20 College mass transit services	U	()	()	()	()
()	()	()	21 Parking facilities and services	U	()	()	()	()
()	()	()	22 Veterans services	U	()	()	()	()
()	()	()	23 Day care services	U	()	()	()	()



MAKE NO STRAY MARKS ON THIS FORM

SECTION III—COLLEGE ENVIRONMENT

Please blacken the oval indicating your level of satisfaction with each of the following aspects of this college. If any item is not applicable to you or to this

college, fill in the oval in the "Does Not Apply" column and proceed to the next item. Please respond to each item by choosing only one of the six alternatives.

		LEVEL OF SATISFACTION						
		DOES NOT APPLY	VERY SATISFIED	SATISFIED	NEUTRAL	DISSATISFIED	VERY DISSATISFIED	
ACADEMIC	1 Testing/grading system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	2 Course content in your major field	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	3 Instruction in your major field	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	4 Out-of-class availability of your instructors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	5 Attitude of the faculty toward students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	6 Variety of courses offered by this college	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	7 Class size relative to the type of course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	8 Flexibility to design your own program of study	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	9 Availability of your advisor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	10 Value of the information provided by your advisor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	11 Preparation you are receiving for your future occupation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
ADMISSIONS	12 General admissions procedures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	13 Availability of financial aid information prior to enrolling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	14 Accuracy of college information you received before enrolling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	15 College Catalog-admissions publications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
RULES & REGULATIONS	16 Student voice in college policies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	17 Rules governing student conduct at this college	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	18 Residence hall rules and regulations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	19 Academic probation and suspension policies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	20 Purposes for which student activity fees are used	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	21 Personal security/safety of this campus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
FACILITIES	22 Classroom facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	23 Laboratory facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	24 Athletic facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	25 Study areas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	26 Student union	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	27 Campus bookstore	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	28 Availability of student housing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	29 General condition of buildings and grounds	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	REGISTRATION	30 General registration procedures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		31 Availability of the courses you want at times you can take them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		32 Academic calendar for this college	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		33 Billing and fee payment procedures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GENERAL	34 Concern for you as an individual	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	35 Attitude of college nonteaching staff toward students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	36 Racial harmony at this college	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	37 Opportunities for student employment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	38 Opportunities for personal involvement in campus activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	39 Student government	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	40 Religious activities and programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	41 Campus media (student newspaper, campus radio, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	42 This college in general	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

SECTION IV

PLEASE ANSWER THESE ADDITIONAL QUESTIONS ON THE BACK OF THE SURVEY FORM UNDER SECTION IV, PAGE 4.

1. What was your cumulative overall grade point average (GPA) at the end of Winter quarter, 1980?
 - (A) 1.00 or less
 - (B) 1.01-1.50
 - (C) 1.51-2.00
 - (D) 2.01-2.50
 - (E) 2.51-3.00
 - (F) 3.01-3.50
 - (G) 3.51-4.00

2. How long have you been enrolled as a student at UTM?
 - (A) Less than one quarter
 - (B) One quarter, but less than two quarters
 - (C) Two quarters, but less than one year
 - (D) One year or more, but less than three years
 - (E) Two years or more, but less than three years
 - (F) Three years or more

LIST OF COLLEGE MAJORS AND OCCUPATIONAL CHOICES

Since we could not list all possible occupations and programs of study, you may not be able to find an exact description of the one that applies to you. If that is the case, you should select a general area—for example, 100 (Agricultural Fields), 200 (Engineering Fields), 220 (Fine and Applied Arts).

If you are completely undecided about your answer, mark 000.

- | | | |
|---|---|--|
| 000 Undecided | 194 Secondary Education, general | 275 Linguistics |
| 100 AGRICULTURE, general | 195 Social Science Education | 276 Literature, English |
| 101 Agricultural Business | 196 Special Education | 277 Philosophy |
| 102 Agricultural Economics | 197 Speech Education | 278 Religion and Theology |
| 103 Agricultural and Farm Management (farming and ranching) | 198 Student Guidance and Counseling | 279 Speech, Debate, Forensic Science |
| 104 Agriculture, Forestry, and Wildlife Technologies | 200 ENGINEERING, general | 280 MATHEMATICS, general |
| 105 Agronomy (field crops and crop management) | 201 Aerospace, Aeronautical, and Astronautical Engineering | 281 Applied Mathematics |
| 106 Animal Science (husbandry) | 202 Agricultural Engineering | 282 Statistics (mathematical and theoretical) |
| 107 Fish, Game, and Wildlife Management | 203 Architectural Engineering | 285 PHYSICAL SCIENCE, general |
| 108 Food Science and Technology | 204 Chemical Engineering | 286 Astronomy |
| 109 Forestry | 205 Civil Engineering | 287 Chemistry |
| 110 Horticulture/Ornamental Horticulture | 206 Electrical, Electronics, and Communications Engineering | 288 Earth Sciences |
| 111 Natural Resources Management (soil conservation) | 207 Environmental and Ecological Engineering | 289 Geology |
| 120 ARCHITECTURE, general | 208 Geological Engineering | 290 Oceanography |
| 121 Architecture Technology | 209 Industrial and/or Management Engineering | 291 Physics |
| 122 City, Community, and Regional Planning | 210 Mechanical Engineering | 300 COMMUNITY SERVICE, general |
| 123 Environmental Design, general | 211 Metallurgical and Materials Engineering | 301 Criminal Justice and Law Enforcement (police science, corrections, etc.) |
| 124 Interior Design | 212 Mining and Mineral Engineering | 302 Parks and Recreation Management |
| 125 Landscape Architecture | 213 Nuclear Engineering | 303 Public Administration |
| 130 BIOLOGICAL SCIENCES, general | 214 Ocean Engineering | 304 Social Work |
| 131 Biology | 215 Petroleum Engineering | 305 Military |
| 132 Biochemistry | 220 FINE AND APPLIED ARTS, general | 310 SOCIAL SCIENCES, general |
| 133 Botany | 221 Applied Design (ceramics, weaving, commercial art) | 311 Anthropology |
| 134 Ecology | 222 Art (painting, drawing, sculpture) | 312 Area Studies (American civilization, American studies, etc.) |
| 135 Microbiology | 223 Art History and Appreciation | Criminal Justice (see code 301) |
| 136 Zoology | 224 Dance | 313 Economics |
| 140 BUSINESS AND COMMERCE, general | 225 Dramatic Arts (theater arts) | 314 Ethnic Studies (Asian studies, Black studies, Chicano studies, etc.) |
| 141 Accounting | 226 Music (liberal arts) | 315 Geography |
| 142 Banking and Finance | 227 Music (performing, composition, theory) | 316 History |
| 143 Business Economics | 228 Music History and Appreciation | 317 International Relations |
| 144 Business Management and Administration | 229 Photography/Cinematography | 318 Law (prelaw) |
| 145 Food Marketing | 230 FOREIGN LANGUAGES, general | 319 Political Science |
| 146 Hotel and Restaurant Management | 231 French | 320 Psychology |
| 147 Labor and Industrial Relations | 232 German | 321 Sociology |
| 148 Office Management | 233 Italian | 330 TRADE, INDUSTRIAL AND TECHNICAL, general |
| 149 Marketing and Purchasing (sales and retailing) | 234 Latin | 331 Agricultural Mechanics and Technology |
| 150 Real Estate and Insurance | 235 Spanish | 332 Air Conditioning, Refrigeration, and Heating Technology |
| 151 Recreation and Tourism | 236 Russian | 333 Aeronautical and Aviation Technology |
| 152 Secretarial Studies | 240 HEALTH PROFESSIONS, general | 334 Appliance Repair |
| 153 Transportation and Public Utilities | 241 Dentistry | 335 Automobile Body Repair |
| 160 COMMUNICATIONS, general | 242 Dental Assistant | 336 Automobile Mechanics |
| 161 Journalism | 243 Dental Hygiene | 337 Business Machine Maintenance |
| 162 Radio/Television (related to broadcasting) | 244 Dental Lab Technology | 338 Carpentry and Construction |
| 163 Advertising | 245 Environmental Health Technologies | 339 Drafting/Engineering Graphics |
| 164 Library Science | 246 Medicine, general | 340 Electricity and Electronics |
| 170 COMPUTER AND INFORMATION SCIENCES, general | 247 Medical Assistant or Medical Office Assistant | 341 Engineering Technology—Aeronautical |
| 171 Computer Programming | 248 Medical or Laboratory Technology | 342 Engineering Technology—Automotive |
| 172 Information Systems and Sciences | 249 Nursing (registered) | 343 Engineering Technology—Civil |
| 173 Systems Analysis | 250 Nursing (licensure/practical nurse) | 344 Engineering Technology—Industrial/Manufacturing |
| 174 Data Processing Technology | 251 Occupational Therapy | 345 Engineering Technology—Mechanical |
| 175 Computer Operating | 252 Optometry | 346 Graphic Arts (printing, typesetting) |
| 176 Data Systems Repair | 253 Pharmacy | 347 Heavy Equipment Operating |
| 180 EDUCATION, general | 254 Physical Therapy | 348 Dry Cleaning, Laundry, and Clothing Technology |
| 181 Agricultural Education | 255 Public Health | 349 Industrial Arts |
| 182 Art Education | 256 Radiology | 350 Leatherworking (shoe repair, etc.) |
| 183 Business, Commerce, and Distributive Education | 257 X-ray Technology | 351 Machinework (tool and die, etc.) |
| 184 Educational Administration | 258 Surgical Technology (surgeon's assistant, etc.) | 352 Masonry (brick, cement, stone, etc.) |
| 185 Elementary Education | 259 Veterinary Medicine | 353 Metalworking |
| 186 English Education | 260 HOME ECONOMICS, general | 354 Plumbing and Pipefitting |
| 187 Home Economics Education | 261 Clothing and Textiles | 355 Radio/TV Repair |
| 188 Industrial Arts, Vocational/Technical Education | 262 Consumer Economics and Home Management | 356 Small Engine Repair |
| 189 Mathematics Education | 263 Family Relations and Child Development | 357 Upholstering |
| 190 Music Education | 264 Foods and Nutrition (including Dietetics) | 358 Watch Repair and Other Instrument Maintenance and Repair |
| 191 Physical Education | 265 Institutional Management | 359 Welding |
| 192 Postsecondary Education, general | 270 LETTERS (humanities), general | 360 Woodworking (cabinetmaking, millwork) |
| 193 Science Education | 271 Classics | 370 GENERAL STUDIES |
| | 272 Comparative Literature | |
| | 273 Creative Writing | |
| | 274 English, general | |

