AN ABSTRACT OF THE THESIS OF

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in EDUCATION (Major) presented on _____ (Date)

Title: A COMPARISON OF THE ACADEMIC ACHIEVEMENT OF OREGON COMMUNITY COLLEGE TRANSFER STUDENTS WITH THAT OF NATIVE STUDENTS AT OREGON STATE UNIVERSITY

Abstract approved: Redacted for Privacy

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The purpose of this study was to determine whether or not a significant difference existed between Oregon community college transfer students and native students at Oregon State University with respect to academic achievement, persistence, and graduation.

Two groups of students were selected for observation. The first included all of the 116 full-time students who transferred from Oregon community colleges with 39 or more units of collegiate work and were admitted to Oregon State University from the fall quarter 1963 through the fall quarter 1964. The second group included 116 full-time native students who were currently enrolled at Oregon State University. Each native student was selected at random to match one of the transfer students by school, age, sex, marital status, and

number of units completed.

Original data were obtained by surveying student records. Grade-point averages were collected at various time intervals. To evaluate persistence and graduation, students were classified as enrolled, withdrawn, dismissed, or graduated. The percentage of students in each classification was tabulated at various time intervals.

Comparisons of grade-point average were made by t tests. Within the transfer group, evaluations were made for sub-groups established on the basis of school, age, sex, marital status, and class standing. The same subgroup evaluations were made within the native group. Comparisons of grade-point average also were made between the transfer and native groups as a whole and as subgroups. The academic classifications of the total transfer group were compared with those of the native group by chi-square tests. Comparisons for transfer and native subgroups were made by percentages.

The findings of this investigation are summarized in three subdivisions: transfer shock, academic achievement, persistence and graduation.

Transfer shock. Acute transfer shock was observed for transfer students. Recovery was slow, and grade-point averages generally did not return to their original level until graduation. The dropout rate was extremely high for the first year after transfer and included a large number of dismissals.

Students in all schools suffered transfer shock and a considerable loss of grade-points. Large dropout rates for the first year were noted in most schools. Transfer shock was most noticable for the following subgroups: students enrolled in the School of Engineering, young students in the 19 to 21 age group, males, and single students.

Academic achievement. When observations began and upon receipt of the baccalaureate degree there was no significant difference between the grade-point averages of transfer and native students. However, when comparing the cumulative grades for the total collegiate work of dropouts as well as graduates, the grade average of transfer students was significantly lower than that of native students. This was attributed to the loss of grade-point average associated with transfer shock.

At graduation there was no significant difference between native and transfer students in any subgroup. For total collegiate work, native engineering students averaged much higher than transfer engineering students, and native males averaged higher than transfer males. Youngest native students had a higher average than youngest transfers; native juniors were higher than transfer juniors; single natives averaged much higher than single transfers, but there was no significant difference between married groups.

Persistence and graduation. When transfer students were

compared with native students, the persistence and graduation rates of native students were found to be significantly higher than those of transfer students at all time intervals. Dropouts from either group seldom occurred between the fourth and fifth year of collegiate work. Graduation rates for both groups increased greatly when students were given an additional year to complete degree requirements, but the largest gain was observed for transfer students.

The persistence and graduation rates for native subgroups were much higher than those for corresponding transfer subgroups except in the School of Science and for students above 26 years of age. Transfer dropouts included a higher percentage of dismissals than native dropouts.

A Comparison of the Academic Achievement of Oregon Community College Transfer Students with That of Native Students at Oregon State University

by

Bruce Carl Lenmark

A THESIS

submitted to

Oregon State University

in partial fulfillment of
the requirements for the
degree of

Doctor of Education

June 1969

APPROVED:

Redacted for Privacy

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Date thesis is presented August 3, 1968

Typed by Nancy Kerley for Bruce Carl Lenmark

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ACKNOWLEDGEMENTS

To my major professor, Dr. Pat Atteberry, I extend sincere appreciation and gratitude for his confidence and guidance in the preparation of this thesis. Appreciation also is expressed to the members of my graduate committee, Dr. Lester Beals, Dr. John Keltner, Dr. J. Kenneth Munford, and Dr. Earl Smith, for their assistance.

Special acknowledgement is given to Professor Wallace Gibbs and his staff for their cooperation during the collection of data.

Grateful appreciation is also extended to my wife, Shirley, whose patience, encouragement, and assistance has made this work possible.

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CHAPTER I

INTRODUCTION

As four-year colleges become more crowded and consequently more selective in their freshman admission policies, more responsibility is placed on the community colleges[1] to satisfy the lower division requirements. There has been a rapid growth in enrollment and each year increased numbers of students are requesting transfers from two-year to four-year colleges. Their success may hinge on adequate preparation and intelligent counseling and may be promoted by improving articulation between the community colleges and the senior institutions.

Counseling services in the community college should reflect research findings about the performance of their students after transfer to a four-year college. At senior institutions, appropriate admission standards and special orientation and counseling programs designed for the transfer student should be developed after an

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[1] In this study the term "community college" is used in referring to the two-year junior college because that is the term established by law for such schools in the state of Oregon.

adequate assessment of the differences and similarities among college populations in terms of academic achievement.

The Problem

The community college movement in Oregon is relatively recent. Each year an increasing number of transfer students are admitted to Oregon State University. Admission standards and counseling programs should reflect their academic needs and performance, but at this writing little is known about their achievement or persistence after transfer.

Statement of the Problem

The purpose of this study is to determine whether or not a significant difference exists between Oregon community college transfer students and native students at Oregon State University with respect to academic achievement. If differences exist, what are the nature and extent of the differences? An additional purpose of this study is to determine whether or not a significant difference exists between the two groups with respect to persistence and attainment of degree goals.

Importance of the Study

The community college is the most rapidly expanding segment

of higher education. A prominent trend in America has been the increase in the number of students who begin their undergraduate work in the community college. Authorities expect the situation and its accompanying problems to become more intense as the four- and five-year institutions stress upper division and graduate education while the community colleges act as feeder institutions and assume more responsibility for lower division. Thus, an intensive survey of the academic achievement and persistence of transfer students is especially timely.

The findings of this study may provide guidelines for articulation between community colleges and senior institutions. Guidance personnel in both the community colleges and universities need information on transfer student performance to counsel students intelligently regarding area of concentration and type of senior institution to consider. Admission offices in four-year institutions find information relative to the academic performance of transfer students useful in the evaluation of transfer students for admission as well as adjustment of their admission policies.

Theoretical Framework

As a result of the growth of the community college movement, there has been an increased recognition of the role that the community college plays in the transfer function. A wealth of information has

been gathered in the area of the college transfer student in the past five decades, but frequently the research findings regarding his success are conflicting and controversial. Further research is needed to discover what happens to the community college transfer student after he is admitted to the senior institution.

Basic Assumptions

1. The community college is assuming an increasing role in the lower division education of college students.
2. There is a continuous need for educators and educational institutions to examine and evaluate practices and procedures relative to transfer students.
3. Differences in academic achievement exist between transfer and native students.
4. Valid data relative to academic achievement does exist and can be obtained.
5. Grade-point average is the predominant measurement of academic achievement while attending college.

Hypotheses

1. Oregon community college transfer students will suffer a significant drop in grade-point average after entering Oregon State University. Following this drop, the transfer students'

grade-point average will gradually increase.

2. Attrition will be higher for Oregon community college transfer students than for native students at Oregon State University.
3. Both transfer and native females will have a higher grade-point average than their corresponding males.
4. There will be a significant difference in grade-point average among some schools for both transfer and native students.

Definition of Terms

In order to attain precision and clarity of meaning, the following definitions are included:

1. transfer student: a student who transferred to Oregon State University after having completed at least 36 quarter hours of collegiate work in a community college in Oregon.
2. native student: a student whose original college enrollment was at Oregon State University, and who completed all collegiate work there.
3. full-time student: a student who was enrolled for 12 or more quarter hours of collegiate work.
4. grade-point average: grade-points were computed on the basis of four points for each term hour of A grade, three points for each term hour of B grade, two points for each term hour of C grade,

one point for each term hour of D grade, and no points for each term hour of F grade.

CHAPTER II

SURVEY OF RELATED LITERATURE

A review of the literature concerned with the transfer students' academic achievement and persistence at senior institutions showed that many investigations have been conducted in this area. In order to make recommendations regarding university admission policies for transfer students and the counseling of these students at the community college and university level, information was gathered on the role of the community college, the transfer program, student characteristics, and current trends and policies in counseling, articulation, and admission.

The College

The roles of various institutions of higher education are changing. Policies, curricular emphasis, and programs are being modified at all levels. Increased concern for the transfer student is expressed by the community colleges and senior institutions.

The Community College

Unlike the university, the community college offers the student a choice of alternatives during the first and second years which

enables him to embark on either a terminal or transfer program. In the opinion of Burton Clark, one of the most important functions of the community college is that of assisting the student to acquire a realistic appraisal of his aptitutdes and adjust his aspirations accordingly (8, p. 167).

Changing role in higher education. Although preparation for advanced study is only one of the purposes of the community college, it is the oldest and most commonly acknowledged. In 1922 the American Association of Junior Colleges defined the community college as "an institution offering two years of instruction of strictly collegiate grade." The goal of the two-year college was to prepare students for transfer as advanced students (35, p. 3).

The community college has evolved since that time into a community institution which performs other functions in addition to preparing transfer students. Grace Bird clearly defined three functions of the present day two-year college. They are vocational occupational education, transfer or preparation for advanced placement in a four-year college, and adult education (1, p. 78).

The community colleges reduce the economic and geographic barriers to educational opportunity (16, p. 197). They provide higher education for a much larger segment of our population at a reduced cost to the students and their parents. The availability of the community college is encouraging many young people to start

college who previously would not have progressed beyond high school, and the majority of them intend to transfer to senior institutions (40, p. 1; 66, p. 385). The two-year colleges provide a good opportunity to screen students and prepare the more able ones for transfer (8, p. 159; 25, p. 262; 66, p. 385).

Expansion of the transfer program. Because of the increased number of students applying to four-year colleges and universities, many students are turned away. Thus, greater demand is placed on the community colleges for the first two years of a college education which eventually may lead to a bachelor's, master's, or doctor's degree (5).

One author suggested that the two-year community colleges were the most obvious way to solve the problem of overcrowding. He indicated the community colleges had passed through the period of experimentation and were a genuine success (22, p. 195).

In 1964, Florida opened a new kind of state university. The institution was limited to upper division and graduate work. The responsibility for lower division education of the students who attended Florida Atlantic University was assigned to the community colleges of Florida (35, p. 4).

In California more than 70 percent of the students enrolled in the first two years of college were attending community colleges (25, p. 195). Reports on the percentage of community college students

who transfer to a four-year institution did not vary greatly. In a study conducted in 1929, 10, 000 community college students in California were asked whether they intended to continue their education after they completed community college. More than 8, 000 indicated they intended to enter a specific institution; 28 percent actually entered a senior college. In 1956 Grace Bird stated that at least 50 percent of the community college students declared at entrance that they intended to transfer to a four-year institution, and in many states the percentage ran much higher. In general only half of those intending to transfer did so. She adds that the aim of many students may not have been realistic but the opportunity to prepare for transfer is the largest single motivating force for entering community college at all (1, p. 80). A more recent study indicated that about two-thirds of the students entering San Jose Junior College enroll in a transfer program; 22 percent of all entering students actually do transfer to a senior institution (8, p. 65).

In 1958, out of 908, 708 students entering college, 185, 537 transferred from another college or university. Approximately one in five new college students were transfers and one-third of them came from two-year colleges (67). Similar statistics were reported for 1961 (20). In a 1965 conference report, Dorothy Knoell indicated that evidence showed one-half of the new undergraduate students in many large colleges and universities throughout the nation were

transfers from other colleges (9). An even higher percentage was reported for the University of California. Sixty percent of the juniors and seniors began their work in two-year colleges before transferring (6).

Increased enrollment was also observed in Oregon where the community college movement was relatively new. It was pioneered by Central Oregon College which enrolled its first class in September 1949. Central Oregon College operated under the Dunn Bill which provided that a public school could provide lower division collegiate courses in the local district (53). By 1964 Oregon had ten institutions operating under the community college law and enrollment was approximately 4,600 full time equivalent students. Enrollment projections showed a regular increase of 2,000 to 3,000 students per year and by 1972 over 23,000 full time students are expected to be enrolled in 15 community colleges (52, p. 7).

The community college movement has grown so rapidly that there has been little time to work out problems of articulation between the two- and four-year colleges, to apply the findings of research to the counseling programs at the community or senior colleges, or to adjust admission policies to the characteristics of the individual institution and its transfer students.

Guidance programs. Sound guidance in the community college, particularly with reference to courses and scholastic standards,

can do more than anything else to effect a successful transfer (58). Considerable improvement is needed in counseling about senior college attendance and career choice. A wide array of information should be available to counselors and students so they can make intelligent decisions, but current information is vastly inadequate (39, p. 109).

One criterion of success of the transfer function of the community college is the grade-point average obtained by the community college transfer students in their new institution (23). Some of the difficulty transfers encounter at the new institution is related to grading practices. There are some significant differentials in community college grading which should be examined in relation to each four-year institution to which students transfer. Knowledge of grading differentials would aid community college counselors and students in making a more appropriate choice of senior institution (3).

A difficult burden is placed on the counselor. Several authors considered it very important that the transfer student select the type of four-year institution and major field best suited to his abilities and prior achievement. But at this time information which would help counselors in their efforts to assist students in choosing suitable colleges is lacking. Investigations are needed on the competitive characteristics of the various senior colleges from which choices

are to be made and on the academic success of transfer students in different courses of study within those colleges. Investigations must be conducted periodically in individual institutions and in various subject matter areas. Otherwise, generalizations of doubtful accuracy from one college to another or from one subject matter field to another may be made (39, p. 105; 46; 51).

At the present time there are too few students benefiting from counseling services. Improvements can be made with greater financial support for extending guidance programs and with appropriately trained personnel. Both pre-service and in-service training for counselors should be increased (39, p. 109).

Articulation between Two-year and Four-year Institutions

A Committee on Junior and Senior Colleges was established in 1957 by the Association of American Colleges and the American Association of Junior Colleges when they recognized the need to improve articulation between two- and four-year colleges. The Committee recommended that research be conducted on both the performance of community college transfer students in senior institutions and on the various practices and policies affecting those students. The research was needed as a basis for guidelines for transfer (40, p. 1).

The significance of articulation was emphasized frequently in the literature. Concern with articulation between high school and

college has subsided. Increased emphasis was placed on inter-college relations dealing with student transfer from community college to four-year college (3; 39, p. 103).

Effective articulation between the community college and the senior institution depends on continuous research pertaining to the transfer student so that both institutions can be guided by facts. Up to the present too much has been left to chance (47, p. 139).

One author suggested that problems of program articulation promoted obstacles in the selection of certain majors. In one extensive investigation, less than five percent of the transfer students were enrolled in the applied majors which included agriculture, industrial arts, home economics, physical education and recreation, nursing, and pharmacy (40, p. 51).

An encouraging picture emerged from current research and experimentation aimed at improving articulation. An increasing number of colleges have recognized that education should be a continuous and efficient process which is unmarred by wasteful repetitions, gaps, and disruptions. The student should not have to take courses which include knowledge he has already mastered. Two- and four-year colleges must work together on problems of articulation of courses and curricula to avoid an increase in the length of time required for transfer students to complete degree requirements (4, p. 65; 39, p. 110).

Changes in provisions for the evaluation of transfer credit tend toward liberalization. For example, the state colleges in California will now accept 70 semester units of transfer credit compared to their previous maximum of 64. A movement was made in the opposite direction by one university which developed a lower division General Studies Program with course requirements difficult for some transfer students to match (38, p. 79).

Generally, four-year colleges did not offer inducement for community college students to earn associate degrees before transfer. Florida State University did accept such preparation in full satisfaction of general education requirements, but in California students were required to take some courses outside the associate degree program in order to transfer with full junior standing. Transfer students should be able to attain the associate degree and satisfy requirements for upper division standing during their stay in community college (40, p. 18).

The ideal transfer relationship can operate only when there is a maximum of knowledge on the part of both institutions about the other. In order to make recommendations the community college must have information about the student and about the senior institution. The four-year college should know the programs and personnel of the two-year institution. One author recommended that the community colleges establish their transfer relationships on a regional

basis (54).

When considering the increasing number of students requesting transfers from two- to four-year colleges, Boleman took a realistic approach. He said the four-year college will have to conform to the needs of the transfer student (5).

At four-year institutions there has been a marked increase in faculty involvement in articulation activities. They have visited other college campuses and have participated in conferences to develop articulation in specific areas of instruction. In some cases newsletters, special information brochures, recruitment materials, and course equivalency lists were developed to effect better communication. Efforts to improve program planning for transfer students and to help them make more realistic decisions for the future have resulted in the assignment of staff members to the specific task of counseling transfer students (39, p. 103).

Curriculum in the four-year colleges has become an important facet of master planning in higher education. Many teacher colleges have evolved into multi-purpose institutions. They should not try to copy the curriculum or standards of a university; they have a responsibility to the community colleges to develop programs which can be articulated (39, p. 104).

At the present time, articulation in many states is inadequate to solve the problems which will accompany an increasing volume of

transfer students. Cooperation at the state level will be necessary to develop guidelines or common policies for transfer, to which the various colleges will subscribe (39, p. 111).

Knoell reported that master plans for the coordination of higher education have been developed at the state level in California, Illinois, Michigan, New York, and Texas. This was an attempt to insure the orderly development of opportunity in higher education for an increasing number of students. Provisions were made for the community colleges to carry a greatly increased share of the responsibility for lower division education (39, p. 103).

In Oregon efforts have been made to facilitate articulation among institutions of higher education. In 1957 a law included the provision that all transfer courses and the instructors teaching the courses must be approved by the state system of higher education. This approval system was to end as each community college became accredited by the Northwest Association of Secondary and Higher Schools (53).

The Four-year College

The expansion of the transfer program has promoted modifications in transfer policies and programs at four-year institutions.

Admission policies. Admission policies should be guided by information obtained on the unique and individual situations existing

within each institution. The data and research on admission, academic performance, and related characteristics of its students must be continuous and current. In this manner an educational institution is able to evaluate its efforts and discover areas needing improvement (17).

Admission standards for transfer students are expected to be high enough to eliminate those students with little chance of successfully completing a degree program. However, the prediction of success appears to be complicated. There was little general agreement among investigators.

One author considered the number of units completed in high school to be related to college performance. He reported that community college transfers with 17 units of high school preparation showed a drop in grades after entering a College of Liberal Arts, but 25 percent of the community college transfers with 21 or more units of high school preparation showed an increase in grades after transferring (28).

Regular investigations have been conducted at the University of California to determine whether type and quality of high school preparation was an important factor in college success. The university grades of transfer students who would have been eligible for freshman admission were compared with those of transfer students who could not have entered the university directly from high school.

Approximately equal grade point averages and percentages of students falling below a C average were found for the two groups. This data indicated that high school preparation was of little value in predicting success after transfer (39, p. 79).

In a study following the upper division careers of transfer students at Syracuse University, Maguire found that the community college student who had followed a technical terminal program prior to transfer did better in the four-year institution than the student who took the traditional academic program prior to transfer (44).

Both Walter Eells and James Thornton felt that the specific pattern of lower division courses completed by a student was a less reliable predictor of his success in upper division study than the quality of his community college work (14; 60, p. 189).

One investigation at the University of California included over 1,400 students who transferred in at the beginning of their junior year. They were enrolled in six curriculums. The investigators found the best single predictor of upper division GPA was the student's lower division GPA. This was also the best single predictor of the student's grades for the first semester after enrollment at the university (36).