APPENDIX B

COVER LETTER AND FOLLOW-UP POSTCARD

Cover Letter for Nonreturning Students

April 17, 1980

Dear Former Student:

Our records indicate that you did not return to State University for the 1980 Winter quarter. We are currently attempting to determine the reasons students leave this university prior to receiving degrees. If there are things at State University which should be changed to make this a better place for students like you, we need to know.

Therefore, we would appreciate your taking 15-20 minutes to complete the enclosed survey. The purpose of the survey is to determine why you left State University and your satisfaction with the services and characteristics of the university. Please respond to each item as honestly as possible. Of course, all information will remain completely confidential; your Social Security Number is included only for research purposes, and you will never be individually identified on any report prepared from this survey.

Once you have completed the survey, please return it in the enclosed postage-paid envelope by May 5, 1980. Please do not tear, fold, or staple the survey form.

Surveys such as this one help us to gather valuable information from students and former students . . . the ones who know State University the best.

Thanks in advance for your cooperation in this effort.

Sincerely,

Charles Smith
Chancellor

/ta
enclosures

Follow-Up Postcard for Nonreturning Students

Dear Former Student:

Recently we mailed you a confidential questionnaire in which we asked you the reasons why you left State University and your degree of satisfaction with various aspects of the school. We have not yet received your response to this questionnaire.

To help us plan for the institution and the needs of students, it is essential that we receive as many questionnaires as possible. If you have already mailed the questionnaire to us, please disregard this postcard. If you have not completed the questionnaire, please take a few moments to do so.

Thank you for your assistance.

Sincerely,

Charles Smith
Chancellor

APPENDIX C

TABLES

TABLE LXIV

COURSE ENROLLMENT FOR RETURNING STUDENTS

Course Number	Course Description	Course	Enrollment	Days	Time	Room	Instructor
2120	Fund	Acct	23	MWF	1100	BN135	Jones, H.
4420	Adv Federal Taxes I	Acct	30	MWF	1000	BN135	Kilgore
2130	Prin Econ	Econ	47	MWF	900	BN201	Hoffman
4090	Stat Samp for Aud	Stat	38	TTh	1300	BN135	Burnett
4345	Electric Machinery	En Tech	11	MWF	800	EP125	Sterling
1130	English Composition	Eng	25	MWF	1600	H115	Jones, K.
2210	Intro to Journalism	Comm	22	MWF	900	H214	Waller
2230	History of U.S.	Hist	40	MWF	1000	H306	Ogilvie
2230	Am State and Local Gov't	Pol Sci	37	MWF	900	H206	Mosch
4040	Mgt and Computer Systems	Comp	35	MWF	900	H414	Westmoreland
1131	Diff and Integral Cal	Math	35	MWF	1400	EP219	Kennedy
2910	Cal of Sev Variables	Math	25	MWF	900	H412	Austin
1110	Mil and Amer Society	Mil Sci	32	W	1200	MS203	Bradley
1150	Hunt Safe and Mksship	Mil Sci	18	T	1100	MS203	Font

TABLE LXIV (Continued)

Course Number	Course Description	Course	Enrollment	Days	Time	Room	Instructor
4230	Drama and Diction	Span	11	MWF	1600	H405	Robaina
3530	Traffic and Safety Ed	DSE	37	MWF	1300	PE2056	Burdette
4110	Adapt Phys Educ	Phys Ed	18	TTh	1300	PE2059	Giles
2730	Elem Econ Geog	Geog	36	MWF	1100	EP207	Wikstrom
3120	Social Psychology	Psych	38	MWF	1100	H314	Gibson
3150	Consumer Meat Studies	Agr	31	MWF	1100	B114	Smith

TABLE LXV
COURSE TRANSFER ENROLLMENT FOR RETURNING STUDENTS

Course Number	Course	Enrollment		% Transfer /Class*
		Total/Class	Transfer/Class	
2120	Accounting	23	6	26
4420	Accounting	30	12	40
2130	Economics	47	19	40
4090	Statistics	38	12	32
4345	Engineering	11	4	36
1130	English	25	6	24
2210	Communications	22	10	45
2230	History	40	15	38
2230	Political Science	37	11	30
4040	Computer Science	35	14	40
1131	Mathematics	35	9	26
2910	Mathematics	25	9	35
1110	Military Science	32	12	38
1150	Military Science	18	3	17
4230	Spanish	11	2	18
3530	Education	37	14	38
4110	Education	18	6	33
2730	Geography	36	9	25
3120	Psychology	38	16	42
3150	Agriculture	31	14	45
Total		589	203	34

*All percents rounded to nearest percent.

TABLE LXVI
COURSE ENROLLMENT FOR HORIZONTAL AND VERTICAL TRANSFER STUDENTS

Course Number	Course	Transfers	Enrollment Vertical	Horizontal
2120	Accounting	6	2	4
4420	Accounting	12	4	8
2130	Economics	19	11	8
4090	Statistics	12	4	8
4345	Engineering	4	1	3
1130	English	6	4	2
2210	Communications	10	2	8
2230	History	15	8	7
2230	Political Science	11	5	6
4040	Computer Science	14	6	8
1131	Mathematics	9	7	2
2910	Mathematics	9	3	6
1110	Military Science	12	5	7
1150	Military Science	3	1	2
4230	Spanish	2	0	2
3530	Education	14	5	9
4110	Education	6	3	3
2730	Geography	9	3	6
3120	Psychology	16	6	10
3150	Agriculture	14	3	11
Total		203	83	120

TABLE LXVII
STUDENT OPINION SURVEY CATEGORICAL (NOMINAL) ITEMS*

Type of Items	Percent of Identical Item Responses on the Two Administrations of the Instrument
Section I Demographic Background Items (age, race, sex, etc.)	98
Section I Other Background Items (hours worked per week, educa- tional goals, occupational plans, etc.)	89
Section II Usage of College Programs and Services	91

*The ACT Evaluation/Survey Service for Educational Institutions and Agencies, p. 11.

TABLE LXVIII
STUDENT OPINION SURVEY 5-CHOICE
(LIKERT) SATISFACTION ITEMS*

Type of Items	Percent of Identical Item Responses on the Two Administrations of the Instrument	Percent of Responses Within 1 Scale Point of the Identical Response**
Section II Satisfaction with College Programs and Services	70	81
Section III Satisfaction with Academic Aspects of the College Environ- ment	66	95
Section III Satisfaction with Admissions Related Aspects of the College Environment	54	88
Section III Satisfaction with College Rules and Regulations	60	83
Section III Satisfaction with College Facilities	57	88
Section III Satisfaction with Aspects of the Col- lege Related to Regis- tration	67	93
Section III Satisfaction with General Aspects of the College Environment	57	85
Totals for all Section III Items	60	89

* The ACT Evaluation/Survey Service for Educational Institutions and Agencies, p. 11.

** Example: The response of a student who selected (4) "Satisfied" for a particular item during the first administration of the instrument and (5) "Very Satisfied" during the second administration would be included in this column.

TABLE LXIX

COMPARISON OF THE NONRETURNING STUDENTS RETURNING
QUESTIONNAIRES AND THOSE NOT RETURNING
QUESTIONNAIRES ON THE BACKGROUND
VARIABLE AGE

VARIABLE	NATIVE (1)		VERTICAL (1)		HORIZONTAL (1)	
	(2) RESP	NONRESP	RESP	NONRESP	RESP	NONRESP
AGE						
18 or under	0.0	0.0	0.0	0.0	0.0	0.0
19	5.9	6.7	7.9	10.0	0.0	0.0
20	34.9	36.0	18.4	20.0	12.0	10.0
21	25.8	22.7	13.2	12.5	32.0	30.0
22	10.8	10.7	13.2	15.0	4.0	3.3
23 to 25	12.4	13.3	23.7	22.5	20.0	23.3
26 to 29	2.2	2.7	5.3	5.0	24.0	23.3
30 to 39	4.3	4.0	13.2	12.5	4.0	6.7
40 to 61	3.8	4.0	5.3	2.5	4.0	3.3
62 or over	0.0	0.0	0.0	0.0	0.0	0.0
Total N (3)	186	75	76	40	50	30
DF	7		7		6	
Chi-square (4)	0.259		0.734		0.503	

- (1) Numbers in columns indicate the percent of students of each group.
(2) Resp means respondents and nonresp means nonrespondents.
(3) The differences in the sample size in this table and previous tables were due to missing data on background variables.
(4) Not significant at the .05 level.

TABLE LXX

COMPARISON OF THE NONRETURNING STUDENTS RETURNING
QUESTIONNAIRES AND THOSE NOT RETURNING
QUESTIONNAIRES ON THE BACKGROUND
VARIABLES RACE AND SEX

VARIABLES	NATIVE (1)		VERTICAL (1)		HORIZONTAL (1)	
	(2) RESP	NONRESP	RESP	NONRESP	RESP	NONRESP
RACE						
Black	8.6	10.7	5.3	5.0	4.0	6.7
Nonblack	91.4	89.3	94.7	95.0	96.0	93.3
Total N (3)	185	75	76	40	50	30
DF	1		1		1	
Chi-square (4)	0.259		0.003		0.280	
SEX						
Male	38.5	38.7	52.6	52.5	24.0	26.7
Female	61.5	61.3	47.4	47.5	76.0	73.3
Total N (3)	187	75	76	40	50	30
DF	1		1		1	
Chi-square (4)	0.0006		0.0001		0.0711	

- (1) Numbers in columns indicate the percent of students of each group.
- (2) Resp means respondents and nonresp means nonrespondents.
- (3) The differences in the sample size in this table and previous tables were due to missing data on background variables.
- (4) Not significant at the .05 level.

TABLE LXXI

COMPARISON OF THE NONRETURNING STUDENTS RETURNING QUESTIONNAIRES
AND THOSE NOT RETURNING QUESTIONNAIRES ON THE BACKGROUND
VARIABLES ENROLLMENT STATUS AND TYPE OF TUITION PAID

VARIABLES	NATIVES (1)		VERTICAL (1)		HORIZONTAL (1)	
	(2) RESP	NONRESP	RESP	NONRESP	RESP	NONRESP
ENROLLMENT STATUS						
Full-time	94.6	93.3	68.4	70.0	79.2	80.0
Part-time	5.4	6.7	31.6	30.0	20.8	20.0
Total N (3)	186	75	76	40	48	30
DF	1		1		1	
Chi-square (4)	0.164		0.0305		0.0078	
TYPE OF TUITION						
In-state	97.9	97.3	94.6	95.0	92.0	90.0
Out-of-state	1.1	2.7	5.4	5.0	8.0	10.0
Does not apply	1.1	0.0	0.0	0.0	0.0	0.0
Total N (3)	187	75	74	40	50	30
DF	2		1		1	
Chi-square (4)	1.69		0.008		0.0939	

(1) Numbers in columns indicate the percent of students of each group.

(2) Resp means respondents and nonresp means nonrespondents.

(3) The differences in sample size in this table and previous tables were due to missing data on background variables.

(4) Not significant at the .05 level.