After an extensive study concerning the differential performance of transfer students in 43 institutions scattered in 10 states, Knoell and Medsker arrived at the following conclusions. Community

college grade-point averages of C were relatively meaningless as indicators of probable success in four-year institutions. Grades of A and B may reflect superior achievement, but a C grade may only indicate compliance with course requirements and may mean a variety of things when given by different instructors to different students for different reasons (41, p. 90-91).

Community college grades were useful for screening, counseling, and selecting transfer students for admission. Due to a great overlap in distribution, test scores were of little value for predicting success in upper division work and should not be used to deny admission to transfer students if their grades are good and their goals reasonable (41, p. 93). Knoell and Medsker made the following summary:

> Because of the vast differences which were found . . . no single meaningful conclusion can really be drawn about the quality of transfer student performance. Transfer students with very similar grades from the same junior college, often in the same field, will have quite different degrees of success in different four-year institutions, both in their persistence to graduation and their upper division grades (41, p. 91).

In studying various variables as predictors of GPA, Chanskey found that commonly used aptitude and achievement variables did not always correlate highly with GPA in any school. Whatever it took to obtain a particular grade in one course of study was insufficient to explain it in another. He concluded that the predictors currently

being used are relevant but too confining for admission purposes. More must be learned about student traits which are linked to grades received and about the factors considered by instructors who give the grades (7).

Recognizing that many able young people, through no fault of their own, could not consider entering a four-year institution directly after high school, some senior institutions have liberalized their admission policies toward community college transfers (62). However, this was not the trend noted for the four-year institutions participating in the Knoell study from 1960 to 1964. Changes included increases in required GPA and/or subject requirements and closer adherence to existing standards. Few institutions required applicants to present grade averages above C, but marginally qualified applicants were more apt to have to delay transfer while gaining additional units or completing additional requirements (41, p. 57).

Some four-year institutions were admitting transfer students with barely satisfactory community college grades and allowing them to enroll in programs of their own choosing. When the same institutions had selective admission standards for native freshmen students, an old problem became more intense. Transfer students of marginal standing were in competition with native students with a higher general ability level (39, p. 105).

Several authors noted poor academic adjustment and high

attrition rates for transfer students and recommended that community college transfer students be required to meet higher admission standards (26; 44; 68). Maguire stressed the liklihood of failure for students who entered the university with a grade-point average of less than 2.50 or C plus on a four point scale. She recommended that admissions be carefully weighed for any student with a grade-point average below 2.50 or with less than two years completed in a community college prior to transfer (44). John Hills also recommended a higher pre-transfer grade-point average. He recommended an admission standard of 2.7 or B minus on a four-point scale for community college transfer applicants (26).

Another suggestion offered by Hills to deal with the problem of high attrition and transfer shock was to lower probation standards for the transfer students during their first year at the four-year institution (26). Some of the four-year institutions included in the 1960 to 1964 Knoell study reported stricter adherence to existing probation and dismissal policies while others reported some lowering of standards (39, p. 79-80).

Student services. James Nelson indicated that transfer students often found it difficult to become involved in the student activity program at senior colleges even though they had participated successfully in the two-year college. He recommended that senior colleges minimize articulation difficulties by providing orientation induction

programs reflecting the interests and problems of the entering community college transfer students and by the early assignment of advisors (51).

Knoell and Medsker reported that transfer students were commonly overlooked when four-year institutions planned orientation programs, offered counseling services to new students, provided adequate and appropriate advisement at the first registration, and invited student participation in social and extra-curricular activities. There was a general lack of concern for the needs and interests of the transfer students (39, p. 109).

Before adequate programs can be established to provide services for transfer students, the senior institutions must gather information on the characteristics of their transfer groups. They need to know how many students transfer annually, how old they are, at what class levels they are admitted, from what college they transferred, their sex, and their interests (39, p. 109).

The Student

Investigation of the differences observed in student behavior and performance has become increasingly essential. This reflects a concern for the individual within our society and a recognition of educational needs (23).

Characteristics

The community college student has been found to be different from the student who enters a four-year college directly from high school. In addition to his aptitude and scholastic achievement, the community college student is different from the native student in terms of his interests, attitudes, and background (23).

The range of ability of community college students frequently is reported to be greater than that of students at four-year colleges and universities. This is a result of non-selective admission policies, breadth of programs, and availability (16, p. 78; 48; 56, p. 47). Since a grade-point average of 2.00 or higher is not an admission requirement at the Oregon community colleges, they too admit students of a wider range of academic ability. Both Clark and Reynolds reported that the mean ability of community college students was less than that of four-year institution students. This was attributed to a difference in function and in standards of selectivity (8, p. 49; 56, p. 47). However, Fields maintained that the community college students were comparable in ability to those who entered the four-year institutions as freshmen and did as well scholastically as those who attended the first two years in the four-year colleges (16, p. 78).

The academic abilities of the students in the San Jose Junior College study were generally less in terms of general scholastic

aptitude than the students in the state colleges and universities. As might be expected, the range of ability among students was found to be great and the student body as a whole had low college aptitude (8, p. 49-50). The applicants to the college had an average achievement level equal to the first two years of high school. Burton Clark suggested the community college base itself on a student body of low scholastic achievement and college aptitude (8, p. 51).

In a survey of students at Montgomery Junior College of Takoma Park, Maryland, one author found that the capacity of the community college student was equal to that of the university student but a sizable proportion of the students seemed to be unable to use it effectively (61).

In terms of student characteristics, the community college student differs from the senior college student in that he lives at home and the parental values tend to continue. The community college group is heterogeneous in terms of age, ability, previous academic performance, and specific academic skills (61).

A greater percentage of community college students are employed than four-year college students. More than 40 percent of the community college students earn part or all of their money (56, p. 47).

Public community colleges typically come closer to approximating the socio-economic distribution of nearby populations than do other forms of college organization. Relatively few barriers--social,

economic or academic--intervene between the prospective student and the community college (8, p. 59).

The San Jose Junior College would not be considered atypical. If indexed by father's occupation, it is a working class college; less than one-fourth of the students from the city of San Jose came from business and professional families while two-thirds had a blue collar background (8, p. 56).

One of the most significant points consistently cited by studies of the community college student is the upward social and economic mobility of students from the lower middle class families (2). Community college students have a socio-economic background which is more largely middle class than the background of students who enter four-year colleges. A study of male students in a large metropolitan community college showed that over 65 percent of the students' parents were in the skilled, semi-skilled, and unskilled occupations. The study further revealed that 86 percent of the community college students had already exceeded the educational level of their parents (2).

In a comprehensive investigation of community college students, Knoell and Medsker discovered many differences between the two-year college transfer students and the native students in colleges and universities in ten states. The academic ability of male graduates who entered a four-year institution as freshmen was greater

than that of students who did their lower division work in a two-year institution. However, high ability students who attended community college for their lower division work were able to achieve high grades in their upper division work at a four-year institution (39, p. 74).

Significant differences existed between transfer and native students in personal characteristics, interests, and socio-economic backgrounds. Data indicated that transfer students were older than native students and they came from larger families (40, p. 136). One adjustment problem observed was that transfer students tended not to consider themselves as members of a particular class and sometimes became college "loners" (23).

According to Knoell, the occupations of the fathers of transfer students fell more often in the skilled worker category while the occupations of the fathers of native students were more likely in one of the higher status categories (40, p. 136). Nearly one-fourth of the fathers of transfer students were employed in the skilled worker category; only 14 percent were in occupations requiring some college (40, p. 26).

A difference was found in the educational level of the parents of the transfer students as compared to the parents of native students. Less than one-third of the parents of transfer students had attended college. The educational level of the mothers exceeded that of the fathers. Both parents of women transfers exceeded the level of

education of the parents of men. A higher percentage of the native student's parents attended college while a higher percentage of transfer student's parents failed to graduate from high school (40, p. 139).

In summarizing the results of a study comparing the values, interests, and manifest needs of Oregon community college students with Oregon State University students, Lorraine Howard observed the following differences (29, p. 88-92).

1. Males of the community colleges were significantly older than those attending Oregon State University. No significant differences were found in the age of females.
2. Population was predominantly protestant but a smaller proportion of protestants attended Oregon State University than the community colleges.
3. Community college males showed significantly lower high school grade-point averages. More community college females had a low grade-point average than those at Oregon State University, but the high school grade-point average was similar for both groups.
4. Community college freshman graduated from smaller high schools than those attending Oregon State University.
5. The most important reason given by community college males and females for attendance at a particular institution was financial consideration. The most important reason for

attending Oregon State University was that the institution chosen offered courses related to their interests.

6. Males at Oregon State University gave vocational training as the reason for attending college. Community college students and females at Oregon State University gave general education as the reason for attending.
7. A larger number of community college freshmen paid for a major portion of their college expenses than did those attending Oregon State University.
8. Parental income for Oregon State University students was significantly higher than that of the parents of community college students.
9. No significant difference between ages of parents was observed.
10. More of the fathers of Oregon State University freshmen had college training than fathers of community college freshmen. No difference in the education of the mothers of males of both types of institutions. Significantly more mothers of Oregon State University females than mothers of community college females had attended college.

Academic Achievement

Studies reviewed on the scholastic performance of community college students after transfer yielded contradictory or inconclusive

results. Methods and selection of samples were so varied that a direct comparison of results usually was not possible. Some studies supported the premise that transfer students did well academically after transfer, and when they were compared with native students at the four-year institution they were found to do as well or better. However, many of the studies suggested that natives performed better than transfer students.

General observations of achievement. One common method of research used by many investigators was to select a group of transfer students and follow their achievement from the time of transfer until a later date that provided time to complete degree requirements.

An early study by Walter Eells dealt with transfers from community colleges in California. Both men and women transfer students were reported to show a marked superiority over the native students at Stanford University (13, p. 257-261).

The success of transfer students was again supported by Walter Eells in a 1943 report. The records of over 2,000 graduates of community college terminal or semi-professional curricula in 67 community colleges were reviewed. Of those who entered senior institutions, the average grades were higher after transfer than they had been in community college, and many received graduation honors and other evidence of scholastic distinction (14).

Ruth Maguire conducted a study of 236 transfers from 1937 to

1946 at Syracuse University. Those students experienced a reduced GPA of about .50 after transfer. The average scholastic performance was 2.27 or C plus on a four point scale. The results of the study stressed the liklihood of failure for students who entered the university with a GPA of less than 2.50 (44).

A more recent report by Willingham also indicated difficulties experienced by community college transfer students. In a study conducted at Georgia Institute of Technology, only one in three was enrolled with a passing grade-point average (65).

Paul Decora studied 168 graduates of organized occupational curriculums from the two-year Agriculture and Technical Institute at Farmingdale, New York. He reported that those transfer students proved their ability to do advanced college work (11).

The most extensive investigation ever completed on transfer students was conducted by Dorothy Knoell and Leland Medsker. Data were collected for over 7,000 students who enrolled in 1960 and 1961 in colleges and universities scattered throughout the United States. The cumulative community college GPA for transfer students was 2.56. During the two years of observations after transfer, the mean GPA was 2.34. All data supported the conclusion that community college transfer students did not reach the same level of scholastic performance after transfer as they did prior to transfer (40, p. 79-83). The interaction of such factors as native ability, achievement

in junior college, sex, choice of four-year college, and choice of major was difficult to analyze. However, the implication was that the transfer student was more likely to succeed if he chose an appropriate major and four-year college for his particular background (40, p. 114).

Some of the most carefully constructed studies used an inter-institutional approach. This research design involved the use of a group of native students for comparison with the transfer students. This design provided more useful data for comparisons and generalizations but lacked comprehensive and consistent matching. Great variability was observed in research designs.

The earliest study of transfer success was conducted by Leonard Koos for 95 community college graduates from 1919 to 1921. They transferred to 13 universities and 6 colleges but were compared with 75 native students with junior standing at the University of Minnesota. Koos concluded that no appreciable differences in scholastic achievement existed between the transfer and native groups (42, p. 93-97).

In a ten year study conducted at the University of California between 1928 and 1938, special emphasis was placed on studying 243 engineering students who transferred from California community colleges. Those transfer students were compared with 583 native students in engineering. The GPA was chosen as the criteria of success.

The mean GPA for all lower division work for the transfers was slightly higher than that for the natives. The two groups had the same GPA for the first semester's work in engineering, but the transfer students earned a higher GPA for all upper division work. The author concluded that the community college transfer student held his own academically at the university and that grading standards at the junior colleges were about the same for engineering students as those at the university (59).

The University of Texas study included all community college graduates who entered from 1935 to 1937. The transfer group was compared with all native students having junior status who were enrolled at the same time. No form of matching was employed. Based on his findings the author concluded that the transfer students carried as heavy or heavier average loads but had a lower quality performance record (15).

Three more recent reports appeared to be institutional research and included no information regarding sample or method of research. No matching was inferred. A report from the Director of Admissions at Moorhead State College indicated that students who received an Associate of Arts or an Associate of Science degree prior to transfer to Moorhead did about as well in upper division courses as those who took all their work there (23). At the University of California, two studies of comparative performance indicated that

community college graduates did as well in the course work or subjects of the upper division as did the native students (6; 57).

The Martorana and Williams study conducted at the State College of Washington in 1952 represents one of the most carefully matched investigations. Two hundred fifty-one transfer students were matched on an individual, student-for-student basis by sex, major subject area, year in college, veteran status, and size of high school attended. Matching was attempted on a group basis for age upon entrance to college, ACE test scores, and high school GPA. When the author was unable to match the test scores and high school GPA as closely as desired, he decided to retain the groups as determined by the original matching and weigh the results with the knowledge that the transfer group had a lower academic ability and a lower high school grade-point average. When considering the groups as a whole, the findings of the study revealed that the transfer students did at least as well academically as the native students (46).

Alfred Nall collected data on the academic achievement and persistence of 134 community college transfer students to the junior level at the University of Colorado. The transfer students were individually matched by school, sex, and high school rank with native students. The entering grade-point average for transfer students was higher than that for native students but dropped sharply after the first grading period. A greater percentage of transfer students received

an average grade below C. The grade-point average for transfers recovered but generally never reached a level as high as that for natives (49, p. 141-178).

Donald Hoyt investigated the performance of transfer students at Kansas State University. They were matched with native students by sex, school, class, and year of first college enrollment. The author concluded that (1) community college grades averaged substantially higher than did later grades at Kansas State University, and (2) transfer students earned about the same grades at Kansas State University as the matched native groups in most schools (30).

At the University of Wyoming, 100 Wyoming community college transfers who enrolled in the fall of 1962 were compared with 100 native students. Only transfer students who had Ohio Psychological Examination scores and a University of Wyoming predicted grade average were included. Using these scores they were individually matched as closely as possible with natives of the same sex. A grade-point average of 2.75 for community college students at the time of transfer to the university was considered to be significantly greater than the 2.34 average of native students after two years on campus. Since the groups were matched in ability, the author concluded there were factors which made it more difficult for students to achieve a high grade-point average on a university campus than at a community college. The grade-point average for transfer students

dropped to 2.39 for the second semester and to 2.47 for the third. For those transfers who persisted to graduation, the average was 2.70 compared to the native's 2.89. The findings showed that even with ability matched groups the scholastic aptitude of transfer students was less than that of native students (22).

Another recent study which attempted to equate the ability of transfer and native students was conducted by Carl Lindsay. He included over 4,000 freshmen students who were enrolled at a large Eastern university. Students who spent the entire four years at the main campus were selected for the native group and those who transferred from one of the two-year satellite campuses were selected for the transfer group. Neither individual matching nor selection to balance group proportions for sex or major was attempted. An aptitude and mathematics placement test were used to measure scholastic ability and thereby adjust or equate the grades earned by the two groups. The native students achieved a mean of .25 grade-point higher than the transfer students. When the earned grade-point average was adjusted to the ability of each group there was little or no difference (43).

Most of the data collected in the Knoell and Medsker investigation related only to transfer students, but some comparisons were made for approximately 4,000 transfers and 3,300 natives who completed their baccalaureate degree requirements at the same time.

The two groups were matched in terms of the proportions of men and women included and distribution of majors but no individual matching was employed. Transfer students earned significantly higher grades in community college than native students during their first two years at college, but they earned significantly lower grades during the upper division years. The findings indicated that there were significant differences in the performance of the native and transfer students which could not be attributed to sex or major (40, p. 127-166).

Several authors expressed conflicting and controversial conclusions after reviewing the results of transfer student achievement studies. In a rather complete review of transfer student performance studies completed prior to 1956, Grace Bird concluded that except for the first term after transfer community college students made records approximately the same as those made by native students (1, p. 85). Joseph Fordyce also concluded that community college transfer students did as well in terms of academic averages in university upper division as did the native students. He further observed that the transfer students tended to do as well in their upper division work as they did in community college (18). The statements of D. Grant Morrison of the U. S. Office of Education were similar, but he modified them by indicating that transfer students did as well as the native students of similar ability (48).

John Hills' conclusions strongly contrasted with the above

authors. After considering the bulk of research up to 1963, he summarized that (1) transfer students experienced a drop in grades after transfer, (2) transfer students had a lower grade-point average after transfer than native students, (3) the grade-point drop experienced after transfer gradually rose but in varying amounts, (4) the transfer student suffered most if he transferred into a curriculum requiring math or into a major state university rather than a four-year college or private university, and (5) transfer students took a longer time to complete degree requirements than natives (26).

Achievement related to school, age, sex, marital status, and class standing. A few of the investigators made an attempt to explain their findings or identify specific variables by classifying their data by schools or major fields of study, age, sex, marital status, or class standing at the time of admission.

A few studies classified the students by major fields of study. Only transfer students were included when the Knoell report analyzed data on variance related to school. The fields included were liberal arts, science and mathematics, engineering, teacher education (except liberal arts and science teaching majors), business administration, and miscellaneous applied fields, e. g., agriculture and home economics. No differences were observed for private universities but some differences found in public four-year colleges were highly significant. Compared to students in science and mathematics, the

liberal arts students were more likely to achieve satisfactory grade-point averages (40, p. 113-115).

In the Martorana study, the transfer students were carefully matched with native students but not by ability. As a group, the transfer students had lower ACE test scores, but those who were enrolled in the subject areas of engineering and physics out-performed their native counterparts (46).

Considerable variation was noted by Nall among three schools at the University of Colorado. When transfer students in the College of Arts and Sciences were compared with matched native students, they were found to earn lower scholastic averages. The grade-point averages for transfer students were 2.03 for the first semester, 2.25 for the second, and 2.69 for those who graduated. The corresponding averages for natives were 2.52, 2.74, and 2.79. The recovery from transfer shock was observed to be slower in the School of Business. The averages for transfer students were 2.15 for the first semester, 2.07 for the second, and 2.34 for graduation. The averages for natives were 2.53, 2.72, and 2.48. In the College of Engineering the transfers were more successful than in the other two schools. For the first year, the average for transfer students dropped below the natives but the difference was not considered significant. Transfer averages were 2.17 and 2.35 for the first two semesters, and native averages were 2.44 and 2.66. At graduation,

the grade-point average of 2.94 for transfer students exceeded the 2.78 for natives (49, p. 141-179).

Hoyt found the opposite to be true in his collection of data. After studying transfer and native students at Kansas State University who were matched by sex, school, class, and year of first college enrollment, he found that the transfer students did as well as the native students except in the School of Engineering. The findings suggested that the students would be better prepared for their last two years of engineering if they took their first two years at the university rather than at a community college (30).

Two hundred thirty-one community college transfer students enrolled in a teacher training program at Colorado State College in Greeley were studied by Klitzke. Transfer students were matched with native students of the same sex who were enrolled in the same major during the same year. A general comparison was made of the groups for the number of hours completed, aptitude, and high school rank. These were not considered to differ significantly. The results showed that the community college transfer students who entered a teacher training program at Colorado State College were not as academically successful as the native students (37).