TABLE LXXII

COMPARISON OF THE NONRETURNING STUDENTS RETURNING QUESTIONNAIRES
AND THOSE NOT RETURNING QUESTIONNAIRES ON THE BACKGROUND
VARIABLES CLASSIFICATION AND MARITAL STATUS

VARIABLE	NATIVE (1)		VERTICAL (1)		HORIZONTAL (1)	
	(2) RESP	NONRESP	RESP	NONRSEP	RESP	NONRESP
CLASSIFICATION						
Freshman	15.6	13.3	5.3	5.0	8.0	10.0
Sophomore	41.9	42.7	39.5	40.0	32.0	33.3
Junior	36.0	37.3	42.1	42.5	48.0	46.7
Senior	6.5	6.7	13.2	12.5	12.0	10.0
Total N (4)	186	75	76	40	50	30
DF	3		3		3	
Chi-square (5)	0.2182		0.0150		0.1696	
MARITAL STATUS						
Unmarried (3)	72.2	73.3	60.5	62.5	60.0	63.3
Married	27.8	26.7	36.8	37.5	40.0	36.7
Separated	0.0	0.0	0.0	0.0	0.0	0.0
Perfer not to respond	0.0	0.0	2.6	0.0	0.0	0.0
Total N (4)	187	75	76	40	50	30
DF	1		2		1	
Chi-square (5)	0.0349		1.0723		0.0877	

(1) Numbers in columns indicate the percent of students of each group.

(2) Resp means respondents and nonresp means nonrespondents.

(3) Unmarried includes single, divorced, and widowed.

(4) The differences in sample size in this table and previous tables were due to missing data on the background variables.

(5) Not significant at the .05 level.

TABLE LXXIII

COMPARISON OF THE NONRETURNING STUDENTS RETURNING QUESTIONNAIRES
AND THOSE NOT RETURNING QUESTIONNAIRES ON THE BACKGROUND
VARIABLES PURPOSE FOR ENTERING COLLEGE

VARIABLES	NATIVE (1)		VERTICAL (1)		HORIZONTAL (1)	
	(2)RESP	NONRESP	RESP	NONRESP	RESP	NONRESP
PURPOSE FOR ENTERING						
None	3.2	1.3	0.0	0.0	8.0	6.7
Take job-related courses	0.5	0.0	0.0	0.0	0.0	0.0
Take courses for self-improvement	2.2	1.3	0.0	0.0	4.0	6.7
Take courses for transferring	21.2	20.0	10.8	10.0	12.0	10.0
Maintain certification	9.7	8.0	0.0	0.0	0.0	0.0
Complete voc/tech program	0.5	1.3	0.0	0.0	0.0	0.0
Associate degree	5.4	5.3	2.6	5.0	0.0	0.0
Bachelor's degree	57.0	60.0	86.8	85.0	76.0	73.3
Master's degree	0.5	1.3	0.0	0.0	0.0	3.3
Doctorate degree	0.0	0.0	0.0	0.0	0.0	0.0
Total N (3)	186	75	76	40	50	30
DF	9		2		4	
Chi-square (4)	4.938		0.4436		2.062	

- (1) Numbers in columns indicate the percent of students of each group.
 (2) Resp means respondents and nonresp means nonrespondents.
 (3) The differences in sample size in this table and previous tables were due to missing data on background variables.
 (4) Not significant at the .05 level.

TABLE LXXIV

COMPARISON OF THE NONRETURNING STUDENTS RETURNING QUESTIONNAIRES
AND THOSE NOT RETURNING QUESTIONNAIRES ON THE BACKGROUND
VARIABLE COLLEGE HOUSING

VARIABLE	NATIVE (1)		VERTICAL (1)		HORIZONTAL (1)	
	(2) RESP	NONRESP	RESP	NONRESP	RESP	NONRESP
COLLEGE HOUSING						
Residence hall	36.9	38.7	23.7	22.5	24.0	26.7
Fraternity or sorority house	0.5	0.0	0.0	0.0	0.0	0.0
Married student housing	1.6	1.3	2.6	2.5	0.0	0.0
Off-campus room or apartment	21.4	21.3	21.1	22.5	12.0	13.3
Home of parents or relatives	19.3	20.0	21.1	20.0	24.0	23.3
Own home	19.8	18.7	31.6	32.5	36.0	33.3
Other	0.5	0.0	0.0	0.0	4.0	3.3
Total N (3)	187	75	76	40	50	30
DF	6		4		4	
Chi-square (4)	0.9225		0.0640		0.14383	

- (1) Numbers in columns indicate the percent of students of each group.
(2) Resp means respondents and nonresp means nonrespondents.
(3) The differences in sample size in this table and previous tables were due to missing data on background variables.
(4) Not significant at the .05 level.

TABLE LXXV

COMPARISON OF THE NONRETURNING STUDENTS RETURNING QUESTIONNAIRES
AND THOSE NOT RETURNING QUESTIONNAIRES ON THE BACKGROUND
VARIABLE HOURS EMPLOYED PER WEEK

VARIABLE	NATIVE (1)		VERTICAL (1)		HORIZONTAL (1)	
	(1) RESP	NONRESP	RESP	NONRESP	RESP	NONRESP
HOURS EMPLOYED PER WEEK						
0 hours or occasional	48.1	50.7	54.1	52.5	64.0	66.7
1 - 10 hours	12.7	12.0	2.7	2.5	4.0	3.3
11 - 20 hours	16.0	17.3	13.5	15.0	4.0	6.7
21 - 30 hours	7.7	5.3	2.7	2.5	8.0	3.3
31 - 40 hours	15.5	14.7	27.0	27.5	20.0	20.0
Over 40 hours	0.0	0.0	0.0	0.0	0.0	0.0
Total N (3)	181	75	74	40	50	30
DF	4		4		4	
Chi-square (4)	0.0487		0.0628		0.9627	

- (1) Numbers in columns indicate the percent of students of each group.
(2) Resp means respondents and nonresp means nonrespondents.
(3) The differences in sample size in this table and previous tables were due to missing data on background variables.
(4) Not significant at the .05 level.

TABLE LXXVI

COMPARISON OF THE NONRETURNING STUDENTS RETURNING QUESTIONNAIRES AND THOSE NOT RETURNING QUESTIONNAIRES ON THE BACKGROUND VARIABLE CUMULATIVE GRADE POINT AVERAGE

VARIABLE	NATIVE (1)		VERTICAL (1)		HORIZONTAL (1)	
	(2) RESP	NONRESP	RESP	NONRESP	RESP	NONRESP
CUMULATIVE GRADE POINT AVERAGE						
1.00 or less	1.1	0.0	0.0	0.0	0.0	0.0
1.01 - 1.50	1.6	1.3	2.7	2.5	0.0	0.0
1.51 - 2.00	18.0	18.7	10.8	12.5	8.3	6.7
2.01 - 2.50	26.8	25.3	37.8	37.5	20.8	23.3
2.51 - 3.00	27.9	29.3	16.2	15.0	50.0	53.3
3.01 - 3.50	16.4	17.3	21.6	22.5	16.7	13.3
3.51 - 4.00	8.2	8.0	10.8	10.0	4.2	3.3
Total N (3)	183	75	74	40	48	30
DF	6		5		4	
Chi-square (4)	0.0614		0.1199		0.3262	

- (1) Numbers in columns indicate the percent of students of each group.
 (2) Resp means respondents and nonresp means nonrespondents.
 (3) The differences in sample size in this table and previous tables were due to missing data on background variables.
 (4) Not significant at the .05 level.