In the Lindsay report science students were identified as those enrolled in a curriculum in which mathematics through integral calculus was required. The native students in the science curriculums

achieved .28 grade-point higher than transfer students. When the earned grade-point average was adjusted to the ability of each group there was no difference between native and transfer groups. In the non-science curriculums, native students averaged .22 grade-point higher than transfer students. When the averages were adjusted for ability, the transfer group achieved a higher average than the native group at the end of the first semester of the freshman year and a lower one at the end of the seventh semester. Generally, the academic superiority observed for native students disappeared when adjustments were made for ability (43).

No studies were located which investigated differences in academic achievement due to age or marital status.

Differences between males and females in academic achievement were noted by several authors, but comparisons usually were within groups and not between transfers and natives. As early as 1934, Grossman reported that the grade-point average of women was consistently higher than that of men who transferred from public community colleges (21). In Hoyt's study at Kansas State University, women were less variable and achieved at a higher level than men (30). In a noted report on the community college, Leland Medsker maintained that men and women transfer students were of nearly equal ability, but women often used their aptitude to greater advantage (47, p. 40).

The findings of the Knoell study strongly supported the hypothesis that women earn higher grades than men. For transfer students, comparisons were made for community college and after transfer. Most differences were considered significant. When comparisons were made for native students, the women usually earned higher grades than the men (40, p. 96, 164).

The only comparison between transfers and natives for differences due to sex was made by Donald Irvine at a southeastern state university which included nearly 9, 000 students. Within groups, the women significantly exceeded men in quarterly and cumulative grade averages. Male natives did not differ significantly from male transfers, but native females with junior standing significantly exceeded transfer females with junior standing. The author concluded that achievement differences between native and transfer students were modest and significant only for some of the sex subgroups (32).

In a study of transfer students at Syracuse University, Ruth Maguire concluded that the student who transferred after two years in community college did better scholastically than the student who transferred after only one year. Class standing at the time of admission was considered to be an important influence on academic achievement (44).

Hoyt compared transfer students with native students in the School of Engineering at Kansas State University. Lower division

transfers performed as well as their native counterparts, but those who transferred to the School of Engineering after completing a full two years in community college attained lower grades than the natives (30).

Transfer Shock

One result noted in many studies was a significant drop in grades during the first term or year after transfer. This drop was observed by Knoell and Medsker (39, p. 108; 40, p. 79-83), Rainey (55), Clark (8, p. 67), Klitzke (37), Grover (22), Fichtenbaum (15), Gerberich (19), and Nall (49, p. 141-164).

The drop in grades after transfer was generally temporary, and a gradual increase was often observed during successive terms (8, p. 67; 15; 22; 49, p. 141-164). The degree of recovery was reported to vary with the institution attended (39, p. 108).

The earliest account of the transfer shock phenomenon was of 215 community college transfers entering the University of Arkansas from 1928 to 1932. Their grade-point average dropped 1.27 points. This significant drop was accounted for by the difference in training, ability, interests, and other factors rather than the adjustment period which the transfer students went through when they began at the university (19).

The reduced grade-point average after transfer was far less

severe in two recent studies. A report on 749 transfer students from San Jose Junior College showed a lower division grade average of 2.30. Their grades dropped to 1.80 after transfer and rose to 2.10 in the third semester (8, p. 67).

The extensive data collected by Knoell and Medsker indicated a similar loss and recovery. The cumulative community college average was 2.56. The transfer students experienced a drop of 0.29 for the first semester after transfer. The GPA was 2.27 for the first semester (or first quarter), 2.42 for the second semester (or third quarter), 2.54 for the third semester (or fourth quarter), and 2.68 for the fourth semester (or sixth quarter). The cumulative GPA for transfer students during the two years of observations after transfer was 0.22 grade-points lower than their community college GPA and reached a mean of 2.34 (40, p. 79-83).

To evaluate the transfer shock phenomenon, the comparative performance records of native students were studied by Knoell and Medsker (40, p. 180), Klitzke (37), and Grover (22). The pattern for native students was consistent. There was a steady improvement in grades from lower through upper division. Knoell and Medsker found the cumulative upper division averages for native students to be about 0.25 grade-point higher than lower division averages (40, p. 180).

In summarizing 46 sets of data relevant to the question of

transfer shock, John Hills concluded that it was a most common occurrence that the community college transfer students suffered a significant loss in their level of grades when they transferred to a senior institution (27). This drop was as great as one entire grade and the degree to which they recovered varied (26).

The transfer shock phenomenon may be attributed to (1) a change in grading practices at the new institution, (2) related to individual characteristics, e.g., anxiety, etc., or (3) a combination of institutional and student characteristics (43).

Persistence and Graduation

As with academic achievement, the results of studies reviewed on educational persistence were conflicting, but the majority indicated that community college transfer students had a higher attrition and lower graduation rate than native students. The failure to match groups in a uniform manner or control relevant variables and the lack of appropriate statistical analysis often clouded the issues and made comparisons difficult.

General observations of persistence and graduation. Some of the studies reviewed involved only transfer students and did not include native comparisons. In Walter Eells 1929 study of over 2,000 California community college transfer students, 61 percent were graduated from a four-year institution (12). Grossman reported an

investigation in 1934 of 241 community college transfers to the University of Illinois. They were admitted with junior standing and 83 percent were graduated by the end of four years of observations (21). In a 1943 study, Eells reported that 56 percent of the transfer students were graduated or were still enrolled when the report was made and only five percent had withdrawn with poor scholarship (14).

In a more recent study of 385 community college transfers at Syracuse University, Holmes found that almost one-fourth fell below a C average and were dropped or withdrew from the college (28). Although percentage data were not included, the transfer students from the Agriculture and Technical Institute at Farmingdale were reported to have been successful in earning another degree within two years of graduation from a two-year college (11).

By the end of the first semester, the attrition rate for the transfer students included in the Knoell study was 11 percent. Eighty-nine percent were still enrolled for the second semester. After two years, 28 percent were no longer enrolled. Eleven percent had been dismissed for poor grades and 17 percent had withdrawn. Graduation rates were calculated only for the students who transferred with junior status. Only 45 percent received their baccalaureate degrees within two years after transfer (40, p. 70-78). A follow-up study was conducted, and by the end of the third year after transfer, 62 percent of the group had achieved their baccalaureate degrees.

Considering the number of students that were still enrolled and the dropouts who might complete programs later, the ultimate percentage of graduates was estimated to reach 75 to 80 percent (39, p. 92-93).

Several studies were located which included comparisons of transfer students with native students. In the early study of California community college transfers to Stanford University, the survival record of the native group was only slightly better than that of the transfer group. Eells accounted for this by the fact that the native students had two previous years in the institution (13, p. 257-261).

The native students at the University of Texas showed a higher degree of persistence at all levels than did the community college transfers. Sixty-five percent of the natives continued until they received their baccalaureate degrees but only 56 percent of the transfers did so (15).

Even in the carefully matched Martorana and Williams investigation, transfer students had a higher dropout rate than native students. About 35 percent was recorded for transfer students compared to 24 percent for native students (46).

When Nall compared transfer students at the University of Colorado with native students matched by school, sex, and high school rank, he found that the native students had a higher graduation rate. The rate of graduation varied among the schools. From 52 to 71 percent of the transfer students received their baccalaureate

degrees compared to 69 to 89 percent of the native students (49, p. 146-179).

When Wyoming community college transfer students were matched by ability with native students at the University of Wyoming, Grover found that fewer transfer students were academically dismissed than native students. Seventy percent of the transfers completed graduation requirements within two years while only 54 percent of the natives graduated. Based on the findings of this study, the author concluded that two-year transfers from Wyoming community colleges were more likely to achieve their degree goals than natives of equal ability (22).

The results of the Lindsay study showed a significantly higher attrition rate and a lower graduation rate for transfer students than for native students (43).

In the extensive Knoell study, attrition during upper division was eight percent for transfer students and five percent for natives. This included academic suspension or dismissal of less than two percent for each group after attaining upper division standing (40, p. 180). Transfer students were more apt to delay their entry into college or to drop out one or more times, but when comparing the actual amount of time spent by transfer and native graduates in upper division work, transfer students took no longer to achieve their degree objectives than native students (40, p. 128-166).

Trent and Ruyle conducted a recent investigation in California of nearly 4, 000 high school graduates who went on to college. Nearly 40 percent of the community college students eventually transferred to other institutions. During the four year study there was a wide variation in student success among the different types of public and private senior institutions. For native students, a range from 27 to 58 percent received a baccalaureate degree, 20 to 30 percent were still enrolled, and 18 to 50 percent were no longer in college. More specifically, of the students originally enrolled at a public university 36 percent received a baccalaureate degree, 30 percent were still enrolled, and 34 percent were no longer in college. By comparison, 27 percent of the community college transfer students received baccalaureate degrees, 45 percent were still enrolled, and 28 percent were no longer in college. In summary, at public universities there was a higher percentage of natives receiving baccalaureate degrees during the period of observations, but transfer students had a lower dropout rate and showed greater persistence (63).

Low scholastic ability was frequently identified as one reason for college dropout. Two-thirds of the attrition group studied by Knoell had a GPA below C, and approximately 50 percent of the transfer and native dropouts from the State College of Washington left school with less than a C average (40, p. 125; 46).

Carl Lindsay proposed and supported an interesting theory on

dropouts. During a study of transfer students, some attrition will be observed each term. If students of low ability were dropping out, the average ability level of the remaining students would rise each term. With this in mind, Lindsay measured the scholastic ability of remaining students at several intervals and found that the average ability did not increase but the earned GPA did. He concluded that the dropouts represented all levels of ability. It was the poor achievers, regardless of ability, that comprised the major portion of dropouts (43).

Only a small percentage of the transfer students who withdrew voluntarily indicated that they considered grades to be a major factor. They claimed they left for personal reasons and not as a result of deficiencies in university practice. Financial problems, inadequate motivation, military service, transfer to other institutions, marriage, and employment were common reasons (34; 40, p. 125).

A 14 year follow-up of freshmen entering the university of Utah in the fall of 1948 showed that 20 percent graduated on schedule (by 1952) and an additional 25 percent graduated during the next ten years. Based on the data, the author concluded that eventually 60 percent of the 1948 class will be graduated from college. This long range data indicated that many students are not failing to complete degree requirements or dropping out permanently. The experts have underestimated what the public is actually doing. They are

persisting; they are overcoming interruptions due to military service, marriage, and shifts in interests and are completing their education over a long period of time (34).

Dalrymple was even more optimistic. He reported that 70 percent of the dropouts from the University of Illinois and 85 percent from Princeton University eventually returned to college to earn the baccalaureate degree (10).

John Hills summarized that the transfer student was less likely to survive in a four-year college than the native, and those who did took longer to graduate. Native students who survive graduate at the rate of 80 to 85 percent with a comparable graduation rate of 50 to 60 percent for transfer students (26).

Persistence and graduation related to school, age, sex, marital status, and class standing. Classification by school, age, sex, marital status, or class standing was made by some investigators to determine possible influences on attrition, persistence, and graduation.

The Knoell and Medsker report analyzed the performance of transfer students in major fields of study and found highly significant differences in public four-year colleges. Teacher education students had high rates of on-time graduation and low attrition, while engineering majors experienced high attrition and low rates of graduation. In business administration the students had high rates of graduation

but also high rates of attrition with poor grades. The authors summarized that there was little doubt that on-time graduation, persistence, and attrition were highly dependent on the transfer student's choice of major at the four-year college (40, p. 113-115).

A follow-up study was conducted by Knoell and Medsker which revealed encouraging information. Three years after transfer with junior standing, the data indicated that the students had about the same probability of eventual success in the various majors, and attrition was about the same in each field. Students enrolled in different major fields apparently required different lengths of time to complete their degree requirements (39, p. 95). Engineering students tended to take an extra year to complete their degree programs, but students enrolled in liberal arts, teacher education, and business administration generally completed the requirements in the regular length of time. When compared to native students, transfer students majoring in the applied fields were more likely to graduate than native students (39, p. 22).

Transfer students were compared with natives by Nall at the University of Colorado. The rate of graduation varied among schools, but in all schools the native students exceeded the transfers. The lowest rate was observed in the College of Arts and Sciences where only 52 percent of the transfers graduated compared to 69 percent of the natives. In the School of Business, 71 percent of the transfers

graduated and 89 percent of the natives. The greatest variation was found in the College of Engineering. Only 57 percent of the transfer students persisted to graduation while 80 percent of the natives were successful (49, p. 146-179).

Louis Klitzke found that 78 percent of the community college transfers to teacher training programs were ultimately successful. The graduation rate for the matched group of native students was 90 percent (37).

In the Lindsay study, the science students were identified as those enrolled in a curriculum in which mathematics through integral calculus was required. The native science students had a 17 percent higher graduation rate than transfer science students. In non-science fields, the natives were found to have a six percent higher graduation rate than the transfers (43).

For native students, no significant relationship was found between age at college entrance and persistence towards graduation (34). The findings of Knoell's study of transfer students did not clarify the relationship of age to graduation. Data indicated that at a public university male students who were 21 years or older at the time of transfer had a higher graduation rate and a higher attrition rate. They generally completed their baccalaureate programs quickly or dropped out. However, at teacher colleges, they tended to complete their degree on time or to persist with few drop outs. Little

difference in attrition was observed for the female groups, but the women who were 21 or older were less likely to graduate within two years after transfer but more likely to persist than younger women (40, p. 110).

Several investigators noted sex differences in persistence and rate of graduation, but no studies were located regarding differences between native and transfer students related to sex. Data limited to transfer students indicated that attrition was about the same for men and women; however, more men were dismissed or withdrew with poor grades. Women were more likely to complete their degree programs on time. After two years 55 percent of the women earned baccalaureate degrees compared to 42 percent of the men (40, p. 78).

Very different results were found in the 14 year follow-up study of native students at the University of Utah. Fifty-two percent of the males and 34 percent of the females eventually graduated (34).

In Trent and Ruyle's study combining nearly 4, 000 native and transfer students, there was considerable difference in the percentage of males and females still enrolled after four years of observations. Thirty-one percent of the men were still enrolled but only 16 percent of the women. The attrition rate was 45 percent for men and 51 percent for women; the graduation rate was 24 percent for men and 33 percent for women. The data indicated that more women dropped out than men, but those women who remained completed their degree

requirements more rapidly (63).

Edmond Marks recently studied nearly 2, 000 students for persistence in college. A significant difference in academic persistence between males and females was found. Males tended to remain in college longer than females; females had a higher grade average than males at the time of withdrawal. Only a small number of female withdrawals was due to academic probation or dismissal. The data suggested that the antecedents of college dropout differ for males and females (45).

For transfer students, differences in attrition were associated with marital status. Marriage was considered a primary factor in the attrition of women and a contributing factor in the attrition of men. A large number of women were married at the time of transfer and many of them withdrew later as a result of pregnancy or problems associated with care for young children while attending college. Many women reported that they planned to continue their education at a later date. Financial difficulties were the major reason cited for attrition by married men 21 years and over (40, p. 124).

Differences in rates of graduation for transfer students were related to class standing at the time of admission to the four-year institution. The prognosis of eventual graduation for students who completed only one year in community college was not as good as for those who completed two-year programs prior to transfer (39, p. 94).

When comparing transfer students with native students, Martorana noted that both the one-year transfers and the one-year natives had a higher dropout rate than their two-year counterparts (46).

Summary

The community college has evolved from an institution whose purpose was preparation for advanced placement in a four-year college or university into a community institution which serves vocational education and adult education in addition to its preparatory function. The two-year college provides higher education to a large segment of the population at a reduced cost to the student and his parents. As a result of more rigid admission standards at many four-year colleges, many students are completing their first two years of collegiate work at a community college.

Approximately two-thirds of the community college students intend to transfer to a senior institution; however, only about one-third actually do transfer. The rapid expansion of the community college has, in some cases, not allowed sufficient time to work out problems of articulation between the two- and four-year colleges.

The guidance program in the community college should provide adequate information to the student and his counselor so that the student may select a school and a field of study which is suitable to his talents and interests. Additional knowledge is needed on grading

differentials between the community college and the senior institution, competitive characteristics of senior institutions, and academic success of transfer students in different courses of study in the four-year college.

Increased emphasis is being placed on inter-college relations dealing with student transfer from community college to four-year college. An increasing number of colleges recognize that colleges must work together on problems of articulation. In an attempt to insure the orderly development of opportunity to higher education, several states have adopted master plans for the coordination of higher education.

Admission policies should be guided by continuous and current information obtained on situations existing in each institution. Admission standards for transfer students should be high enough to eliminate those students who would have little possibility of success. Several investigators found that the transfer student's grade-point average in community college was the best single predictor of success in his upper division work. Chanskey concluded that predictors of success in current use are relevant but too confining for admission purposes. More investigation is needed to determine the relationship between variables and student grades. Higher admission standards for transfer students were recommended to reduce the poor academic adjustment and high attrition rate observed for transfer students.

Student services provided by senior institutions can be improved. Articulation difficulties for transfer students can be minimized by the early assignment of advisers, inviting participation in social and extra-curricular activities, and by providing orientation induction programs reflecting the interests and problems of transfer students.

The range of ability was reported to be greater and the average ability less for transfer students than for students at four-year institutions. Differences were also found in the educational level of the parents and social class of the families. Community college students came largely from middle class families and had fewer parents in the professional occupations.

Early studies indicated that the transfer student did well after transfer. Several authors reported that transfer students did not reach the same level of scholastic performance after transfer that they had prior to transfer. Knoell and Medsker concluded that the transfer student was more likely to succeed if he chose an appropriate major and four-year college for his particular background. Recent studies indicated that the grade-point average of the transfer student dropped sharply immediately following transfer but gradually improved. Hoyt reported that transfer students earned about the same grades as matched native students in most schools. When students were matched by ability, findings showed that the scholastic aptitude

of transfer students was less than that of native students. Knoell and Medsker found that transfer students earned significantly higher grades in community college than native students during their first two years at college but they earned significantly lower grade-point averages during the upper division years. There were differences in the academic performance of transfer and native students which could not be attributed to sex or major.

Some investigations classified students by major fields of study, but their conclusions were not in agreement. Nall's comparisons by schools within the transfer group showed the highest grade-point average at graduation to be in the College of Engineering and the lowest in the School of Business. The Knoell study included transfer students only and indicated that liberal arts students in public four-year institutions were more likely to achieve higher grade-point averages than students in science and mathematics. The remaining studies compared transfer students with native students. Martorana found that transfer students enrolled in engineering and physics outperformed their native counterparts. Nall found that transfer students in the College of Engineering were more successful than native students, but in the College of Arts and Sciences and the School of Business, the native students were more successful. The opposite was observed by Hoyt. He reported that transfer students did as well as native students except in the School of Engineering. Transfer

students in teacher training were observed by Klitzke to be less successful than native students. According to the Lindsay report, the academic superiority observed for native students disappeared when adjustments were made for ability.

Investigations of differences in academic achievement influenced by age or marital status were not located.

When comparisons were made for sex differences within groups, several authors noted a significant difference in achievement between males and females. Women consistently earned higher grades than men. Medsker observed that men and women were of nearly equal ability but women used their aptitude to greater advantage. The only comparison between transfer and native groups for differences due to sex was made by Irvine. Little difference was observed between transfer and native males, but native females with junior standing significantly exceeded transfer females with junior standing. The author concluded that differences were significant only for some subgroups.

After making comparisons within a group of transfer students, Maguire considered class standing at the time of transfer to be an important influence on academic achievement. When Hoyt compared transfer and native students, he found that students who transferred with sophomore standing performed as well as their native counterparts, but those who transferred with junior standing attained lower

grades than native juniors.

A significant drop in grades immediately following transfer was noted by many authors. The grade-point average gradually increased during successive quarters, and the degree of recovery varied with the institution. Two years after transfer, their grade-point average was still below that which they earned at community college. The pattern for native students was a consistent and gradual improvement in grades from lower division through upper division.

Early studies indicated that transfer students persisted nearly as well as native students. More recent studies showed that the survival record of native students was significantly better than that of transfer students. Nall found that native students had a higher graduation rate than transfer students and that the rate of graduation varied among schools. Knoell reported that transfer students were more apt to delay their entry into college or drop out one or more times but, when comparing actual time spent in upper division work, transfer students took no longer to achieve their degree doals than did native students. Low scholastic ability was identified as one reason for college dropout. Lindsay concluded that dropouts represented all levels of ability, and it was the poor achievers regardless of ability that dropped out. Hills concluded that the transfer student was less likely to persist to graduation and those who do will take longer.

Knoell and Medsker summarized that persistence, on time

graduation, and attrition were significantly dependent on the student's choice of major at the senior institution. However, after observing the same students for one additional year, they concluded that there was little difference among schools in attrition or graduation. Students enrolled in different fields apparently required different lengths of time to complete degree requirements. When comparisons were made between groups, natives enrolled in all schools had a higher graduation rate than transfers enrolled in the same school. The rates of graduation observed by Nall, Klitzke, and Lindsay were found to vary among schools. The lowest graduation rates for transfer students were observed in the Colleges of Arts and Sciences and Engineering; the highest graduation rate was recorded in Education.

The relationship of age to persistence was not clarified. Wide variations were observed.

In the Knoell report, women had a higher graduation rate and were more apt to finish their degrees on time; more men withdrew or were dismissed with poor grades than women. Trent found that more women dropped out than men, but women who remained completed their degree requirements more rapidly. Marks indicated that women had a higher dropout rate, but only a small number of female withdrawals were due to dismissal. The reasons for dropout apparently differ for men and women.

Knoell and Medsker associated attrition with marital status.

Marriage was considered a primary factor in attrition of women and a contributing factor in attrition of men. The probability of eventual graduation was higher for those students who completed two years of community college prior to transfer than for those who spent only one year at community college. When comparing transfers with natives, both transfer sophomores and native sophomores had a higher drop-out rate than their junior counterparts.

CHAPTER III

METHOD AND PROCEDURE

This investigation was designed to compare the academic achievement of transfer students with that of native students at Oregon State University. Literature related to this study did not include academic achievement data for Oregon community college transfer students. Therefore, a descriptive research study involving the collection of original data was undertaken to investigate the problem.

Two groups were selected for observation. One consisted of transfer students and the other of matching native students. The first group included all of the 116 full-time transfer students who (1) transferred from Oregon community colleges, (2) had completed 39 or more units of collegiate work prior to transfer, and (3) were admitted to Oregon State University from the fall quarter 1963 through the fall quarter 1964. In order to isolate variables which might influence performance, the students were identified and tabulated by school, age, sex, marital status, and class standing. Since so few transfer students were admitted to the Schools of Forestry, Home Economics, and Pharmacy, the students in these schools were grouped together. Class standing was identified as sophomore or junior. Students who had completed 39 to 83 quarter units were classified as sophomores;

students who had completed 84 or more quarter units were classified as juniors.

The second group included 116 full-time native students who were currently enrolled at Oregon State University. To increase the validity of the comparisons to be made when the data were analyzed, the native group was selected to match the previously established transfer group in several ways. The selection was at random within the limitations established by matching. Each native student selected matched one of the transfer students as follows:

1. School. The school in which the student was enrolled at the time of graduation or dropping out was used for matching.
2. Age. Matching was done by age groups. The first group included students from 19 to 21 years, the second group included students from 22 to 26 years, and the third group included students from 27 to 34 years.
3. Sex.
4. Marital status.
5. Number of units completed. A number within ± 12 was used for matching.

The following data were collected for the transfer and native students who had been selected for observation.

1. Grade-point averages. These averages were collected at the following time intervals in order to study variations as time

progressed:

a. At the time observations began. For transfer students, observations began at the time of admission to Oregon State University; for native students, observations began at the time they were matched and selected.

b. At the end of the first, second and third quarters of observations.

c. After two years of observations.

d. Upon receipt of the baccalaureate degree.

e. After all collegiate work. For students who were graduated, this included work culminating in a degree; for students who dropped out, this included work up to the time of withdrawal or dismissal.

2. Persistence and graduation rates. Students were academically classified as (1) enrolled, (2) withdrawn, (3) dismissed, and (4) graduated. The percentage of students in each classification was tabulated at the following time intervals:

a. At the end of the first, second, and third quarters of observations.

b. After two years of observations.

c. After four years of collegiate work.

d. After five years of collegiate work. Six transfer and five native students remained unclassified for the fifth year of

observations. At the time data were collected, these students had not been graduated, had not dropped out, and had not had time to complete five years of collegiate work.

Data on grade-point average and student persistence and graduation at various time intervals were obtained by surveying student records. Comparisons of grade-point average were made by t tests. Within the transfer group, the grade-point average of students enrolled in each school was compared with that of students enrolled in the other schools, the students in each age group were compared with students in the other age groups, males were compared with females, single students were compared with married, and sophomores were compared with juniors. The same comparisons were made within the native group.

Comparisons of grade-point average also were made between the transfer and native groups as a whole and as subgroups. Transfer students in each school were compared with native students in each school, and transfer students in each age group were compared with native students in each age group. Transfer students also were compared with native students by sex, marital status, and class standing.

The academic status of transfer students classified as enrolled, dropped, and graduated was compared with that of native students by chi-square tests. Due to small theoretical cell frequencies,

chi-square could not be computed for subgroups. Therefore, comparisons for subgroups were made by percentages. A breakdown was made of the group classified as dropped to show the percentage of students classified as withdrawn and dismissed. Transfer student subgroups, classified as enrolled, withdrawn, dismissed, and graduated, were compared with native student subgroups. The subgroups were formed by school, age, sex, marital status, and class standing.

CHAPTER IV

ANALYSIS OF DATA

Original data were collected to determine whether a significant difference exists between Oregon community college transfer students and native students at Oregon State University with respect to academic achievement and attainment of degree goals.

The Oregon community colleges from which the students transferred are shown in Table 1. Nearly half of the transfer students attended Multnomah College. Most of the remaining students transferred from Clatsop, Central Oregon, and Southwestern Oregon Community Colleges.

Table 1. Oregon community colleges attended by transfer students.

Community College	Number of Students	Percent of Total[1]
Blue Mountain Community College	1	1
Clatsop Community College	14	12
Central Oregon Community College	28	24
Multnomah College	51	44
Southwestern Oregon Community College	19	16
Treasure Valley Community College	3	3
Total	116	

[1]In this and subsequent tables all percentages have been rounded to two places. Therefore, the sums may not be exactly 100 percent.

Table 2 shows the distribution of transfer students by school, age group, sex, marital status, and class standing. The greatest percentage of students enrolled in the Schools of Engineering, Science, Business and Technology, and Education. The transfer students were predominantly single males between the ages of 19 and 21. Most of them completed more than 84 quarter hours prior to transfer.

The distribution of transfer students by schools is shown in Table 3. Comparisons can be made among the Schools. Students in the School of Agriculture were exclusively male and the enrollment included a higher percentage of students who were over 21, married, and entered with sophomore standing than most schools. Enrollment in the School of Education was higher in the 19 to 21 age group and included more females, single students, and juniors. The School of Engineering included many of the 22 to 26 year old group and all students were males. All of the students in the combined Schools of Forestry, Home Economics, and Pharmacy were in the 19 to 21 age group and single; enrollment in Home Economics was exclusively female and in Forestry and Pharmacy was exclusively male. In the School of Science there was a high percentage of males and students who entered with junior standing. Enrollment in the Humanities and Social Sciences was high for females, married students, and students who entered with junior standing.

Table 2. Distribution of transfer students.

Classification	Number of Students	Percent of Total
School		
Agriculture	13	11
Business and Technology	19	16
Education	19	16
Engineering	24	21
Forestry, Home Economics, Pharmacy	9	8
Science	20	17
Humanities and Social Sciences	12	10
Total	116	
Age group		
19-21 years	88	76
22-26 years	23	20
27-34 years	5	4
Total	116	
Sex		
Male	90	78
Female	26	22
Total	116	
Marital status		
Single	105	91
Married	11	9
Total	116	
Class standing		
Sophomore	48	41
Junior	68	59
Total	116	

Table 3. Distribution of transfer students by schools.

Classification	Agriculture		Business and Technology		Education		Engineering		Forestry Home Ec. Pharmacy		Science		Humanities and Social Science	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Age group														
19-21 years	8	62	15	79	17	89	15	62	9	100	14	70	10	83
22-26 years	4	31	4	21	1	5	8	33	0	0	4	20	2	17
27-34 years	1	8	0	0	1	5	1	4	0	0	2	10	0	0
Sex														
Male	13	100	15	79	10	53	24	100	4	44	18	90	6	50
Female	0	0	4	21	9	47	0	0	5	56	2	10	6	50
Marital status														
Single	11	85	18	95	18	95	21	87	9	100	18	90	10	83
Married	2	15	1	5	1	5	3	12	0	0	2	10	2	17
Class standing														
Sophomore	7	54	10	53	6	32	9	37	4	44	5	25	7	58
Junior	6	46	9	47	13	68	15	62	5	56	15	75	5	42

Table 4 indicates the distribution of transfer students by sex. The male students were older and included all but one of the married students. Females, with only one exception, were single and under 21 years of age.

Table 4. Distribution of transfer students by sex.

Classification	Male		Female	
	N	%	N	%
Age group				
19-21 years	63	70	25	96
22-26 years	22	24	1	4
27-34 years	5	6	0	0
Total	90		26	
Marital status				
Single	80	89	25	96
Married	10	11	1	4
Total	90		26	
Class standing				
Sophomore	38	42	10	38
Junior	52	58	16	62
Total	90		26	

Academic Achievement

Comparisons of grade-point average were made by t tests within the transfer group, within the native group, and between the transfer and native groups.

Comparisons within the Transfer and Native Groups

Within the transfer group, comparisons of grade-point average

were made at various time intervals. In Table 5 the grade-point average of transfer students enrolled in each school was compared with that of transfer students enrolled in the other schools. Observations began at the time of transfer, and the range in grade-point average for the schools was from 2.36 for Agriculture students to 2.97 for Science students. Only the students in the School of Science had a grade-point average which was significantly higher than that of other transfer students. At the end of the first quarter the grade-point averages dropped severely and ranged from 1.59 for Engineering students to 2.23 for Science students. The greatest drop was .90 grade-point for students in the School of Engineering. Students in the School of Agriculture suffered the least from transfer shock as represented by a drop of only .33 grade-point. Averages dropped below C in the Schools of Business, Engineering, Forestry, Home Economics, Pharmacy, and Humanities. Comparisons among schools at the end of the first quarter indicated that the grade-point average of Engineering students was significantly lower than that of Agriculture, Education, and Science students. The grade-point average of students in the School of Science was significantly higher than that of students in Business and Technology and Engineering.

By the end of the second quarter all transfer students except those enrolled in the School of Engineering had brought their grade-point averages up to 2.00 (C) or better. A significant difference

Table 5. Comparison of the grade-point average of transfer students enrolled in various schools.

Time intervals	$\overline{X}$	t ratio					
		Agri.	Bus.	Educ.	Eng.	F. H. P.	Sci.
Observations began							
Agriculture	2.36						
Business and Technology	2.42	.49					
Education	2.52	1.22	.80				
Engineering	2.49	.87	.50	.23			
Forestry, Home Ec., Pharmacy	2.69	1.83	1.59	.99	1.05		
Science	2.97	3.93**	3.96**	3.24**	3.33**	1.47	
Humanities and Social Sciences	2.52	1.10	.69	.02	.17	.91	2.81**
End of first quarter							
Agriculture	2.03						
Business and Technology	1.75	1.19					
Education	2.07	.19	1.71				
Engineering	1.59	2.06*	.89	2.82**			
Forestry, Home Ec., Pharmacy	1.82	.65	.24	.99	.91		
Science	2.23	.94	2.58*	.93	3.77**	1.61	
Humanities and Social Sciences	1.87	.56	.45	.88	1.20	.13	1.56
End of second quarter							
Agriculture	2.18						
Business and Technology	2.20	.07					
Education	2.20	.09	.00				
Engineering	1.91	1.27	1.21	1.54			
Forestry, Home Ec., Pharmacy	2.52	1.44	1.04	1.36	2.56*		
Science	2.31	.63	.48	.61	2.17*	.88	
Humanities and Social Sciences	2.00	.70	.66	.85	.35	1.81	1.33
End of third quarter							
Agriculture	2.30						
Business and Technology	1.91	2.89**					
Education	2.41	.67	2.76*				
Engineering	2.10	1.02	.94	1.58			
Forestry, Home Ec., Pharmacy	2.40	.49	2.06	.02	1.03		
Science	2.19	.64	1.56	1.29	.45	.84	
Humanities and Social Sciences	2.35	.25	1.78	.24	.95	.14	.71

(continued)

Table 5. Continued.

Time intervals	$\bar{X}$	t ratio					
		Agri.	Bus.	Educ.	Eng.	F.H.P.	Sci.
After two years							
Agriculture	2.35						
Business and Technology	2.27	.49					
Education	2.45	.60	1.32				
Engineering	2.28	.49	.06	1.39			
Forestry, Home, Ec., Pharmacy	2.47	.46	.92	.12	.98		
Science	2.33	.15	.43	.97	.43	.74	
Humanities and Social Sciences	2.56	.76	1.25	.54	1.34	.27	1.12
Baccalaureate degree							
Agriculture	2.54						
Business and Technology	2.51	.16					
Education	2.52	.14	.01				
Engineering	2.61	.37	.72	.65			
Forestry, Home Ec., Pharmacy	2.70	.54	.81	.83	.42		
Science	2.75	1.37	2.00	1.98	1.21	.26	
Humanities and Social Sciences	2.67	.36	.61	.57	.24	.06	.32
Total collegiate work							
Agriculture	2.35						
Business and Technology	2.22	1.16					
Education	2.43	.72	2.14*				
Engineering	2.28	.64	.64	1.58			
Forestry, Home Ec., Pharmacy	2.57	1.21	2.22*	.88	1.92		
Science	2.66	2.65*	4.26**	2.29*	3.86**	.61	
Humanities and Social Sciences	2.42	.41	1.37	.07	1.01	.64	1.62

*Significant at the .05 level.

**Significant at the .01 level.

remained between the grade-point averages of students enrolled in the Schools of Science and Engineering. At the end of the third quarter the range in grade-point average was from 1.91 for Business and Technology students to 2.41 for Education students. The grades in the School of Business and Technology were significantly lower than in Agriculture and Education.

Two years following admittance to Oregon State University, the grade-point average for transfer students exceeded 2.00 in all schools and was approaching the level that had been observed at the time they transferred. A comparison among schools indicated that there were no significant differences in grade-point average for students who persisted for two years after transfer. Upon receipt of the baccalaureate degree, the grade-point average in all schools except Science exceeded the level noted at the time observations began. For the transfer students who persisted until graduation, no significant difference in grade-point average were found among schools.

For some students the grade-point average for their total collegiate work was based on work up to the time of withdrawal or dismissal and for others it included work culminating in a degree. Comparisons among schools indicated that the grade-point average for total collegiate work in the School of Science was significantly higher than that of most other schools. The grade-point average for Business and Technology students was significantly lower than that

for students in the Schools of Science, Forestry, Home Economics, Pharmacy, and Education.

Comparisons of grade-point average were made at various time intervals for native students. In Table 6 the grade-point average of native students enrolled in each school was compared with that of students enrolled in the other schools. At the time observations began, the range in grade-point average for the schools was from 2.28 for Business and Humanities students to 2.72 for Forestry, Home Economics, and Pharmacy students. Comparisons among schools indicated that the grade-point average for the School of Business and Technology was significantly lower than that of all other schools except Education and Humanities. The average for students in the Schools of Science, Forestry, Home Economics, and Pharmacy was significantly higher than that for Business and Humanities students. At the end of the first quarter a drop of .34 grade-point was observed for Agriculture students, but the average for all other schools increased slightly. A comparison among schools shows the grade-point average for Science students to be significantly higher than that for Agriculture students, and the average for students in the Schools of Forestry, Home Economics, and Pharmacy to be significantly higher than that for Agriculture, Business, and Humanities students.

At the end of the second quarter the difference between the

Table 6. Comparison of the grade-point average of native students enrolled in various schools.

Time intervals	$\bar{X}$	t ratio					
		Agri.	Bus.	Educ.	Eng.	F. H. P.	Sci.
Observations began							
Agriculture	2.53						
Business and Technology	2.28	2.05*					
Education	2.51	.17	1.83				
Engineering	2.51	.16	2.29*	.04			
Forestry, Home Ec., Pharmacy	2.72	1.27	3.33**	1.33	1.62		
Science	2.58	.41	2.72**	.61	.69	.95	
Humanities and Social Sciences	2.28	1.71	.04	1.50	1.89	2.87**	2.25*
End of first quarter							
Agriculture	2.19						
Business and Technology	2.39	1.04					
Education	2.65	1.87	1.56				
Engineering	2.54	1.56	.99	.54			
Forestry, Home Ec., Pharmacy	2.75	2.10*	2.55*	.45	.94		
Science	2.66	2.09*	1.84	.08	.66	.43	
Humanities and Social Sciences	2.37	.76	.14	1.34	.89	2.22*	1.58
End of second quarter							
Agriculture	2.58						
Business and Technology	2.30	1.34					
Education	2.54	.17	1.51				
Engineering	2.48	.53	1.41	.42			
Forestry, Home Ec., Pharmacy	2.67	.30	2.10*	.58	1.10		
Science	2.52	.24	1.36	.09	.31	.63	
Humanities and Social Sciences	2.18	1.44	.73	1.72	1.81	2.10	1.58
End of third quarter							
Agriculture	2.81						
Business and Technology	2.38	2.01					
Education	2.70	.50	1.98				
Engineering	2.47	1.72	.65	1.51			
Forestry, Home Ec., Pharmacy	2.69	.46	1.66	.07	1.19		
Science	2.56	1.21	1.15	.91	.57	.71	
Humanities and Social Sciences	2.73	.29	2.07*	.20	1.57	.26	1.04

(continued)

Table 6. Continued.

Time intervals	$\bar{X}$	t ratio					
		Agri.	Bus.	Educ.	Eng.	F.H.P.	Sci.
After two years							
Agriculture	2.69						
Business and Technology	2.48	1.65					
Education	2.57	.70	.62				
Engineering	2.53	1.23	.48	.27			
Forestry, Home Ec., Pharmacy	2.70	.01	1.61	.65	1.15		
Science	2.60	.62	1.07	.23	.64	.60	
Humanities and Social Sciences	2.25	2.73*	1.58	1.48	1.76	3.15**	2.20*
Baccalaureate degree							
Agriculture	2.78						
Business and Technology	2.48	2.46*					
Education	2.62	1.23	1.12				
Engineering	2.54	2.32*	.64	.74			
Forestry, Home Ec., Pharmacy	2.77	.06	2.31*	1.12	2.17*		
Science	2.68	.79	1.77	.54	1.47	.70	
Humanities and Social Sciences	2.34	2.92*	.84	1.49	1.43	2.88*	2.04
Total collegiate work							
Agriculture	2.61						
Business and Technology	2.42	1.55					
Education	2.60	.10	1.52				
Engineering	2.55	.61	1.51	.50			
Forestry, Home Ec., Pharmacy	2.78	1.08	3.02**	1.19	2.34*		
Science	2.59	.22	1.66	.11	.45	1.58	
Humanities and Social Sciences	2.30	2.12*	1.02	2.12*	2.52*	3.60**	2.43*

*Significant at the .05 level.