TABLE LXXVII

COMPARISON OF THE NONRETURNING STUDENTS RETURNING QUESTIONNAIRES AND THOSE NOT RETURNING QUESTIONNAIRES ON THE BACKGROUND VARIABLE LENGTH OF ENROLLMENT

VARIABLE	NATIVE (1)		VERTICAL (1)		HORIZONTAL (1)	
	(2) RESP	NONRESP	RESP	NONRESP	RESP	NONRESP
LENGTH OF ENROLLMENT						
less than 1 quarter	0.0	0.0	8.1	0.0	4.0	0.0
1 quarter less than 2 quarters	1.1	1.3	37.8	37.5	16.0	16.7
2 quarters less than 1 year	4.9	5.3	16.2	20.0	20.0	23.3
1 year less than 2 years	34.6	34.7	18.9	22.5	32.0	33.3
2 years less than 3 years	37.9	37.7	13.5	15.0	28.0	26.7
3 years or more	21.4	20.0	5.4	5.0	0.0	0.0
Total N (3)	182	75	74	40	50	30
DF	4		5		4	
Chi-square	0.01976		3.6699		1.3255	

- (1) Numbers in columns indicate the percent of students of each group.
(2) Resp means respondents and nonresp means nonrespondent.
(3) The differences in sample size in this table and previous tables were due to missing data on background variables.
(4) Not significant at the .05 level.

TABLE LXXVIII

THE NONRETURNING STUDENTS RETURNING QUESTION-
NAIRES AND THOSE NOT RETURNING QUESTION-
NAIRES ON THE BACKGROUND
VARIABLE MAJOR

VARIABLE MAJOR	NATIVE (1)		VERTICAL (1)		HORIZONTAL (1)	
	(2) RESP	NONRESP	RESP	NONRESP	RESP	NONRESP
Undecided	0.0	0.0	0.0	0.0	4.0	3.3
Agriculture	4.3	4.0	5.3	5.0	8.0	10.0
Architecture	1.1	1.3	0.0	0.0	0.0	3.3
Biological Sciences	4.3	4.0	0.0	0.0	4.0	3.3
Business & Commerce	29.0	30.7	23.7	25.0	16.0	13.3
Communications	2.7	2.7	0.0	0.0	4.0	3.3
Computer & Information Science	0.0	1.3	0.0	0.0	4.0	3.3
Education	10.2	10.7	21.1	20.0	12.0	13.3
Engineering	10.2	10.7	7.9	5.0	4.0	3.3
Fine & App- lied Arts	1.1	1.3	0.0	0.0	4.0	3.3
Foreign language	0.0	0.0	0.0	0.0	0.0	0.0
Health Professions	21.5	20.0	15.8	17.5	12.0	13.3
Home Economics	5.9	5.3	0.0	0.0	8.0	6.7
Letters	0.0	0.0	0.0	0.0	8.0	6.7
Mathematics	0.5	0.0	2.4	2.5	0.0	0.0
Physical Sciences	1.1	0.0	2.6	2.5	0.0	0.7
Community Services	4.3	4.0	13.2	15.0	4.0	3.3
Social Sciences	2.7	2.7	10.5	10.0	4.0	3.3
Trade, Industrial & Technical	1.1	1.3	0.0	0.0	0.0	0.0
General Studies	0.0	0.0	0.0	0.0	0.0	0.0
Total N (3)	186	75	76	40	50	30
DF	15		7		15	
Chi-square (4)	3.975		0.474		2.427	

(1) Numbers in the columns indicate the percent of students of each group.

(2) Resp means respondents and nonresp means nonrespondents.

(3) The differences in the sample size in this table and previous tables were due to missing data on background variables.

(4) Not significant at the .05 level.

TABLE LXXIX

PERCENTAGE OF NONRETURNING AND RETURNING NATIVE, VERTICAL
TRANSFER, AND HORIZONTAL TRANSFER STUDENTS ON THE
BACKGROUND VARIABLE AGE

VARIABLE (2)	NATIVE (1)		VERTICAL (1)		HORIZONTAL (1)	
	NONR	RET	NONR	RET	NONR	RET
AGE						
18 or under	0.0	13.1	0.0	0.0	0.0	2.6
19	5.9	28.9	7.9	0.0	0.0	8.8
20	34.9	18.1	18.4	7.3	12.0	16.7
21	25.8	21.8	13.2	28.0	32.0	33.3
22	10.8	10.5	13.2	26.8	4.0	11.4
23 to 25	12.4	5.8	23.7	13.4	20.0	10.5
26 to 29	2.2	0.8	5.3	18.3	24.0	14.0
30 to 39	4.3	0.8	13.2	6.1	4.0	0.0
40 to 61	3.8	0.3	5.3	0.0	4.0	2.6
62 or over	0.0	0.0	0.0	0.0	0.0	0.0
Total N (3)	186	381	76	82	50	114

- (1) Numbers in columns indicate the percent of students of each group.
(2) Nonr means nonreturning and ret means returning.
(3) The differences in the sample size in this table and previous tables were due to missing data on background variables.

TABLE LXXX

PERCENTAGE OF NONRETURNING AND RETURNING NATIVE, VERTICAL
TRANSFER, AND HORIZONTAL TRANSFER STUDENTS ON THE
BACKGROUND VARIABLES RACE AND SEX

VARIABLES	NATIVE (1)		VERTICAL (1)		HORIZONTAL (1)	
	(2) NONR	RET	NONR	RET	NONR	RET
RACE						
Black	8.6	4.0	5.3	17.1	4.0	14.5
Nonblack	91.4	96.0	94.7	82.9	96.0	85.5
Total N (3)	185	383	76	82	50	117

SEX						
Male	38.5	60.1	52.6	72.0	24.0	62.3
Female	61.5	39.9	47.4	28.0	76.0	37.7
Total N (3)	187	383	76	82	50	114

- (1) Numbers in columns indicate the percent of students of each group.
 (2) Nonr means nonreturning and ret means returning.
 (3) The differences in the sample size in this table and previous tables were due to missing data on background variables.

TABLE LXXXI

PERCENTAGE OF NONRETURNING AND RETURNING NATIVE, VERTICAL TRANSFER,
AND HORIZONTAL TRANSFER STUDENTS ON THE BACKGROUND VARIABLES
ENROLLMENT STATUS AND TYPE OF TUITION PAID

VARIABLES	NATIVES (1)		VERTICAL (1)		HORIZONTAL (1)	
	(2) NONR	RET	NONR	RET	NONR	RET
ENROLLMENT STATUS						
Full-time	94.6	100.0	68.4	97.6	79.2	91.5
Part-time	5.4	0.0	31.6	2.4	20.8	8.5
Total N (3)	186	383	76	82	48	114
TYPE OF TUITION						
In-state	97.9	88.5	94.6	79.3	92.0	84.2
Out-of-state	1.1	8.6	5.4	20.7	8.0	13.2
Does not apply	1.1	2.9	0.0	0.0	0.0	0.3
Total N (3)	187	382	74	82	50	114

- (1) Numbers in columns indicate the percent of students of each group.
(2) Nonr means nonreturning and ret means returning.
(3) The differences in sample size in this table and previous tables were due to missing data on background variables.