**Significant at the .01 level.

Business and Technology grade-point average and that of Forestry, Home Economics, and Pharmacy remained significant. The range for schools at the end of the third quarter was from 2.38 for Business and Technology students to 2.81 for Agriculture students. The grade-point average increased in some schools but dropped in the Schools of Engineering, Science, Forestry, Home Economics, and Pharmacy. The grade-point average for students in the School of Humanities and Social Sciences had increased greatly and was significantly different from that for students in the School of Business and Technology.

After two years of observations the grade-point average for native students in most schools was higher, but was down slightly in Humanities, Forestry, Home Economics, and Pharmacy. A comparison among schools indicates that the grade-point average for students in the School of Humanities and Social Sciences dropped to a level significantly lower than that for Agriculture, Science, Forestry, Home Economics, and Pharmacy students. For those students who persisted until graduation, the grade-point average in all schools exceeded that noted at the time observations began. Significant differences were found when the high grade-point averages of students enrolled in the Schools of Agriculture, Forestry, Home Economics, and Pharmacy were compared with those of Business, Engineering, and Humanities students.

When comparisons among schools were made for the total

collegiate work of native students, the grade-point average of Forestry, Home Economics, and Pharmacy students was significantly higher than that of students in Business, Engineering, and Humanities. The average for the School of Humanities and Social Sciences was significantly lower than all other schools except Business and Technology.

Table 7 shows a comparison of the grade-point average of students in various age groups. The transfer students in each age group were compared with transfer students in each of the other age groups. The youngest group of students were from 19 to 21 years of age, and at the time observations began, had a grade-point average of 2.62. A large drop of .72 grade-point was recorded at the end of the first quarter. Recovery was slow and at the end of the second and third quarter and after two years the youngest group was significantly lower than the oldest group. For those students between 19 and 21 years who persisted to graduation, the grade-point average at the baccalaureate degree equaled that at the time of transfer. The transfer students between 22 and 26 years of age formed another group. Their 2.33 grade-point average was significantly lower than any other group at the time of transfer, dropped .52 grade-point after one quarter, but exceeded the original level after two years. The students in the 22 to 26 age group who persisted ranked lowest at the time of graduation; however, there was no significant difference from

Table 7. Comparison of the grade-point average of students in various age groups.

Time intervals	Transfer students $\bar{X}$	t ratio 19-21	t ratio 22-26	Transfer students $\bar{X}$	t ratio 19-21	t ratio 22-26
Observations began						
Age group 19-21 yrs.	2.62			2.49		
Age group 22-26 yrs.	2.33	2.88**		2.43	.66	
Age group 27-34 yrs.	2.88	1.24	2.76*	2.44	.35	.01
End of first quarter						
Age group 19-21 yrs.	1.90			2.57		
Age group 22-26 yrs.	1.81	.63		2.34	1.80	
Age group 27-34 yrs.	2.32	1.46	1.28	2.15	1.64	.64
End of second quarter						
Age group 19-21 yrs.	2.09			2.49		
Age group 22-26 yrs.	2.32	1.61		2.33	1.20	
Age group 27-34 yrs.	2.70	2.25*	.96	2.69	.88	1.19
End of third quarter						
Age group 19-21 yrs.	2.17			2.59		
Age group 22-26 yrs.	2.32	1.09		2.55	.34	
Age group 27-34 yrs.	2.90	3.06**	1.67	2.73	.68	.58
After two years						
Age group 19-21 yrs.	2.34			2.58		
Age group 22-26 yrs.	2.38	.41		2.43	1.55	
Age group 27-34 yrs.	2.78	2.69**	1.70	2.59	.04	.76
Baccalaureate degree						
Age group 19-21 yrs.	2.62			2.64		
Age group 22-26 yrs.	2.49	1.07		2.50	1.81	
Age group 27-34 yrs.	2.86	1.46	2.20	2.55	.60	.28
Total collegiate work						
Age group 19-21 yrs.	2.40			2.56		
Age group 22-26 yrs.	2.35	.64		2.47	1.09	
Age group 27-34 yrs.	2.68	1.63	1.57	2.56	.01	.53

*Significant at the .05 level.

**Significant at the .01 level.

the other groups for the total collegiate work. The eldest age group included students from 27 to 34 years. Their 2.88 grade-point average at the time of transfer was higher than the other groups and remained higher throughout the observations. The eldest group was significantly higher than the youngest at the end of the second and third quarters and after two years but not at the time of graduation nor for their total collegiate work.

In Table 7 the native students in each age group were compared with native students in each of the other age groups. At no time were differences between age groups considered significant. The youngest students in the 19 to 21 group began observations with a 2.49 grade-point average which was slightly higher than students in the other groups. Their grades showed small fluctuations but at the time of graduation were still a little higher than the other groups. The 22 to 26 age group followed a similar pattern of small fluctuations but increased slightly by graduation. Their 2.43 average was slightly lower than other groups when observations began and was still lower upon receipt of the baccalaureate degree. The grade-point averages for the eldest group, 27 to 34 years, showed wide fluctuations but were very similar to those for the other groups when observations began and at the time of graduation. Differences between groups for total collegiate work were small.

A comparison of the grade-point average of male students with

that of female students is made in Table 8. When male transfer students were compared with female transfer students, no significant difference was observed at any time interval. At the time of transfer the male grade-point average of 2.55 was lower than the 2.65 for females and took a more severe drop at the end of the first quarter. The performance of the male transfer students was lower throughout the observations and for their total collegiate work, but a grade-point average of 2.62 was attained by both males and females who received a baccalaureate degree. For their total collegiate work, the female average was noticably higher than the male's but did not reach a level that was considered significant.

A less distinctive pattern can be observed between the male and female native students. At no time were differences in achievement significant. As the observations began the male grade-point average was 2.48 and the female was 2.49. The average for both sexes showed some fluctuation but a definite tendency to rise, and by graduation the grade-point average for male students was 2.58 and for female students was 2.69. For the total collegiate work of native students the academic average for both sexes was nearly identical.

In Table 9 the grade-point average of single students was compared with that of married students. The 2.57 grade-point average of single transfer students was slightly higher than the 2.54 of married students at the time of transfer. The shock at the end of the first

Table 8. Comparison of the grade-point average of male students with that of female students.

Time intervals		Male	Female	t	d.f.	P
Observations began						
Transfer	$\bar{X}$	2.55	2.65	1.08	114	NS
	SD	.45	.46			
Native	$\bar{X}$	2.48	2.49	.14	114	NS
	SD	.34	.47			
End of first quarter						
Transfer	$\bar{X}$	1.85	2.10	1.75	110	NS
	SD	.64	.62			
Native	$\bar{X}$	2.49	2.61	.99	114	NS
	SD	.58	.47			
End of second quarter						
Transfer	$\bar{X}$	2.11	2.35	1.71	94	NS
	SD	.60	.57			
Native	$\bar{X}$	2.48	2.41	.55	110	NS
	SD	.53	.54			
End of third quarter						
Transfer	$\bar{X}$	2.22	2.28	.43	85	NS
	SD	.47	.67			
Native	$\bar{X}$	2.57	2.66	.81	107	NS
	SD	.50	.46			
After two years						
Transfer	$\bar{X}$	2.34	2.48	1.41	64	NS
	SD	.30	.48			
Native	$\bar{X}$	2.55	2.58	.37	95	NS
	SD	.37	.41			
Baccalaureate degree						
Transfer	$\bar{X}$	2.62	2.62	.05	46	NS
	SD	.28	.40			
Native	$\bar{X}$	2.58	2.69	1.33	83	NS
	SD	.30	.33			
Total collegiate work						
Transfer	$\bar{X}$	2.37	2.52	1.77	114	NS
	SD	.36	.43			
Native	$\bar{X}$	2.54	2.55	.11	114	NS
	SD	.31	.44			

Table 9. Comparison of the grade-point average of single students with that of married students.

Time intervals		Single	Married	t	d.f.	P
Observations began						
Transfer	$\bar{X}$	2.57	2.54	.22	114	NS
	SD	.46	.41			
Native	$\bar{X}$	2.49	2.42	.57	114	NS
	SD	.39	.26			
End of first quarter						
Transfer	$\bar{X}$	1.89	2.07	.93	110	NS
	SD	.62	.81			
Native	$\bar{X}$	2.54	2.26	1.57	114	NS
	SD	.55	.65			
End of second quarter						
Transfer	$\bar{X}$	2.11	2.59	2.44	94	.05
	SD	.58	.59			
Native	$\bar{X}$	2.47	2.41	.34	110	NS
	SD	.53	.57			
End of third quarter						
Transfer	$\bar{X}$	2.18	2.66	2.81	85	.01
	SD	.46	.79			
Native	$\bar{X}$	2.59	2.60	.08	107	NS
	SD	.48	.65			
After two years						
Transfer	$\bar{X}$	2.33	2.64	2.54	64	.05
	SD	.33	.41			
Native	$\bar{X}$	2.56	2.51	.36	95	NS
	SD	.37	.43			
Baccalaureate degree						
Transfer	$\bar{X}$	2.63	2.57	.48	46	NS
	SD	.32	.29			
Native	$\bar{X}$	2.62	2.50	1.05	83	NS
	SD	.31	.31			
Total collegiate work						
Transfer	$\bar{X}$	2.38	2.60	1.77	114	NS
	SD	.37	.48			
Native	$\bar{X}$	2.54	2.50	.38	114	NS
	SD	.35	.28			

quarter was severe for single students, and their grade-point average dropped to 1.89. The recovery from transfer shock made by married transfer students was so effective that by the end of the second quarter they had exceeded their original average and were rated significantly higher than single transfer students. The superior performance of the married students continued to be significant through the third quarter and remained so after two years of observations. The grade-point average of the single transfer students rose slowly, and those who persisted to graduation exceeded the original grade-point average at the time of transfer and slightly exceeded the average of the persisting married students. The total collegiate work of single transfer students was noticably, but not significantly, lower than that of married transfer students.

A different pattern was observed for native students. Single students equaled or exceeded married students throughout the observations but not at a level that was considered significant. At the time observations began, the grade-point average for single native students was 2.49 and for married students was 2.42. Both groups showed some fluctuation in grades but had a tendency to improve. At the time of graduation, single native students had a grade-point average of 2.62 and married students had an average of 2.50. For total collegiate work, the single students attained a slightly higher average than married natives.

The grade-point average of students with sophomore standing was compared with that of students with junior standing in Table 10. For transfer students, the differences between those who entered Oregon State University with sophomore standing and those who entered with junior standing were at all times relatively small and were not considered significant. When observations began the sophomore transfer students had a slightly higher average of 2.59 compared to that of 2.56 for juniors. Both groups dropped below a C average at the end of the first quarter; sophomore students suffered the greatest drop in grades and remained a little lower than juniors through the second and third quarters and after two years of observations. At the time of graduation the grade-point average was nearly identical for those who had entered with sophomore standing and those who had entered with junior standing. The average for total collegiate work was slightly higher for junior transfers.

Native students who were selected for observation at the time they had sophomore standing, had a grade-point average of 2.42, and juniors had an average of 2.52. The difference between these two groups became significant after one quarter of observations when the native sophomore students suffered a small drop in grades while the grade-point average for native juniors rose. The difference continued to be significant throughout the second and third quarter and after two years. However, the grade-point average for sophomores who

Table 10. Comparison of the grade-point average of sophomore students with that of junior students.

Time intervals		Sophomore	Junior	t	d.f.	P
Observations began						
Transfer	$\bar{X}$	2.59	2.56	.33	114	NS
	SD	.43	.47			
Native	$\bar{X}$	2.42	2.52	1.50	114	NS
	SD	.40	.36			
End of first quarter						
Transfer	$\bar{X}$	1.84	1.95	.91	110	NS
	SD	.63	.64			
Native	$\bar{X}$	2.35	2.64	2.84	114	.01
	SD	.56	.54			
End of second quarter						
Transfer	$\bar{X}$	2.11	2.20	.67	94	NS
	SD	.65	.56			
Native	$\bar{X}$	2.33	2.56	2.32	110	.05
	SD	.58	.48			
End of third quarter						
Transfer	$\bar{X}$	2.21	2.25	.36	85	NS
	SD	.56	.50			
Native	$\bar{X}$	2.44	2.69	2.58	107	.01
	SD	.45	.50			
After two years						
Transfer	$\bar{X}$	2.35	2.39	.42	64	NS
	SD	.37	.35			
Native	$\bar{X}$	2.43	2.65	2.97	95	.01
	SD	.34	.38			
Baccalaureate degree						
Transfer	$\bar{X}$	2.63	2.62	.09	46	NS
	SD	.29	.33			
Native	$\bar{X}$	2.59	2.61	.35	83	NS
	SD	.30	.31			
Total collegiate work						
Transfer	$\bar{X}$	2.38	2.42	.53	114	NS
	SD	.40	.37			
Native	$\bar{X}$	2.46	2.60	2.23	114	.05
	SD	.36	.32			

persisted was nearly as high as for juniors at the time of graduation. For total collegiate work, the average for native juniors was considered significantly higher than that for sophomores.

Comparisons between Transfer and Native Students

Transfer students were compared with native students by grade-point average in Table 11.

Table 11. Comparison of the grade-point average of transfer students with that of native students.

Time Intervals		Transfer	Native	t	d. f.	P
Observations began	$\bar{X}$	2.57	2.48	1.65	230	NS
	SD	.45	.38			
End of first quarter	$\bar{X}$	1.90	2.51	7.64	226	.01
	SD	.64	.56			
End of second quarter	$\bar{X}$	2.16	2.47	3.86	206	.01
	SD	.59	.53			
End of third quarter	$\bar{X}$	2.24	2.59	4.82	194	.01
	SD	.52	.49			
After two years	$\bar{X}$	2.37	2.55	3.05	161	.01
	SD	.35	.38			
Baccalaureate degree	$\bar{X}$	2.62	2.60	.29	131	NS
	SD	.31	.31			
Total collegiate work	$\bar{X}$	2.40	2.54	2.87	230	.01
	SD	.38	.34			

At the time observations began, transfer students had a higher grade-point average of 2.57 compared to 2.48 for native students. By the

end of the first quarter, transfer student grades had dropped below a C average and were significantly lower than that of natives for the first, second, and third quarters and remained lower after two years of observations. However, for those transfer students who persisted until graduation, the grade-point average was slightly higher than that for natives. Grade average for the total collegiate work of native students was considered significantly higher than for transfer students.

In Table 12 transfer students in each school were compared with native students. When observations began in the School of Agriculture, transfer students had a lower grade-point average than native students. The average for transfer students remained lower throughout observations but the difference was significant only at the end of the third quarter. Transfer students in the School of Business and Technology had a higher grade-point average than native students when observations began but dropped significantly at the end of the first and third quarters. After two years the transfer students were making progress and those who persisted until graduation attained a higher average than the native students. The grade-point average for the total collegiate work was a little lower for transfers. In the School of Education, the averages for transfer and native students were nearly identical when observations began. After a significant drop in grades at the end of the first quarter, the transfer students recovered and maintained an average a little lower than native

Table 12. Comparison by schools of the grade-point average of transfer students with that of native students.

Time intervals		Transfer	Native	t	d.f.	P
Observations began						
Agriculture	$\bar{X}$	2.36	2.53	1.22	24	NS
	SD	.35	.36			
Business and Technology	$\bar{X}$	2.42	2.28	1.28	36	NS
	SD	.37	.33			
Education	$\bar{X}$	2.52	2.51	.11	36	NS
	SD	.37	.43			
Engineering	$\bar{X}$	2.49	2.51	.18	46	NS
	SD	.47	.33			
Forestry, Home Ec.,	$\bar{X}$	2.69	2.72	.18	16	NS
Pharmacy	SD	.48	.32			
Science	$\bar{X}$	2.97	2.58	2.84	38	.01
	SD	.48	.37			
Humanities and	$\bar{X}$	2.52	2.28	1.59	22	NS
Social Sciences	SD	.36	.36			
End of first quarter						
Agriculture	$\bar{X}$	2.03	2.19	.57	23	NS
	SD	.66	.73			
Business and Technology	$\bar{X}$	1.75	2.39	3.90	36	.01
	SD	.63	.33			
Education	$\bar{X}$	2.07	2.65	3.01	36	.01
	SD	.52	.64			
Engineering	$\bar{X}$	1.59	2.54	5.47	45	.01
	SD	.58	.61			
Forestry, Home Ec.,	$\bar{X}$	1.82	2.75	3.17	15	.01
Pharmacy	SD	.78	.39			
Science	$\bar{X}$	2.23	2.66	2.49	38	.05
	SD	.53	.56			
Humanities and	$\bar{X}$	1.87	2.37	2.02	21	.05
Social Sciences	SD	.76	.39			
End of second quarter						
Agriculture	$\bar{X}$	2.18	2.58	1.46	22	NS
	SD	.52	.76			
Business and Technology	$\bar{X}$	2.20	2.30	.49	28	NS
	SD	.74	.38			
Education	$\bar{X}$	2.20	2.54	1.83	34	NS
	SD	.56	.55			

(continued)

Table 12. Continued.

Time intervals		Transfer	Native	t	d.f.	P
End of second quarter (continued)						
Engineering	$\bar{X}$	1.91	2.48	3.76	41	.01
	SD	.57	.41			
Forestry, Home Ec., Pharmacy	$\bar{X}$	2.52	2.67	.63	14	NS
	SD	.40	.50			
Science	$\bar{X}$	2.31	2.52	1.14	37	NS
	SD	.56	.59			
Humanities and Social Sciences	$\bar{X}$	2.00	2.18	.67	18	NS
	SD	.68	.51			
End of third quarter						
Agriculture	$\bar{X}$	2.30	2.81	2.29	21	.05
	SD	.27	.69			
Business and Technology	$\bar{X}$	1.91	2.38	2.79	25	.01
	SD	.34	.46			
Education	$\bar{X}$	2.41	2.70	1.74	34	NS
	SD	.51	.49			
Engineering	$\bar{X}$	2.10	2.47	2.16	36	.05
	SD	.58	.46			
Forestry, Home Ec., Pharmacy	$\bar{X}$	2.40	2.69	1.05	13	NS
	SD	.62	.43			
Science	$\bar{X}$	2.19	2.56	2.29	35	.05
	SD	.51	.46			
Humanities and Social Sciences	$\bar{X}$	2.35	2.73	1.50	18	NS
	SD	.71	.37			
After two years						
Agriculture	$\bar{X}$	2.35	2.69	1.91	17	NS
	SD	.40	.37			
Business and Technology	$\bar{X}$	2.27	2.48	1.52	22	NS
	SD	.21	.33			
Education	$\bar{X}$	2.45	2.57	.76	26	NS
	SD	.32	.50			
Engineering	$\bar{X}$	2.28	2.53	1.90	31	NS
	SD	.23	.37			
Forestry, Home Ec., Pharmacy	$\bar{X}$	2.47	2.70	1.01	12	NS
	SD	.53	.31			
Science	$\bar{X}$	2.33	2.60	2.22	32	.05
	SD	.34	.37			
Humanities and Social Sciences	$\bar{X}$	2.56	2.25	1.27	9	NS
	SD	.56	.17			

(continued)

Table 12. Continued.