TABLE LXXXII

PERCENTAGE OF NONRETURNING AND RETURNING NATIVE, VERTICAL
TRANSFER, AND HORIZONTAL TRANSFER STUDENTS ON THE
BACKGROUND VARIABLES CLASSIFICATION AND MARITAL
STATUS

VARIABLE	NATIVE (1)		VERTICAL (1)		HORIZONTAL (1)	
	(2) NONR	RET	NONR	RET	NONR	RET
CLASSIFICATION						
Freshman	15.6	32.1	5.3	2.4	8.0	2.6
Sophomore	41.9	25.1	39.5	13.4	32.0	25.6
Junior	36.0	18.0	42.1	39.0	48.0	28.2
Senior	6.5	24.8	13.2	45.1	12.0	43.6
Total N (4)	186	383	76	82	50	117
MARITAL STATUS						
Unmarried (3)	72.2	91.9	60.5	65.8	60.0	75.2
Married	27.8	7.3	36.8	34.2	40.0	24.8
Separated	0.0	0.3	0.0	0.0	0.0	0.0
Perfer not to respond	0.0	0.5	2.6	0.0	0.0	0.0
Total N (4)	187	383	76	79	50	117

- (1) Numbers in columns indicate the percent of students of each group.
- (2) Nonr means nonreturning and ret means returning.
- (3) Unmarried includes single, divorced, and widowed.
- (4) The differences in sample size in this table and previous tables were due to missing data on the background variables.

TABLE LXXXIII

PERCENTAGE OF NONRETURNING AND RETURNING NATIVE, VERTICAL
TRANSFER, AND HORIZONTAL TRANSFER STUDENTS ON THE
BACKGROUND VARIABLE PURPOSE FOR ENTERING COLLEGE

VARIABLES	NATIVE (1)		VERTICAL (1)		HORIZONTAL (1)	
	(2) NONR	RET	NONR	RET	NONR	RET
PURPOSE FOR ENTERING						
None	3.2	2.1	0.0	0.0	8.0	0.0
Take job-related courses	0.5	0.3	0.0	0.0	0.0	0.0
Take courses for self-improvement	2.2	0.8	0.0	0.0	4.0	2.6
Take courses for transferring	21.2	6.1	10.8	0.0	12.0	9.6
Maintain certification	9.7	1.8	0.0	2.4	0.0	2.6
Complete voc/tech program	0.5	0.0	0.0	0.0	0.0	0.0
Associate degree	5.4	2.1	2.6	0.0	0.0	0.0
Bachelor's degree	57.0	79.4	86.8	92.7	76.0	81.6
Master's degree	0.5	2.9	0.0	2.4	0.0	3.5
Doctorate degree	0.0	4.5	0.0	2.4	0.0	0.0
Total N (3)	186	379	76	82	50	114

- (1) Numbers in columns indicate the percent of students of each group.
- (2) Nonr means nonreturning and ret means returning.
- (3) The differences in sample size in this table and previous tables were due to missing data on background variables.

TABLE LXXXIV

PERCENTAGE OF NONRETURNING AND RETURNING NATIVE, VERTICAL
TRANSFER, AND HORIZONTAL TRANSFER STUDENTS ON THE
BACKGROUND VARIABLE COLLEGE HOUSING

VARIABLE	NATIVE (1)		VERTICAL (1)		HORIZONTAL (1)	
	(2) NONR	RET	NONR	RET	NONR	RET
COLLEGE HOUSING						
Residence hall	36.9	64.8	23.7	51.2	24.0	58.1
Fraternity or sorority house	0.5	5.2	0.0	3.7	0.0	0.0
Married student housing	1.6	2.9	2.6	8.5	0.0	0.0
Off-campus room or apartment	21.4	18.5	21.1	13.4	12.0	20.5
Home of parents or relatives	19.3	7.6	21.1	6.1	24.0	7.7
Own home	19.8	1.0	31.6	12.2	36.0	11.1
Other	0.5	0.0	0.0	4.9	4.0	2.6
Total N (3)	187	383	76	82	50	117

(1) Numbers in columns indicate the percent of students of each group.

(2) Nonr means nonreturning and ret means returning.

(3) The differences in sample size in this table and previous tables were due to missing data on background variables.

TABLE LXXXV

PERCENTAGE OF NONRETURNING AND RETURNING NATIVE, VERTICAL
TRANSFER, AND HORIZONTAL TRANSFER STUDENTS ON THE
BACKGROUND VARIABLE HOURS EMPLOYED PER WEEK

VARIABLE	NATIVE (1)		VERTICAL (1)		HORIZONTAL (1)	
	(1) NONR	RET	NONR	RET	NONR	RET
HOURS EMPLOYED PER WEEK						
0 hours or occasional	48.1	50.4	54.1	48.1	64.0	48.0
1 - 10 hours	12.7	22.3	2.7	9.1	4.0	19.4
11 - 20 hours	16.0	20.1	13.5	27.3	4.0	16.3
21 - 30 hours	7.7	5.2	2.7	9.1	8.0	13.3
31 - 40 hours	15.5	1.9	27.0	6.5	20.0	3.1
Over 40 hours	0.0	0.0	0.0	0.0	0.0	0.0
Total N (3)	181	363	74	77	50	98

- (1) Numbers in columns indicate the percent of students of each group.
- (2) Nonr means nonreturning and ret means returning.
- (3) The differences in sample size in this table and previous tables were due to missing data on background variables.

TABLE LXXXVI

PERCENTAGE OF NONRETURNING AND RETURNING NATIVE, VERTICAL
TRANSFER, AND HORIZONTAL TRANSFER STUDENTS ON THE
BACKGROUND VARIABLE CUMULATIVE GRADE POINT
AVERAGE

VARIABLE	NATIVE (1)		VERTICAL (1)		HORIZONTAL (1)	
	(2) NONR	RET	NONR	RET	NONR	RET
CUMULATIVE GRADE POINT AVERAGE						
1.00 or less	1.1	0.6	0.0	0.0	0.0	0.0
1.01 - 1.50	1.6	1.9	2.7	0.0	0.0	0.0
1.51 - 2.00	18.0	7.8	10.8	10.1	8.3	5.9
2.01 - 2.50	26.8	26.4	37.8	38.0	20.8	27.7
2.51 - 3.00	27.9	28.6	16.2	30.4	50.0	34.7
3.01 - 3.50	16.4	20.6	21.6	8.9	15.7	21.8
3.51 - 4.00	8.2	14.2	10.8	12.7	4.2	9.9
Total N (3)	183	360	74	79	48	101

- (1) Numbers in columns indicate the percent of students of each group.
- (2) Nonr means nonreturning and ret means returning.
- (3) The differences in sample size in this table and previous tables were due to missing data on background variables.

TABLE LXXXVII

PERCENTAGE OF NONRETURNING AND RETURNING NATIVE, VERTICAL
TRANSFER, AND HORIZONTAL TRANSFER STUDENTS ON THE
BACKGROUND VARIABLE LENGTH OF ENROLLMENT

VARIABLE	NATIVE (1)		VERTICAL (1)		HORIZONTAL (1)	
	(2) NONR	RET	NONR	RET	NONR	RET
LENGTH OF ENROLLMENT						
less than 1 quarter	0.0	0.0	8.1	0.0	4.0	0.0
1 quarter less than 2 quarters	1.1	1.4	37.8	0.0	16.0	11.9
2 quarters less than 1 year	4.9	30.2	16.2	38.0	20.0	22.8
1 year less than 2 years	34.6	20.9	18.9	11.4	32.0	19.8
2 years less than 3 years	37.9	16.5	13.5	31.6	28.0	17.8
3 years or more	21.4	31.0	5.4	19.0	0.0	27.7
Total N (3)	182	358	74	79	50	101

(1) Numbers in columns indicate the percent of students of each group.

(2) Nonr means nonreturning and ret means returning.

(3) The differences in sample size in this table and previous tables were due to missing data on background variables.

TABLE LXXXVIII

PERCENTAGE OF NONRETURNING AND RETURNING NATIVE, VERTICAL
TRANSFER, AND HORIZONTAL TRANSFER STUDENTS ON THE
BACKGROUND VARIABLE MAJOR

VARIABLE MAJOR	NATIVE (1)		VERTICAL (1)		HORIZONTAL (1)	
	(2) NONR	RET	NONR	RET	NONR	RET
Undecided	0.0	1.3	0.0	0.0	4.0	0.0
Agriculture	4.3	8.9	5.3	6.1	8.0	8.8
Architecture	1.1	0.0	0.0	0.0	0.0	0.0
Biological Sciences	4.3	1.3	0.0	0.0	4.0	0.0
Business & Commerce	29.0	35.0	23.7	37.8	16.0	31.6
Communications	2.7	5.0	0.0	3.7	4.0	6.1
Computer & Information Science	0.0	5.0	0.0	7.3	4.0	6.1
Education	10.2	12.6	21.1	29.3	12.0	19.3
Engineering	10.2	8.2	7.9	7.3	4.0	10.5
Fine & App- lied Arts	1.1	0.3	0.0	0.0	4.0	0.0
Foreign language	0.0	0.5	0.0	0.0	0.0	0.0
Health Professions	21.5	8.40	15.8	0.0	12.0	0.0
Home Economics	5.9	1.6	0.0	0.0	8.0	9.6
Letters	0.0	0.0	0.0	0.0	8.0	0.0
Mathematics	0.5	0.5	0.0	2.4	0.0	0.0
Physical Sciences	1.1	1.8	2.6	0.0	0.0	0.0
Community Services	4.3	3.7	13.2	0.0	4.0	2.6
Social Sciences	2.7	4.5	10.5	6.1	4.0	5.3
Trade, Industrial & Technical	1.1	1.3	0.0	0.0	0.0	0.0
General Studies	0.0	0.0	0.0	0.0	0.0	0.0
Total N (3)	186	380	76	82	50	114

(1) Numbers in the columns indicate the percent of students of each group.

(2) Nonr means nonreturning and ret means returning.

(3) The differences in the sample size in this table and previous tables were due to missing data on background variables.

APPENDIX D

FILE LAYOUT

DATA FORMAT I
(Computer Tape Layout)

FILE NAME Withdrawing/Nonreturning Student Survey

RECORD LENGTH = 200 FIXED BLOCK SIZE = 2000
 --- -----

TYPE TAPE = 9 track LABELS = unlabeled
 ----- -----

DENSITY OF TAPE = 1600 bites/inch

POSITION	DESCRIPTION OF VARIABLE
1	Record type (3)
2 - 5	College code
6 - 14	Social security number (numeric)
15 - 27	Section I B - N (numeric)
28 - 33	Section I O - P (numeric)
34 - 63	Section IV Optional Items 1 - 30 (alphanumeric)
64 - 111	Section II Items 1 - 48 (numeric) 1 = major reason, 2 = minor reason, 3 = not a reason
112 - 113	Section II Single most important reason
115 - 159	Section III Items 1 - 46 (numeric) 1 = does not apply, 2 = very satisfied, 3 = satisfied, 4 = neutral, 5 = dissatisfied, 6 = very dissatisfied
160 - 200	Blank

NOTE: All numeric items are coded as follows: "1" = first response, "2" = second response, ... , "0" = tenth response.

All alphanumeric items are coded as follows: "A" = first response, "B" = second response, etc.

DATA FORMAT III
(Disk file layout)

FILE NAME Nonreturning & Returning Student Survey Data

RECORD LENGTH = 256 FIXED BLOCK SIZE = 6400

POSITION	DESCRIPTION OF VARIABLE
1 - 7	Identification number
8	Record type
9 - 12	College code
13 - 21	Social security number
22 - 23	Age
24	Race
25	Classification
26 - 27	Purpose
28	Enrollment status
29	Type of school attended
30	Sex
31	Marital status
32	Type of tuition
33	Residence classification
34	Plans for coming year
35	College housing
36	Re-enroll
37	Financial aid
38 - 40	Major
41 - 43	Occupation
44	Hours employed/week
45	Cumulative grade point
46	Length of enrollment
47	Months withdrew
48 - 49	Major2 (main divisions)
50 - 51	Occupation2 (main divisions)
52 - 70	Personal reasons for leaving
71 - 77	Academic reasons for leaving
78 - 87	Institutional reasons for leaving
88 - 95	Financial reasons for leaving
96 - 99	Employment reasons for leaving
100 - 101	Most important reason for leaving
102 - 112	Academic environment characteristics
113 - 118	Rules & regulations environment
119 - 122	Registration characteristics
123 - 131	General environment characteristics
132 - 158	Services
159 - 181	Part A college services (nonreturning student survey)
182 - 254	Blank
255	Race (black vs nonblack)
256	Blank

DATA FORMAT IV.

(Coding form for nonrespondent nonreturning students)

COLUMNS	VARIABLE
1 - 7	Identification number
13 - 21	Social security number
22 - 23	Age
24	Race
25	Classification
26 - 27	Purpose
28	Enrollment status
30	Sex
31	Marital status
32	Type of tuition
35	Housing
44	Hours employed/week
45	Cumulative grade point
46	Length of enrollment
48 - 49	Major

APPENDIX E

ITEMS OF THE COMPOSITE REASONS IN SET C
OF HYPOTHESES IIa AND IIb

The items of each of the composite reasons in set C of hypotheses IIa and IIb are listed below:

Personal reasons is a composite of the reasons: (1) learned all I wanted to learn at the time, (2) decided to attend a different college, (3) health-related problem, (4) wanted a break from my college studies, (5) wanted to move to a new location, (6) difficulty in obtaining transportation to this college, (7) uncertain about the value of a college education, (8) commuting distance to this college was too great, (9) did not like size of college, (10) experienced emotional problems, (11) felt racial/ethnic tension, (12) felt alone or isolated, (13) had conflicts with my roommate(s), and (14) wanted to travel. Principal-component factor analysis was used to determine this linear combination of reasons called personal reasons.

Family reasons is a composite of the reasons: (1) marital situation changed my educational plans, (2) child care was not available or was too costly, (3) family responsibilities were too great, (4) influenced by parents or relatives, and (5) wanted to live nearer my parents or loved ones. Principal-component factor analysis was used to determine the linear combination of reasons called family reasons.

Academic reasons is a composite of the reasons: (1) dissatisfied with my grades, (2) was suspended or placed on probation, (3) courses were too difficult, (4) courses were not challenging, (5) inadequate study habits, (6) too many required courses, (7) disappointed with the quality of instruction at this college. Principal-component factor analysis was used to determine the linear combination of reasons called academic reasons.

Institutional reasons is a composite of the reasons: (1) desired major was not offered by this college, (2) desired major was offered, but

course content was unsatisfactory, (3) academic advising was inadequate, (4) experienced class scheduling problems, (5) dissatisfied with the academic reputation of this college, (6) could not find housing I liked, (7) unhappy with college rules and regulations, (8) impersonal attitudes of college faculty or staff, (9) dissatisfied with the social life at this college, and (10) inadequate facilities for physically handicapped students. Principal-component factor analysis was used to determine the linear combination of reasons called institutional reasons.