Time intervals		Transfer	Native	t	d.f.	P
Baccalaureate degree						
Agriculture	$\bar{X}$	2.54	2.78	1.42	12	NS
	SD	.37	.27			
Business and Technology	$\bar{X}$	2.51	2.48	.27	19	NS
	SD	.18	.31			
Education	$\bar{X}$	2.52	2.62	.72	22	NS
	SD	.31	.35			
Engineering	$\bar{X}$	2.61	2.54	.62	27	NS
	SD	.27	.26			
Forestry, Home Ec., Pharmacy	$\bar{X}$	2.70	2.77	.32	10	NS
	SD	.53	.26			
Science	$\bar{X}$	2.75	2.68	.62	25	NS
	SD	.26	.31			
Humanities and Social Sciences	$\bar{X}$	2.67	2.34	1.02	4	NS
	SD	.67	.19			
Total collegiate work						
Agriculture	$\bar{X}$	2.35	2.61	1.85	24	NS
	SD	.32	.40			
Business and Technology	$\bar{X}$	2.22	2.42	2.00	36	NS
	SD	.32	.31			
Education	$\bar{X}$	2.43	2.60	1.45	36	NS
	SD	.30	.41			
Engineering	$\bar{X}$	2.28	2.55	3.23	46	.01
	SD	.32	.25			
Forestry, Home Ec., Pharmacy	$\bar{X}$	2.57	2.78	1.10	16	NS
	SD	.51	.25			
Science	$\bar{X}$	2.66	2.59	.74	38	NS
	SD	.34	.32			
Humanities and Social Sciences	$\bar{X}$	2.42	2.30	.68	22	NS
	SD	.51	.33			

students throughout observations. Engineering students who had transferred were only slightly lower than natives when observations began but suffered a severe drop at the end of the first quarter. The difference remained significant throughout the first year of observations. Transfer students who persisted for two years in the School of Engineering were able to bring their grade-point average up somewhat and those who were graduated exceeded the native students. When their total collegiate work was compared, the average for transfer students was significantly lower than for native students. In the group combining the students from the Schools of Forestry, Home Economics, and Pharmacy, the grade-point average for transfer students was only a little lower than that for native students when observations began. After a significant drop in grades at the end of the first quarter, the transfer students made a rapid recovery but remained lower than natives throughout observations. When observations began, the transfer students in the School of Science had a significantly higher grade-point average than native students. After a drop in grades for transfer students at the end of the first quarter, the difference between the groups was significant for the first and third quarters and after two years of observations. However, for those transfer students who persisted until graduation and for the total collegiate work, the average was a little higher than for natives. In the School of Humanities and Social Sciences the transfer students

had a higher grade-point average than native students when observations began but dropped significantly lower at the end of the first quarter. Transfer students remained lower for the first year but those who persisted for two years and until the baccalaureate degree attained a higher average than natives. When comparing total collegiate work, the grades for transfer students were higher than those for native students.

The transfer students in each age group were compared with native students in Table 13. When observations began, transfer students in the youngest age group of 19 to 21 years had a significantly higher grade-point average than native students in the same age group. The drop in grades for the young transfer students at the end of the first quarter brought their averages significantly lower than native students and the difference remained significant throughout the first and second year of observations. For the students who persisted until the baccalaureate degree, the grade-point averages for transfers and natives were nearly identical, but when comparing total collegiate work the transfer students in the 19 to 21 age group attained a significantly lower average than their native counterparts. The grade-point average for transfer students in the 22 to 26 age group was lower than that for native students when observations began and dropped significantly at the end of the first quarter. Throughout the observations and for the total collegiate work, the average for transfers remained

Table 13. Comparison by age of the grade-point average of transfer students with that of native students.

Time intervals		Transfer	Native	t	d.f.	P
Observations began						
Age group 19-21 yrs.	$\bar{X}$	2.62	2.49	1.98	175	.05
	SD	.45	.37			
Age group 22-26 yrs.	$\bar{X}$	2.33	2.43	.93	43	NS
	SD	.35	.42			
Age group 27-34 yrs.	$\bar{X}$	2.88	2.44	1.52	8	NS
	SD	.61	.22			
End of first quarter						
Age group 19-21 yrs.	$\bar{X}$	1.90	2.57	7.90	172	.01
	SD	.58	.54			
Age group 22-26 yrs.	$\bar{X}$	1.81	2.34	2.83	42	.01
	SD	.71	.52			
Age group 27-34 yrs.	$\bar{X}$	2.32	2.15	.25	8	NS
	SD	1.16	.92			
End of second quarter						
Age group 19-21 yrs.	$\bar{X}$	2.09	2.49	4.80	154	.01
	SD	.53	.51			
Age group 22-26 yrs.	$\bar{X}$	2.32	2.33	.06	41	NS
	SD	.75	.62			
Age group 27-34 yrs.	$\bar{X}$	2.70	2.69	.01	7	NS
	SD	.46	.56			
End of third quarter						
Age group 19-21 yrs.	$\bar{X}$	2.17	2.59	5.55	146	.01
	SD	.46	.45			
Age group 22-26 yrs.	$\bar{X}$	2.32	2.55	1.11	37	NS
	SD	.64	.64			
Age group 27-34 yrs.	$\bar{X}$	2.90	2.73	.44	7	NS
	SD	.53	.61			
After two years						
Age group 19-21 yrs.	$\bar{X}$	2.34	2.58	3.75	119	.01
	SD	.31	.37			
Age group 22-26 yrs.	$\bar{X}$	2.38	2.43	.38	31	NS
	SD	.43	.35			
Age group 27-34 yrs.	$\bar{X}$	2.78	2.59	.58	7	NS
	SD	.37	.56			

(continued)

Table 13. Continued.

Time intervals		Transfer	Native	t	d.f.	P
Baccalaureate degree						
Age group 19-21 yrs.	$\bar{X}$	2.62	2.64	.30	96	NS
	SD	.32	.30			
Age group 22-26 yrs.	$\bar{X}$	2.49	2.50	.03	25	NS
	SD	.26	.32			
Age group 27-34 yrs.	$\bar{X}$	2.86	2.55	1.33	6	NS
	SD	.31	.36			
Total collegiate work						
Age group 19-21 yrs.	$\bar{X}$	2.40	2.56	2.91	175	.01
	SD	.36	.34			
Age group 22-26 yrs.	$\bar{X}$	2.35	2.47	1.04	43	NS
	SD	.42	.36			
Age group 27-34 yrs.	$\bar{X}$	2.68	2.56	.47	8	NS
	SD	.49	.31			

lower but was not considered significant. The grade-point averages for transfer and native students in the 22 to 26 age group were nearly identical at the time of graduation. When transfer students in the eldest age group of 27 to 34 years were compared with native students, their grade-point average was found to be higher throughout the observations and for the total collegiate work. The differences were not considered significant.

A comparison by sex of the grade-point average of transfer students with that of native students is shown in Table 14. When observations began, the grade-point average for male transfer students was a little higher than that for male native students. Transfer student grades dropped at the end of the first quarter and remained significantly lower than native grades through the first and second years of observations. For the male transfer students persisting until graduation, the grade-point average exceeded that of graduating native males. When the averages for total collegiate work were compared, male transfer students were significantly lower than male natives. Female transfer students had a higher grade-point average than female native students when observations began but dropped significantly at the end of the first and third quarters. After two years, upon receipt of the baccalaureate degree, and for total collegiate work, female transfer students attained a lower average than female native students but the differences were not considered significant.

Table 14. Comparison by sex of the grade-point average of transfer students with that of native students.

Time intervals		Transfer	Native	t	d.f.	P
Observations began						
Male	$\bar{X}$	2.55	2.48	1.15	178	NS
	SD	.45	.34			
Female	$\bar{X}$	2.65	2.49	1.27	50	NS
	SD	.46	.47			
End of first quarter						
Male	$\bar{X}$	1.85	2.49	6.92	174	.01
	SD	.64	.58			
Female	$\bar{X}$	2.10	2.61	3.36	50	.01
	SD	.62	.47			
End of second quarter						
Male	$\bar{X}$	2.11	2.48	4.21	159	.01
	SD	.60	.53			
Female	$\bar{X}$	2.35	2.41	.40	45	NS
	SD	.57	.54			
End of third quarter						
Male	$\bar{X}$	2.22	2.57	4.27	148	.01
	SD	.47	.50			
Female	$\bar{X}$	2.28	2.66	2.29	44	.05
	SD	.67	.46			
After two years						
Male	$\bar{X}$	2.34	2.55	3.30	126	.01
	SD	.30	.37			
Female	$\bar{X}$	2.48	2.58	.66	33	NS
	SD	.48	.41			
Baccalaureate degree						
Male	$\bar{X}$	2.62	2.58	.64	103	NS
	SD	.28	.30			
Female	$\bar{X}$	2.62	2.69	.57	26	NS
	SD	.40	.33			
Total collegiate work						
Male	$\bar{X}$	2.37	2.54	3.34	178	.01
	SD	.36	.31			
Female	$\bar{X}$	2.52	2.55	.23	50	NS
	SD	.43	.44			

Table 15 shows a comparison by marital status of transfer and native students. The grade-point average for single transfer students was higher than that for single native students when observations began. At the end of the first quarter the average for single transfers dropped and remained significantly lower than single natives through the first and second years of observations. For those persisting until graduation, transfer and native grades were nearly identical. Single transfer students had a significantly lower grade average than single natives for total collegiate work. Except for a temporary drop in grades at the end of the first quarter, married transfer students attained a higher grade-point average than married native students throughout observations. The differences were not considered significant.

A comparison by class standing of transfer students with native students is made in Table 16. When observations began, students who transferred with sophomore standing had a significantly higher grade-point average than the native students, but after the first quarter they dropped significantly lower. Sophomore transfers remained lower than sophomore natives through the first and second year but the difference was significant only at the end of the third quarter. For those who persisted to graduation, the average was a little higher for sophomore transfers than for sophomore natives. When the total collegiate work was compared, sophomore transfers were a little

Table 15. Comparison by marital status of the grade-point average of transfer students with that of native students.

Time intervals		Transfer	Native	t	d. f.	P
Observations began						
Single	$\bar{X}$	2.57	2.49	1.48	208	NS
	SD	.46	.39			
Married	$\bar{X}$	2.54	2.42	.84	20	NS
	SD	.41	.26			
End of first quarter						
Single	$\bar{X}$	1.89	2.54	8.01	204	.01
	SD	.62	.55			
Married	$\bar{X}$	2.07	2.26	.59	20	NS
	SD	.81	.65			
End of second quarter						
Single	$\bar{X}$	2.11	2.47	4.39	185	.01
	SD	.58	.53			
Married	$\bar{X}$	2.59	2.41	.69	19	NS
	SD	.59	.57			
End of third quarter						
Single	$\bar{X}$	2.18	2.59	5.67	173	.01
	SD	.46	.48			
Married	$\bar{X}$	2.66	2.60	.18	19	NS
	SD	.79	.65			
After two years						
Single	$\bar{X}$	2.33	2.56	3.73	142	.01
	SD	.33	.37			
Married	$\bar{X}$	2.64	2.51	.66	17	NS
	SD	.41	.43			
Baccalaureate degree						
Single	$\bar{X}$	2.63	2.62	.22	115	NS
	SD	.32	.31			
Married	$\bar{X}$	2.57	2.50	.43	14	NS
	SD	.29	.31			
Total collegiate work						
Single	$\bar{X}$	2.38	2.54	3.24	208	.01
	SD	.37	.35			
Married	$\bar{X}$	2.60	2.50	.56	20	NS
	SD	.48	.28			

Table 16. Comparison by class standing of the grade-point average of transfer students with that of native students.

Time intervals		Transfer	Native	t	d.f.	P
Observations began						
Sophomore	$\bar{X}$	2.59	2.42	2.01	95	.05
	SD	.43	.40			
Junior	$\bar{X}$	2.56	2.52	.47	133	NS
	SD	.47	.36			
End of first quarter						
Sophomore	$\bar{X}$	1.84	2.35	4.15	94	.01
	SD	.63	.56			
Junior	$\bar{X}$	1.95	2.64	6.64	130	.01
	SD	.64	.54			
End of second quarter						
Sophomore	$\bar{X}$	2.11	2.33	1.61	83	NS
	SD	.65	.58			
Junior	$\bar{X}$	2.20	2.56	3.89	121	.01
	SD	.56	.48			
End of third quarter						
Sophomore	$\bar{X}$	2.21	2.44	2.04	77	.05
	SD	.56	.45			
Junior	$\bar{X}$	2.25	2.69	4.64	115	.01
	SD	.50	.50			
After two years						
Sophomore	$\bar{X}$	2.35	2.43	.84	63	NS
	SD	.37	.34			
Junior	$\bar{X}$	2.39	2.65	3.47	96	.01
	SD	.35	.38			
Baccalaureate degree						
Sophomore	$\bar{X}$	2.63	2.59	.40	45	NS
	SD	.29	.30			
Junior	$\bar{X}$	2.62	2.61	.06	84	NS
	SD	.33	.31			
Total collegiate work						
Sophomore	$\bar{X}$	2.38	2.46	1.02	95	NS
	SD	.40	.36			
Junior	$\bar{X}$	2.42	2.60	3.00	133	.01
	SD	.37	.32			

lower than natives. The grade-point average for students transferring with junior standing was a little higher than for junior natives, but the average dropped at the end of the first quarter and the junior transfer students remained significantly lower than the junior natives through the first and second years of observations. For those who were graduated, the averages were nearly identical for transfer and native juniors. For total collegiate work, the students transferring with junior standing attained a significantly lower grade-point average than the native juniors.

Persistence and Graduation

The remaining tables are concerned with persistence and attainment of degree goals. Table 17 shows a comparison by chi-square tests of the academic classification of transfer students with that of native students at various time intervals. Students were classified as enrolled, dropped, and graduated. The persistence and graduation rates of transfer students were significantly lower than those of native students at all time intervals tested. At the end of the first quarter 17 percent of the transfer students dropped compared to only 4 percent of the natives. The high dropout pattern for transfer students continued. Two years after transfer a total of 47 percent of the transfers had dropped compared to 18 percent of the natives. When dropout rates were compared after a total of four years of

Table 17. Comparison of the academic classification of transfer students with that of native students (in percent[1]).

Time Intervals	Enrolled		Dropped		Graduated		X^2	P
	Transfer	Native	Transfer	Native	Transfer	Native		
First quarter after transfer	83	96	17	4			8.78	.01
Second quarter after transfer	75	95	25	5			16.28	.01
Third quarter after transfer	64	91	36	9			22.00	.01
Two years after transfer	41	49	47	18	13	33	25.46	.01
After four years of college	29	26	50	21	21	53	31.14	.01
After five years of college	4	1	49	22	41	73	*	

*Chi-square could not be computed because of a small theoretical cell frequency.

[1] In this and subsequent tables all percentages have been rounded to two placed. Therefore, the sums may not be exactly 100 percent. The sums for the fifth year are not 100 percent due to a small number of students who were unclassified.

collegiate work, transfer students had suffered a loss of 50 percent and native students a loss of 21 percent. Students with junior standing at the time observations began would have had time to complete degree requirements after two years. At that time interval the graduation rate for transfer students was much lower than for natives. When all students were compared after a total of four years of collegiate work, only 21 percent of the transfers had attained degree goals compared to 53 percent of the natives. By continuing the observations through the fifth year, more encouraging data were collected. No additional dropouts were noted for the transfer students, and one student returned. The graduation rate for transfers rose to 41 percent and for natives to 73 percent. Four percent of the transfer students and one percent of the native students were still enrolled after five years of college.

Due to small theoretical cell frequencies, chi-square could not be computed for subgroups, and all comparisons in the remaining tables were made by percentages. The percentage of transfer students classified as enrolled, withdrawn, dismissed, and graduated and the percentage of native students classified in the same manner at various time intervals are shown in Table 18. The percentage of students enrolled and graduated are the same as shown in Table 17, but a breakdown of the group previously identified as dropped shows the percentage of withdrawn and dismissed students. At all time

Table 18. Academic classification of students (in percent).

Time Intervals	Enrolled		Withdrawn		Dismissed		Graduated	
	Transfer	Native	Transfer	Native	Transfer	Native	Transfer	Native
First quarter after transfer	83	96	11	3	6	1		
Second quarter after transfer	75	95	15	3	10	2		
Third quarter after transfer	64	91	23	8	13	2		
Two years after transfer	41	49	29	16	17	2	13	33
After four years of college	29	26	33	18	17	3	21	53
After five years of college	4	1	32	19	17	3	41	73

intervals, at least one-third of the transfer students identified as dropped actually had been dismissed and nearly two-thirds had withdrawn. A distinctly different pattern was found for native students previously identified as dropped; they seldom were dismissed.

The percentage of transfer and native students in the various academic classifications are shown for each school in Table 19. A low level of persistence is indicated by the reduced enrollment in all schools for transfer students after the first quarter, but the greatest losses were in the Schools of Business and Humanities and the group combining the Schools of Forestry, Home Economics, and Pharmacy. Native students suffered little loss in enrollment except in the School of Humanities and Social Sciences. The dropout rate in that School was equal for transfers and natives. Dismissal of transfer students occurred in all Schools except Education and Science; no native students were dismissed except in the School of Humanities and Social Sciences. The pattern for the second quarter was similar except for a small rise in enrollment created by returning dropouts in the School of Humanities and a severe dropout for transfer students in the School of Engineering. High dismissal rates for transfers occurred in the Schools of Engineering and Business. By the end of the first year the dropout rate for transfer students was much greater than that for natives in all Schools except Science. Transfer dropouts in the Schools of Business and Humanities were at least 50 percent. Enrollment for

Table 19. Academic classification of students by schools (in percent).

Time intervals	Enrolled		Withdrawn		Dismissed		Graduated	
	Transfer	Native	Transfer	Native	Transfer	Native	Transfer	Native
First quarter after transfer								
Agriculture	85	100	8	0	8	0		
Business and Technology	68	95	21	5	11	0		
Education	95	95	5	5	0	0		
Engineering	83	100	8	0	8	0		
Forestry, Home Ec., Pharmacy	67	100	22	0	11	0		
Science	95	100	5	0	0	0		
Humanities and Social Sci.	75	75	17	17	8	8		
Second quarter after transfer								
Agriculture	85	92	8	0	8	8		
Business and Technology	53	89	26	11	21	0		
Education	95	95	5	5	0	0		
Engineering	58	100	21	0	21	0		
Forestry, Home Ec., Pharmacy	67	100	22	0	11	0		
Science	90	100	10	0	0	0		
Humanities and Social Sci.	83	83	8	8	8	8		
Third quarter after transfer								
Agriculture	69	92	23	0	8	8		
Business and Technology	42	89	32	11	26	0		
Education	79	95	21	5	0	0		
Engineering	54	100	21	0	25	0		
Forestry, Home Ec., Pharmacy	67	89	22	11	11	0		
Science	85	90	15	10	0	0		
Humanities and Social Sci.	50	67	33	25	17	8		
Two years after transfer								
Agriculture	54	54	23	8	15	8	8	31
Business and Technology	21	42	37	16	26	0	16	42
Education	47	32	26	21	0	0	26	47
Engineering	25	67	29	0	37	0	8	33
Forestry, Home Ec., Pharmacy	67	67	22	11	11	0	0	22
Science	60	45	15	20	5	0	20	35
Humanities and Social Sci.	25	42	58	50	17	8	0	0
After four years of college								
Agriculture	23	23	31	8	15	8	31	62
Business and Technology	21	11	37	16	26	5	16	68
Education	37	16	32	21	0	0	32	63
Engineering	17	54	29	0	37	0	17	46
Forestry, Home Ec., Pharmacy	56	33	22	11	11	0	11	56
Science	45	20	20	30	5	0	30	50
Humanities and Social Sci.	17	17	67	50	17	8	0	25

(continued)

Table 19. Continued.

Time intervals	Enrolled		Withdrawn		Dismissed		Graduated	
	Transfer	Native	Transfer	Native	Transfer	Native	Transfer	Native
After five years of college								
Agriculture	8	8	31	8	15	8	38	69
Business and Technology	5	0	37	16	26	5	32	79
Education	5	0	32	21	0	0	53	74
Engineering	0	0	29	0	37	0	33	87
Forestry, Home Ec., Pharmacy	11	0	22	11	11	0	44	89
Science	0	0	20	30	5	0	65	70
Humanities and Social Sci.	8	0	58	58	17	8	17	33

native students in the School of Humanities had dropped one-third but remained high in all other schools. Dismissal rates for natives remained small. After two years the dropout rate for transfer students in the Schools of Business, Engineering, and Humanities ranged from 63 to 75 percent, but the rate for native students remained low except for a loss of 58 percent in the School of Humanities. For both transfer and natives, the dropout rate in the School of Science was 20 percent.

When considering the dropout pattern after a total of four years of collegiate work, transfer students had an extremely high dropout rate ranging from 30 percent in the School of Science to 84 percent in the School of Humanities. Most of these were withdrawals but dismissals were high, 37 and 26 percent, in the Schools of Engineering and Business. For native students in the School of Humanities the loss was 58 percent but otherwise the dropout rates remained low and ranged from zero in the School of Engineering to 30 percent in the School of Science. The dropout pattern remained the same after five years of collegiate work except in the School of Humanities where the return of earlier dropouts brought the loss for transfers to 75 percent, and additional losses for natives increased their dropout rate to 66 percent.

The attainment of degree goals varied greatly for transfer and native students. Two years after observations began, the students

who entered with junior standing would have had time to complete degree requirements. There were no degrees completed in the School of Humanities, but in all other schools, fewer transfer students completed degree requirements than did natives. The differences were even greater after a total of four years of collegiate work. For transfer students graduation rates ranged from zero in the School of Humanities to 32 percent in the School of Education. For native students the range was from 25 percent in the School of Humanities to 68 percent in the School of Business and Technology. After a fifth year of collegiate work, many students were able to complete their requirements but the differences between transfers and natives remained large. The graduation rate for transfer students ranged from 17 percent in the School of Humanities to 65 percent in the School of Science. Only in the Schools of Education and Science did the graduation rate exceed 50 percent. Native students in the School of Humanities had a low rate of 33 percent, but graduation was high in all other schools and ranged from 69 percent in Agriculture to 89 percent in the group combining Forestry, Home Economics, and Pharmacy. The difference in graduation rates for transfer and native students in all schools was very high even after five years of collegiate work.

The academic classification of students by age groups is indicated in Table 20. Greater persistence was shown by native students,

Table 20. Academic classification of students by age (in percent).

Time intervals	Enrolled		Withdrawn		Dismissed		Graduated	
	Transfer	Native	Transfer	Native	Transfer	Native	Transfer	Native
First quarter after transfer								
Age group 19-21 years	82	94	12	4	6	1		
Age group 22-26 years	87	100	9	0	4	0		
Age group 27-34 years	80	100	0	0	20	0		
Second quarter after transfer								
Age group 19-21 years	74	94	17	4	9	1		
Age group 22-26 years	78	95	9	0	13	5		
Age group 27-34 years	80	100	0	0	20	0		
Third quarter after transfer								
Age group 19-21 years	61	90	26	9	12	1		
Age group 22-26 years	70	91	17	5	13	5		
Age group 27-34 years	80	100	0	0	20	0		
Two years after transfer								
Age group 19-21 years	36	49	33	19	17	1	14	30
Age group 22-26 years	57	41	22	9	17	5	4	45
Age group 27-34 years	40	80	0	0	20	0	40	20
After four years of college								
Age group 19-21 years	30	26	34	20	16	2	20	52
Age group 22-26 years	30	27	35	9	22	5	13	59
Age group 27-34 years	20	20	0	20	20	0	60	60
After five years of college								
Age group 19-21 years	3	1	33	21	16	2	41	70
Age group 22-26 years	9	0	35	9	22	5	35	86
Age group 27-34 years	0	0	0	20	20	0	80	80

but little variation occurred within the transfer or native group for the first or second quarter. One year after observations began, enrollment had dropped considerably for transfer students and dropouts ranged from 38 percent for the youngest group to 20 percent for the eldest. For native students the range was from 10 percent for the youngest group to zero for the eldest. The pattern was similar for the second year. There was a change in the pattern for the fourth and fifth year of collegiate work. Transfer dropouts in the 22 to 26 year old group rose abruptly to 57 percent while remaining at 20 percent for the eldest group. The dropout rate for eldest natives was also 20 percent but ranged from a low of 14 percent in the 22 to 26 age group to a high of 23 percent in the youngest age group. Dismissal rates were low for all native groups but none was observed in the eldest age group.

The graduation rate was much lower for transfer students in the two youngest age groups than for corresponding native students but was equal for the 27 to 34 year olds. For transfer students completing five years of college, only 35 percent of the 22 to 26 age group were graduated and 41 percent of the youngest age group. The pattern was very different for native students. The 22 to 26 age group had the highest graduation rate of 86 percent, and the youngest group had 70 percent. Eighty percent of the transfer and native students from 27 to 34 years completed degree requirements.

Table 21 shows the academic classification of students by sex. Transfer students showed a lower level of persistence than native students, but very little variation was observed for males and females within these groups during the first year of observations. After two years the dropout rate for male and female transfer students was 48 and 42 percent and was considered to indicate little difference between sexes. An increase in dropouts among native females brought the total to 31 percent which was much higher than the 14 percent observed for native males. The pattern continued for the total of four years of collegiate work. After five years of college, male transfer dropouts were 51 percent and female transfer dropouts were 42 percent. A greater variation was observed among native students with a loss of 17 percent for males and 39 percent for females. Among transfer students, withdrawal and dismissal rates were considerably higher for males; among natives, they were considerably higher for females.

A higher percentage of natives completed degree requirements but again little variation was observed within the groups. The graduation pattern for the four years of college is lower than but very similar to that for the fifth year. After five years, 40 percent of the transfer males and 46 percent of the transfer females were graduated compared to 77 percent of the native males and 62 percent of the native females. Persistence in enrollment after five years was highest

Table 21. Academic classification of students by sex (in percent).

Time intervals	Enrolled		Withdrawn		Dismissed		Graduated	
	Transfer	Native	Transfer	Native	Transfer	Native	Transfer	Native
First quarter after transfer								
Male	82	97	10	3	8	0		
Female	85	92	15	4	0	4		
Second quarter after transfer								
Male	72	96	14	3	13	1		
Female	85	92	15	4	0	4		
Third quarter after transfer								
Male	63	91	21	8	16	1		
Female	65	88	31	8	4	4		
Two years after transfer								
Male	42	53	27	13	21	1	10	32
Female	35	35	38	27	4	4	23	35
After four years of college								
Male	30	29	30	16	21	1	19	54
Female	27	15	42	27	4	8	27	50
After five years of college								
Male	3	1	30	16	21	1	40	77
Female	8	0	38	31	4	8	46	62

for transfer females and graduation for this group could eventually exceed 50 percent. For transfer students, graduation rates were a little higher for females, but for natives graduation rates were a little higher for males.

Academic classification of students by marital status is found in Table 22. Greater persistence was noted for married students in both the transfer and native groups at all time intervals. By the end of the first year of observations, 38 percent of single and 18 percent of married transfer students had dropped. For native students the dropout rate was 11 percent for single and zero for married. The pattern was similar for the second year. After four years of collegiate work, transfer dropouts rose to 52 percent for single and 27 percent for married; native dropouts were 21 percent for single and 18 percent for married. The fifth year was nearly identical. Little variation was observed within the groups for dismissal, but rates were very low for single native students and zero for married natives.

Married students had a higher rate of graduation than their single counterparts. The differences within the native group were not large but considerable difference was noted within the transfer group. After five years of college, only 39 percent of the single transfer students completed degree requirements compared to 64 percent of the married. Seventy-two percent of the single natives and 82 percent of the married natives were graduated. A higher percent

Table 22. Academic classification of students by marital status (in percent).

Time intervals	Enrolled		Withdrawn		Dismissed		Graduated	
	Transfer	Native	Transfer	Native	Transfer	Native	Transfer	Native
First quarter after transfer								
Single	82	95	12	4	6	1		
Married	91	100	0	0	9	0		
Second quarter after transfer								
Single	73	94	16	4	10	2		
Married	91	100	0	0	9	0		
Third quarter after transfer								
Single	62	90	26	9	12	2		
Married	82	100	0	0	18	0		
Two years after transfer								
Single	38	49	32	17	17	2	12	32
Married	64	55	0	9	18	0	18	36
After four years of college								
Single	29	26	35	18	17	3	19	53
Married	36	27	9	18	18	0	36	55
After five years of college								
Single	4	1	34	19	17	3	39	72
Married	9	0	9	18	18	0	64	82

of married transfer students persisted to enroll after five years and eventually could bring the graduation rate for their group over 70 percent and establish an even greater difference between single and married transfer students.

Table 23 shows the academic classification of students by class standing. Persistence among students who had junior class standing when observations began was only a little higher than those with sophomore standing at all time intervals. At the end of the first year, dropout rates were 42 percent for sophomore transfers and 32 percent for junior transfers, and losses among natives were 10 percent for sophomores and 9 percent for juniors. This dropout pattern continued with essentially no variation within the native group. By the end of five years of collegiate work, 59 percent of the students who had transferred with sophomore standing and 42 percent of those who had transferred with junior standing had dropped. Dropouts within the native group were nearly identical with 22 percent for sophomores and 21 percent for juniors. Sophomore natives suffered few dismissals and junior natives suffered none.

Graduation rates were consistently higher for students who had junior standing when observations began. Class standing variations were observed within the transfer and native groups. After five years of college, 31 percent of those who transferred with sophomore standing and 49 percent of those who transferred with junior

Table 23. Academic classification of students by class standing (in percent).

Time intervals	Enrolled		Withdrawn		Dismissed		Graduated	
	Transfer	Native	Transfer	Native	Transfer	Native	Transfer	Native
First quarter after transfer								
Sophomore	79	92	15	6	6	2		
Junior	85	99	9	1	6	0		
Second quarter after transfer								
Sophomore	73	92	17	4	10	4		
Junior	76	97	13	3	10	0		
Third quarter after transfer								
Sophomore	58	90	25	6	17	4		
Junior	68	91	22	9	10	0		
Two years after transfer								
Sophomore	44	73	35	16	19	4	2	6
Junior	38	31	25	16	16	0	21	52
After four years of college								
Sophomore	23	27	40	16	19	6	19	51
Junior	34	25	28	19	16	0	22	55
After five years of college								
Sophomore	0	2	40	16	19	6	31	65
Junior	7	0	26	21	16	0	49	79

standing were graduated. For native students, graduation rates were 65 percent for sophomores and 79 percent for juniors. Fifth year persistence in the enrollment of transfer students with junior standing indicated the graduation rate for that group could be expected to exceed 50 percent.

Summary

The academic achievement and persistence of transfer students were compared with those of native students. Most of the transfer students completed more than 84 quarter hours prior to transfer. They were predominantly single males between the ages of 19 and 21. The greatest percentage enrolled in the Schools of Engineering, Science, Business, and Education. The males generally were older than the females; most females were single and under 21 years of age when they transferred. The married students were almost exclusively males.

The following divisions include general summaries of the performance and behavior of the total group as well as subgroups established on the basis of school, age, sex, marital status, and class standing.

Transfer Shock

To evaluate the transfer shock phenomenon, comparative

achievement and dropout data for transfer and native students were analyzed. Except for minor fluctuations, the grade-point average for the native group rose slowly from 2.48 when observations began to 2.60 at graduation. Native subgroups followed the same general pattern. In contrast, acute transfer shock was evident in the transfer group and for most subgroups. The dropout rate of ten percent for natives for the first year of observation was small compared to the extensive losses recorded for transfer students. The degree of transfer shock and recovery time and the transfer dropout rate for the first year of observation is summarized as follows.

1. General. The grade-point average for transfer students dropped from 2.57 when observations began to 1.90 at the end of the first quarter. This represented a loss of .67 grade-point and a general level of C minus. Recovery was slow but consistent. By the end of the second quarter, the average rose above a C, but the grades for the group generally did not return to their original transfer level until graduation.

   The dropout rate for transfer students rose to 36 percent by the end of the first year. Most of the dropouts represented voluntary withdrawals, but more than one-third were dismissed.

2. School. Students in all schools suffered transfer shock, but the greatest drop in grade-point average at the end of the first quarter was in the School of Engineering. The smallest losses

occurred in the Schools of Agriculture and Education. Averages dropped below C in the Schools of Business, Engineering, and Humanities, but by the end of the second quarter all grades except in the School of Humanities had returned to a C average or better. By graduation, grades in all schools had returned to their level at the time of transfer except in the School of Science.

Large dropout rates for the first year were noted in all schools except Science and Education. The greatest dropout was observed in the Schools of Business, Engineering, and Humanities. A high percentage of the students enrolled in Business and Engineering were dismissed.

3. Age. Transfer students in the 19 to 21 age group suffered the greatest shock. The grade-point average for the two youngest groups dropped below a C at the end of the first quarter but recovered by the end of the second. After two years the grades for 22 to 26 year olds had returned to their original level, and by the baccalaureate degree the youngest group recovered, but grades for eldest students never returned to the high level they were at the time of transfer.

After one year of observation, the youngest transfer students had the highest dropout rate and the eldest had the lowest rate. However, all of the dropouts from the eldest group represented dismissals rather than withdrawals.

4. Sex. Male students suffered greater shock than female and dropped below a C average for one quarter. They did not totally recover until the baccalaureate degree. The grade-point average for female students never returned to the high level it was at the time of transfer.

   For the first year, little difference was observed between male and female dropout rates within the transfer group. Many of the male dropouts were due to dismissal.

5. Marital status. Single students dropped below a C average for one quarter after transfer and then recovered slowly until graduation. Married students suffered less grade loss than most subgroups after transfer and recovered faster. They exceeded their original level by the end of the second quarter.

   Married students were more persistent for the first year than single, but all married dropouts represented dismissals.

6. Class standing. Both sophomore and junior transfers experienced sizable drops in grade-point average but were able to bring their averages above a C by the end of the second quarter after transfer. Neither group fully recovered until the baccalaureate degree.

   Students who transferred with junior standing suffered fewer dropouts during the first year than those who transferred with sophomore standing. Dismissals were higher for sophomores.

Academic Achievement

The comparative achievement of transfer and native students is summarized for the beginning of observations, upon receipt of the baccalaureate degree, and for total collegiate work. The baccalaureate degree evaluation provides a long range appraisal for all students who persisted; the total collegiate work evaluation provides a general measure of achievement for all students, including the dropouts, who participated in the investigation.

1. General. When observations began, transfer students had a grade-point average of 2.57 compared to 2.48 for native students. The difference was not considered significant. For those transfer students who persisted until graduation, the grade-point average was 2.62 and was slightly higher than the 2.60 for native students. However, the grade average for the total collegiate work of native students was 2.54 and was considered significantly higher than the 2.40 average for transfers. With few exceptions, the grade-point average for transfer subgroups was higher than that for the corresponding native subgroup when observations began.
2. School.
   a. Comparisons within the transfer and native groups. Within the transfer group, only the students in the School of Science

had a grade-point average which was significantly higher than other transfer students when observations began. For transfers who persisted until graduation, no significant differences were found among schools. The grade-point average for total collegiate work in the School of Sciences was significantly higher than that of most other schools, and the average for Business and Technology students was significantly lower than that for transfer students in the Schools of Science, Forestry, Home Economics, Pharmacy, and Education. Within the native group, the grade-point average for students in the Schools of Science, Forestry, Home Economics, and Pharmacy was significantly higher when observations began than that in most other schools, and the average for the School of Business and Technology was significantly lower than that of most other schools. For natives who persisted until graduation, averages were significantly higher for students enrolled in the Schools of Agriculture, Forestry, Home Economics, and Pharmacy than for those in Business, Engineering, and Humanities. For total collegiate work, the grade-point average for Forestry, Home Economics, and Pharmacy students was significantly greater than that of Business, Engineering, and Humanities students. Averages in the School of Humanities was significantly lower than most of the other schools.

b. Comparisons between transfer and native students. When observations began there was no significant difference in grade-point average between transfer and native students enrolled in any school except Science. In the School of Science, transfer students averaged considerably higher than natives. For those who persisted until graduation, there was no significant difference in any school. When considering total collegiate work, the only significant difference was in the School of Engineering. The average for natives was much higher than for transfers.

3. Age.

a. Comparisons within the transfer and native groups. Within the transfer group, the 22 to 26 year olds had a significantly lower grade-point average than the other age groups when observations began, but differences between groups were not significant for those who persisted until graduation nor for total collegiate work. Within the native group, there were no significant differences between age groups at any time during observations.

b. Comparisons between transfer and native students. When observations began, differences were observed between age groups but only in the youngest group did transfer students average significantly higher than natives. Differences between

groups at the time of graduation were small except in the eldest group, but none reached a level of significance. When considering total collegiate work, the grade-point average of youngest natives was significantly higher than that of youngest transfers.

4. Sex.

   a. Comparisons within the transfer and native groups. The pattern was the same within the transfer and native groups. Although the grade-point average for females was equal to or greater than that of males when observations began and at all time intervals, the differences were not significant.

   b. Comparisons between transfer and native students. When observations began and upon receipt of the baccalaureate degree, there was no significant difference in grade-point average between transfer and native males nor between transfer and native females. When considering their total collegiate work, native males had a significantly higher grade-point average than transfer males, but the difference between female groups was not significant.

5. Marital status.

   a. Comparisons within the transfer and native groups. The pattern was similar within the transfer and native groups. The differences in grade-point average between single and

married students were not significant when observations began, at graduation, or for total collegiate work.

b. Comparisons between transfer and native students. No significant differences were observed at the time observations began or at graduation between single transfer and native students or between married transfer and native students. Single natives had a significantly higher grade-point average than single transfers for total collegiate work, but the difference between married groups was not significant.

6. Class standing.

a. Comparisons within the transfer and native groups. Within the transfer group, differences in grade-point average between sophomores and juniors were not significant at any time interval. Within the native group, differences when observations began and at graduation were not significant, but the grade-point average for total collegiate work for native juniors was significantly higher than that for native sophomores.

b. Comparisons between transfer and native students. Students who transferred with sophomore standing had a significantly higher grade-point average when they entered than their native counterparts, but little difference was observed between groups with junior standing. Upon receipt of the baccalaureate

degree, differences between groups were small. The difference between sophomore groups was not significant for total collegiate work, but the grade-point average for native juniors was significantly higher than that for transfer juniors.

Persistence

The persistence of transfer students was compared with that of native students. Dropouts seldom occurred between the fourth and fifth year of collegiate work. The total dropout rate after five years of observations was selected for the following summary.

1. General. The persistence rate of native students was significantly higher than that of transfer students at all time intervals.

   After five years of collegiate work, 49 percent of the transfer students had dropped out compared to 22 percent of the natives. Dismissal rates for transfer students exceeded one-third of the total transfer dropouts, but among natives, less than one-seventh of the dropouts had been dismissed. Four percent of the transfer students and one percent of the natives were still enrolled after five years.

2. School.

   a. Comparisons within the transfer and native groups. For transfer students, dropouts were considerable in all schools, but losses were greatest in the Schools of Humanities,

Business, and Engineering and lowest in the School of Science. Transfer students in the School of Engineering suffered a high dismissal rate. Dropout rates were low for natives except in the School of Humanities.

b. Comparisons between transfer and native students. The dropout rates for transfer students were higher than those for native students except in the School of Science. Differences between transfer and native dropouts were small in the School of Science. The greatest difference between transfers and natives was observed in the School of Engineering. Transfer dropouts included a higher percentage of dismissals than native dropouts in each school except Education. No dismissals were observed for transfer or native students in the School of Education.