Financial reasons is a composite of the reasons: (1) did not budget my money correctly, (2) encountered unexpected expenses, (3) applied for financial aid, but did not receive it, (4) financial aid received was inadequate, (5) tuition and fees were more than I could afford, (6) could not find part-time work at this college, (7) could not obtain summer employment, and (8) cost of living was too high in this community. Principal-component factor analysis was used to determine the linear combination of reasons called financial reasons.

Employment reasons is a composite of the reasons: (1) wanted to get work experience, (2) accepted a full-time job, (3) conflict between demands of job and college, and (4) my chosen occupation did not require more college. Principal-component factor analysis was used to determine the linear combination of reasons called employment reasons.

APPENDIX F

ITEMS OF THE COMPOSITE COLLEGE SERVICES
AND ENVIRONMENT CHARACTERISTICS IN
SET F OF HYPOTHESES IVa-IVf

The items of each of the composite college services and environment characteristics in set F of hypotheses IVa, IVb, IVc, IVd, IVe and IVf are listed below:

The college service and environment characteristic academic is a composite of the characteristics: (1) testing/grading system, (2) course content in major field, (3) instruction in major field, (4) out-of-class availability of instructors, (5) attitude of the faculty toward student, (6) variety of courses offered by this college, (7) class size relative to the type of course, (8) flexibility for student to design own program, (9) availability of student advisor, (10) value of the information provided by student advisor, and (11) preparation student received for future occupation. Principal-component factor analysis was used to determine this linear combination of college services and environment characteristics called academic.

The college service and environment characteristic rules and regulations is a composite of the characteristics: (1) student voice in college policies, (2) rules governing conduct at this college, (3) residence hall rules and regulations, and (4) personal security/safety of this campus. Principal-component factor analysis was used to determine this linear combination of college services and environment characteristics called rules and regulations.

The college service and environment characteristic registration is a composite of the characteristics: (1) general registration procedures, (2) availability of the courses a student wants at the time the student can take them, and (3) academic calendar for this college. Principal-component factor analysis was used to determine this linear combination of college services and environment characteristics called registration.

The college service and environment characteristic general is a composite of the characteristics: (1) concern for you as an individual, (2) opportunities for personal involvement in campus activities, (3) racial harmony, (4) religious activities, and (5) attitude of college non-teaching staff toward the student. Principal-component factor analysis was used to determine this linear combination of college services and environment characteristics called general.

The college service and environment characteristic services is a composite of the college services: (1) academic advising, (2) personal counseling, (3) career planning, (4) job placement, (5) recreational and intramural programs, (6) library facilities, (7) student health services, (8) student health insurance program, (9) college-sponsored tutorial services, (10) financial aid services, (11) student employment, (12) residence hall services and programs, (13) food services, (14) college-sponsored social activities, (15) cultural programs, (16) college orientation program, (17) credit-by-examination program (PEP, CLEP, etc.), (18) honors programs, (19) computer services, (20) parking facilities and services, (21) veterans services, (22) day care services, (23) classroom facilities, (24) laboratory facilities, (25) athletic facilities, and (26) study areas. Principal-component factor analysis was used to determine this linear combination of college services and environment characteristics called services.

APPENDIX G

CODING FOR THE THIRTEEN BACKGROUND VARIABLES

The coding for each of the thirteen background variables used in the study is given below:

Age was coded as follows: 18 years or under = 1; 19 years = 2; 20 years = 3; 21 years = 4; 22 years = 5; 23 to 25 years = 6; 26 to 29 years = 7; 30 to 39 years = 8; 40 to 61 years = 9; and 62 years or over = 10. Race was coded as black = 1 and all others (American Indian, Caucasian, Mexican-American, Asian-American, Puerto-Cuban, other) = 2. Classification was coded as follows: freshman = 1; sophomore = 2; junior = 3; and senior = 4. Purpose for entering college was coded as follows: no definite purpose in mind = 1; to take a few job-related courses = 2; to take a few courses for self-improvement = 3; to take courses necessary for transferring to another college = 4; to obtain or maintain a certification = 5; to complete a vocational/technical program = 6; to obtain an associate degree = 7; to obtain a bachelor's degree = 8; to obtain a master's degree = 9; and to obtain a doctorate or professional degree = 10. Enrollment status was coded as full-time = 1 and part-time = 2. Sex was coded as male = 1 and female = 2. Marital status was coded as unmarried (including single, divorced, and widowed) = 1 and married = 2. Crosstabs revealed that two students from each of the groups, nonreturning vertical transfers and returning native students, responded to marital status as separated. Therefore, to simplify the programming chore, the response separated was treated as a missing value. Type of tuition was coded as in-state = 1 and out-of-state = 2. Most recent college residence was divided into five new variables: college residence hall = 1 vs. other types of housing = 2; off-campus room or apartment = 1 vs. other types of housing = 2; own home = 1 vs. other types of houses = 2; and off campus housing = 1 vs. campus controlled housing = 2. College major was divided

into the following group majors (schools at State University): Agriculture = 1 vs. other majors = 2; Business = 1 vs. other majors = 2; Engineering, architecture and trades = 1 vs. other majors = 2; Health profession = 1 vs. other majors = 2; Education = 1 vs. other majors = 2; Arts and Sciences (biological science, communications, computer science, fine and applied arts, foreign languages, letters, mathematics, physical science, social science and general studies) = 1 vs. other majors (agriculture, business, education, engineering, architecture and trades, and home economics) = 2. Cumulative grade point average was coded as follows: 1.00 or less = 1; 1.01-1.50 = 2; 1.51-2.00 = 3; 2.01-2.50 = 4; 2.51-3.00 = 5; 3.01-3.50 = 6; 3.51-4.00 = 7. Length of enrollment was coded as follows: less than one quarter = 1; one quarter, but less than two quarters = 2; two quarters, but less than one year = 3; one year or more but less than two years = 4; two years or more, but less than three years = 5; and three years or more = 6. The last background variable hours employed per week while enrolled was coded as follows: zero or only occasional jobs = 1; one to ten hours = 2; eleven to twenty hours = 3; twenty-one to thirty hours = 4; thirty-one to forty hours = 5; and over forty hours = 6.

APPENDIX H

CODING FOR THE VARIABLES: PLANS FOR
COMING YEAR, LENGTH OF TIME SINCE
STUDENT WITHDREW FROM SCHOOL
AND PLANS TO ENROLL

The coding for each of the variables plans for coming year, length of time since student withdrew from school and plan to enroll at this school is given below:

Plans for the coming year has six responses: (1) work full time or part time, (2) enroll in college, (3) obtain a job and enroll in college, (4) care for a home and/or family, (5) other, and (6) undecided. To achieve a more interpretable result, plans for the coming year was treated as six different dichotomies: work full or part-time = 1 vs. the other five responses = 2; enroll in college = 1 vs. the other five responses = 2; obtain a job and enroll in college = 1 vs. the other five responses = 2; care for a home and/or family = 1 vs. the other five responses = 2; other = 1 vs. the other five responses = 2; and undecided = 1 vs. the other five responses = 2. The variable, do you plan to re-enroll at this college, was coded as yes = 1, undecided = 2, and no = 3. The variable, length of time since student withdrew from school, was coded as follows: less than one quarter = 1; one quarter, but less than two quarters = 2; two quarters, but less than one year = 3; one year or more, but less than two years = 4; two years or more, but less than three years = 5; and three years or more = 6.

VITA

Emery George Gathers

Candidate for the Degree of

Doctor of Education

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VERTICAL TRANSFER, AND NATIVE STUDENTS AT A SELECTED
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