3. Age.

a. Comparisons within the transfer and native groups. For transfers, dropouts were highest for the 22 to 26 year olds and lowest for the eldest students; for natives, losses were highest for the youngest students and lowest for the 22 to 26 age group. No unusual pattern was observed for the percentage of withdrawals and dismissals.

b. Comparisons between transfer and native students. Native students from 19 to 26 years of age were more persistent

than their transfer counterparts, but natives and transfers in the 27 to 34 age group rated the same. The greatest difference in dropout rate was observed between the 22 to 26 year old transfers and natives. Transfer dropouts included a higher percentage of dismissals in each age group.

4. Sex.

   a. Comparisons within the transfer and native groups. Within the transfer group, the dropout rate was a little higher for males than for females. Dismissal rates were high for transfer males. A greater variation was observed within the native group and the pattern was reversed. Dropouts were considerably higher for females.

   b. Comparisons between transfer and native students. The dropout rate for male transfer students was higher than that for male native students, and the rate for female transfers was higher than that for female natives. The difference between male transfer and male native dropouts was large, but the female transfer dropout rate was only a little higher than that of female natives. Dropouts from the transfer male group included a higher percentage of dismissals than transfer females.

5. Marital status.

   a. Comparisons within the transfer and native groups. Married

students showed greater persistence with lower dropout rates than their single counterparts. The difference within the native group was small, but the dropout rate for single transfer students was considerably higher than for married transfers. No unusual pattern was observed for dismissals.

b. Comparisons between transfer and native students. Single transfer students had a much higher dropout rate than single natives, and married transfers had a higher rate than married natives. Transfer dropouts included a higher percentage of dismissals than native dropouts for single and married students.

6. Class standing.

a. Comparisons within the transfer and native group. Students who began observations with junior standing were more persistent than those who began with sophomore standing. The difference within the native group was very small; the difference between sophomore and junior transfer students was greater. No unusual pattern was observed for dismissals.

b. Comparisons between transfer and native students. The dropout rate for students transferring with sophomore standing was higher than that for sophomore natives, and the rate for students transferring with junior standing was higher than that for junior natives. Transfer dropouts included a higher

percentage of dismissals than native dropouts for sophomore and junior students. No native juniors were dismissed.

Graduation

The graduation rate of transfer students was compared with that of native students. The total graduation rate after five years of observations was selected for subgroup comparisons.

1. General. The graduation rate of native students was significantly higher than that of transfer students at all time intervals.

   Graduation rates increased greatly for both native and transfer students when given an additional year to complete degree requirements. Generally, the rate for natives rose nearly 50 percent while that for transfers nearly doubled.

   After a total of four years of collegiate work, only 21 percent of the transfer students had attained a degree compared to 53 percent of the natives. After five years of collegiate work, the graduation rate rose to 41 percent for transfer students and 73 percent for natives.

2. School.

   a. Comparisons within the transfer and native groups. Within the transfer group, graduation rates were very low in the School of Humanities, fairly low in Business and Engineering, and highest in the Schools of Education and Science. For

native students, rates were low in the School of Humanities but high in all other schools with Engineering students ranking highest.

b. Comparisons between transfer and native students. The graduation rate for native students was higher than that for transfer students in all schools. Differences in transfer and native rates were very small in the School of Science and very large in the School of Engineering.

3. Age.

a. Comparisons within the transfer and native groups. Native students from 19 to 26 years of age had a much higher graduation rate than the corresponding transfer groups, but the rate was the same for transfers and natives between 27 and 34. Within the transfer group, the 22 to 26 year olds had the lowest graduation rate and the eldest students had the highest. For natives, the youngest students had the lowest graduation rate and the 22 to 26 year olds had the highest. The graduation rate for eldest transfer students was usually high for a transfer subgroup.

b. Comparisons between transfer and native students. The graduation rate for native students from 19 to 26 years of age was higher than that for transfer students in the same age range, but the rate was the same for students above 27 years.

The greatest difference in graduation rates was between transfers and natives from 22 to 26 years.

4. Sex.

   a. Comparisons within the transfer and native groups. Within the transfer group, graduation rates were a little higher for females, but for natives, rates were higher for males.

   b. Comparisons between transfer and native students. The graduation rate for native males was higher than that for transfer males, and the rate for native females was higher than that for transfer females.

5. Marital status.

   a. Comparisons within the transfer and native groups. Married students had a higher rate of graduation than their single counterparts. The difference within the native group was not large, but considerable difference was noted within the transfer group.

   b. Comparisons between transfer and native students. The graduation rate for single natives was higher than that for single transfer students, and the rate for married natives was higher than that for married transfers. The difference between single transfers and natives was greater than that between married students.

6. Class standing.

   a. Comparisons within the transfer and native groups. Graduation rates were consistantly higher for students who had junior standing when observations began than for their sophomore counterparts.

   b. Comparisons between transfer and native students. Native sophomores were more likely to graduate than students who transferred with sophomore standing and native juniors were more likely to graduate than students who transferred with junior standing.

CHAPTER V

SUMMARY AND CONCLUSIONS

The purpose of this study was to determine whether or not a significant difference existed between Oregon community college transfer students and native students at Oregon State University with respect to academic achievement, persistence, and graduation. A survey of related literature was conducted to establish a theoretical framework and provide guidance in the design of the investigation.

Two groups of students were selected for observation. The first included all of the 116 full-time students who transferred from Oregon community colleges with 39 or more units of collegiate work and were admitted to Oregon State University from the fall quarter 1963 through the fall quarter 1964. The second group included 116 full-time native students who were currently enrolled at Oregon State University. Each native student was selected at random to match one of the transfer students by school, age, sex, marital status, and number of units completed.

Original data were obtained by surveying student records. Grade-point averages were collected at the following time intervals: (1) At the time observations began, (2) at the end of the first, second, and third quarters, (3) after two years, (4) upon receipt of the

baccalaureate degree, and (5) after all collegiate work. To evaluate persistence and graduation, students were classified as enrolled, withdrawn, dismissed, or graduated. The percentage of students in each classification was tabulated at the following time intervals: (1) At the end of the first, second, and third quarters, (2) after two years, (3) after four years, and (5) after five years.

Comparisons of grade-point average were made by t tests. Within the transfer group, evaluations were made for subgroups established on the basis of school, age, sex, marital status, and class standing. The same subgroup evaluations were made within the native group. Comparisons of grade-point average also were made between the transfer and native groups as a whole and as subgroups. The academic classifications of the total transfer group were compared with those of the native group by chi-square tests. Comparisons for transfer and native subgroups were made by percentages.

Summary of Findings

The findings of this investigation are summarized in three subdivisions: transfer shock, academic achievement, persistence and graduation.

Transfer Shock

Acute transfer shock was observed for transfer students. Recovery was slow, and grade-point averages generally did not return to their original level until graduation. The dropout rate was extremely high for the first year after transfer and included a large number of dismissals.

1. School. Students in all schools suffered transfer shock. The greatest loss in grade-point average was in the School of Engineering, and the smallest was in the Schools of Agriculture and Education. Large dropout rates for the first year after transfer were noted in all schools except Science and Education. The greatest dropout was observed in the Schools of Business, Engineering, and Humanities. Dropouts from the Schools of Business and Engineering included a high percentage of dismissals.
2. Age. Young students in the 19 to 21 age group suffered the greatest drop in grades after transfer; grades for the eldest group never dropped below a C average. After one year, the youngest students had the highest dropout rate and the eldest had the lowest.
3. Sex. Male students suffered greater shock than female, but little difference was observed between male and female dropout rates for the first year.
4. Marital status. Married students experienced less loss of

grade-point than single and recovered rapidly. They were more persistent than single students and had a lower dropout rate for the first year after transfer.

5. Class standing. Both sophomore and junior transfers experienced sizable drops in grades. Students who transferred with junior standing had a lower dropout rate during the first year than those who transferred with sophomore standing.

Academic Achievement

When observations began and upon receipt of the baccalaureate degree there was no significant difference between the grade-point averages of transfer and native students. However, when comparing the total collegiate work of dropouts as well as graduates, the grade average of transfer students was significantly lower than that of native students. This was attributed to the loss of grade-point average associated with transfer shock.

1. School.
   a. Comparisons within the transfer and native groups. Within the transfer group, Science students had a significantly higher grade-point average when observations began, but differences among schools were not significant at graduation. For total collegiate work, the grade-point average in the School of Science was significantly higher than in most other schools,

and the average for Business students was significantly lower. Within the native group, variations in achievement among schools were greater. When observations began, the grade-point averages in the Schools of Science, Forestry, Home Economics, and Pharmacy were significantly higher than in most other schools, and the average in the School of Business was significantly lower. At graduation, native averages were significantly higher in the Schools of Agriculture, Forestry, Home Economics, and Pharmacy than in Business, Engineering, and Humanities. For total collegiate work, the average in Forestry, Home Economics, and Pharmacy was significantly greater and in the School of Humanities was significantly lower than in most other schools.

b. Comparisons between transfer and native students. In the School of Science, transfer students averaged considerably higher than natives when observations began, but the differences in other schools were not considered significant. At graduation, there was no significant difference in any school. For total collegiate work, the average for natives in the School of Engineering was much higher than for transfer students, but differences in other schools were not significant.

2. Age.

a. Comparisons within the transfer and native groups. Within

the transfer group, the 22 to 26 year olds had a significantly lower average than other age groups when observations began, but there were no significant differences between groups at graduation or for total collegiate work. Within the native group, there were no significant differences between groups at any time.

b. Comparisons between transfer and native students. When observations began, transfer students in the 19 to 21 group averaged significantly higher than corresponding natives, but differences between groups were not significant at the time of graduation. When considering total collegiate work, the grade-point average of youngest natives was significantly higher than that of youngest transfers.

3. Sex.

a. Comparisons within the transfer and native groups. Within the transfer and native groups, the grade-point average for females was equal to or greater than that for males, but the differences were not significant at any time.

b. Comparisons between transfer and native students. When observations began and at graduation, there was no significant difference in grade-point average between transfer and native males or females. For total collegiate work, native males were considerably higher than transfer males, but the

difference between female groups was not significant.

4. Marital status.

   a. Comparisons within the transfer and native groups. The pattern was similar within the transfer and native groups. The differences in grade-point average between single and married students were not significant when observations began, at graduation, or for total collegiate work.

   b. Comparisons between transfer and native students. No significant differences were observed when observations began or at graduation between single transfer and native students or between married transfer and native students. Single natives averaged much higher than single transfers for total collegiate work, but the difference between married groups was not significant.

5. Class standing.

   a. Comparisons within the transfer and native groups. Within the transfer group, differences in grade-point average between sophomores and juniors were not significant at any time. Within the native group, differences when observations began and at graduation were not significant, but for total collegiate work, the average for juniors was significantly higher than for sophomores.

   b. Comparisons between transfer and native students. Students

who transferred with sophomore standing had a significantly higher average than their native counterparts, but little difference was observed between transfer and native groups with junior standing when observations began. At graduation, differences were small. The difference between sophomore groups was not significant for total collegiate work, but native juniors averaged significantly higher than transfer juniors.

Persistence and Graduation

When transfer students were compared with native students, the persistence and graduation rates of native students were found to be significantly higher than those of transfer students at all time intervals. Dropouts from either group seldom occurred between the fourth and fifth year of collegiate work. Graduation rates for both groups increased greatly when students were given an additional year to complete degree requirements, but the largest gain was observed for transfer students.

1. School.

   a. Comparisons within the transfer and native groups. Within the transfer group, persistence and graduation rates were highest in the Schools of Education and Science and lowest in the Schools of Humanities, Business, and Engineering. Students in the Schools of Engineering and Business suffered a high

dismissal rate. For natives, persistence and graduation rates were high in all schools except Humanities.

b. Comparisons between transfer and native students. The persistence and graduation rates for native students were much higher than those for transfer students enrolled in the same school except in the School of Science. Differences in rates for transfer and native science students were small. The greatest difference between transfer and native rates was observed in the School of Engineering. Transfer dropouts included a higher percentage of dismissals than native dropouts in each school except Education. No dismissals were observed for transfer or native students in the School of Education.

2. Age.

a. Comparisons within the transfer and native groups. Within the transfer group, persistence and graduation rates were unusually high for students in the 27 to 34 age group and lowest for the 22 to 26 year olds. The dropouts from the 22 to 26 age group included a high percentage of dismissals. For natives, persistence and graduation rates were highest for the 22 to 26 year olds and lowest for the students under 22.

b. Comparisons between transfer and native students. The persistence and graduation rates for native students from 19 to

26 years were higher than those for transfer students in the same age range, but the rates were the same for native and transfer students above 26 years of age. Transfer dropouts included a higher percentage of dismissals than native dropouts in each age group.

3. Sex.

   a. Comparisons within the transfer and native groups. Within the transfer group, the persistence and graduation rates were a little higher for females than for males. A higher percentage of male dropouts were dismissed. For natives, persistence and graduation rates were higher for males than for females.

   b. Comparisons between transfer and native students. The persistence and graduation rates for native males were higher than those for transfer males, and the rates for native females were a little higher than those for transfer females. Dropouts from the transfer male group included a higher percentage of dismissals than those from the native male group, but native females had a higher percentage of dismissals than transfer females.

4. Marital status.

   a. Comparisons within the transfer and native groups. Married students had higher persistence and graduation rates than

their single counterparts. The rates for married transfers were considerably higher than those for single transfers, but the differences within the native group were small.

b. Comparisons between transfer and native students. The persistence and graduation rates for single native students were higher than those for single transfer students, and the rates for married natives were higher than for married transfers. Transfer dropouts included a higher percentage of dismissals than native dropouts for single and married students.

5. Class standing.

a. Comparisons within the transfer and native groups. Within the transfer and native groups, students with junior standing were more persistent and were more likely to graduate than their sophomore counterparts.

b. Comparisons between transfer and native students. The persistence and graduation rates for native sophomores were higher than those for students who transferred with sophomore standing, and the rates for native juniors were higher than those for students who transferred with junior standing. Transfer dropouts included a higher percentage of dismissals than native dropouts for sophomore and junior students.

Conclusions

The findings of this investigation supported the following hypotheses: (1) Oregon community college transfer students suffered a significant drop in grade-point average after entering Oregon State University. Following the drop, the transfer students' grade-point average gradually increased. (2) Attrition was higher for Oregon community college transfer students than for native students at Oregon State University. (3) Both transfer and native females generally had a higher grade-point average than their corresponding males, but the differences did not reach a level that was considered statistically significant. (4) There was a significant difference in grade-point average among some schools for both transfer and native students.

When the findings of this investigation were compared with research literature, the following conclusions were reached.

General Conclusions

1. The grade-point average of transfer students at the time of admission to a senior institution is higher than that of native students, but the difference may not be significant.
2. Transfer students experience a significant drop in grades immediately following transfer. Recovery is slow; after two years,

grade-point averages generally are still below their original transfer level and do not recover until graduation. Native students do not suffer large variations; their grades show gradual improvement from lower division through graduation.

3. When comparing the cumulative grades for the total collegiate work of dropouts as well as graduates, the grade-point average of transfer students is significantly lower than that of native students. This is attributed to the drop in grade-point average associated with transfer shock.
4. There is no significant difference between the grade-point averages of transfer and native students who persist until graduation.
5. The persistence and graduation rates for native students are significantly higher than those for transfer students.
6. Transfer dropouts include a higher percentage of dismissals than native dropouts.
7. Graduation rates for transfer and native students increase greatly when students are given an additional year to complete degree requirements. Dropouts seldom occur between the fourth and fifth year.
8. The intellectual ability of dropouts is uncertain, but a pattern of low academic achievement is consistently associated with attrition.

Conclusions Related to School, Age, Sex, Marital Status, and Class Standing

1. The student's academic success is related to his selection of a school, but performance in some schools vary greatly among institutions. Transfer students in some Schools of Science tend to maintain a high grade-point average while those in Business and Technology often maintain a comparatively low level of achievement. For those who persist until graduation, differences among schools may not be significant. Native students in the Schools of Business, Engineering, and Humanities may attain a lower average than natives in other schools.
2. The cumulative grades for the total collegiate work of native students are higher than those of transfer students in the School of Engineering, but differences between natives and transfers in other schools may be small. For those who persist until graduation, academic differences between native and transfer students who are enrolled in the same school may not reach a level of significance.
3. The student's persistence and completion of degree requirements are related to his selection of a school, but success in some schools, such as Business, Science, and Humanities, varies among institutions. Transfer students in the School of

Education have high persistence and graduation rates. Rates are low in the School of Engineering. Transfer students in the Schools of Engineering and Business may suffer a high dismissal rate. Native students tend to have high persistence and graduation rates in all schools.

4. The persistence and graduation rates for native students are higher than those for transfer students enrolled in the same school; however, differences in rates between transfer and native students in the School of Science may be small.
5. Age is generally not a significant factor in academic achievement for total collegiate work or at graduation, but the average for the total collegiate work of young native students may significantly exceed that of young transfer students.
6. The relationship of age to persistence and graduation is not clear. The success of students in different age groups may vary for transfer and native students. When transfer and native students are compared, the persistence and graduation rates for natives under 27 tend to be higher than those for transfers in the same age range, but there may be little difference between older students.
7. The grade-point average for females exceeds that of males, but the difference may not be significant.
8. The relationship of sex to persistence and graduation is not clear.

For transfer students, females tend to have a higher rate than males, but males suffer a high percentage of dismissals. For natives, persistence and graduation rates are frequently higher for males.

9. Marital status is generally not a significant factor in academic achievement for total collegiate work or at graduation, but the average for the total collegiate work of single native students may significantly exceed that of single transfer students.
10. Married students are more persistent and have higher graduation rates than their single counterparts. Differences within the transfer group are larger than within the native group.
11. Class standing is related to academic achievement, but class standing at the time of transfer is not a significant factor. Students with junior standing tend to have a higher grade-point average than those with sophomore standing, but the difference between junior and sophomore transfer students appears to be even less than that between junior and sophomore natives.
12. For total collegiate work, the academic success of native juiors exceeds that of students who transferred with junior standing, but there is little difference between native and transfer sophomores. For those who persist until graduation, differences may not be significant.
13. Class standing is a significant factor in persistence and

graduation. All juniors, transfer or native, have a higher persistence and graduation rate than their sophomore counterparts, but students who transfer with sophomore standing have an especially low rate.

Recommendations

The need for continued study and additional research is indicated in several areas. As the number of transfer students admitted to Oregon State University increases, changes are anticipated in patterns of student achievement, persistence, and graduation. Studies, similar in design to this investigation, should be conducted periodically to evaluate trends and areas of difficulty resulting from the expansion of the transfer program. Data and research must be continuous and current to be useful in the establishment and modification of policies, programs, and services.

The low achievement, persistence, and graduation rate observed for Oregon community college transfer students admitted to Oregon State University has implications for the need to review current policies. An examination should be made of the current data on transfer achievement, attrition, and transfer shock recovery patterns to determine the advisability of modifying admission and dismissal policies for the transfer student at Oregon State University.

Additional research is needed to determine the nature of the

high attrition of Oregon community college transfer students at Oregon State University. An investigation of the grading practices in the community colleges and senior institutions would be useful to identify similarities and discrepancies. Orientation programs and counseling services specifically designed to improve adjustment, reduce transfer shock, and promote the academic success of transfer students in other senior institutions should be surveyed, and their relative effectiveness should be evaluated.

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