DOCUMENT RESUME

ED 374 846   JC 940 535

TITLE   Longitudinal Study: A Retrospective Study of
                 Enrollments and Academic Achievements: First-Time
                 Entering College Students, Fall Semesters 1985, 1987,
                 and 1989. Southwestern College Special Report.
INSTITUTION   Southwestern Coll., Chula Vista, Calif.
PUB DATE   May 93
NOTE   35p.
PUB TYPE   Reports - Research/Technical (143)

EDRS PRICE   MF01/PC02 Plus Postage.
DESCRIPTORS   *Academic Achievement; Ancillary School Services;
                 Community Colleges; *Educational Counseling;
                 Enrollment Trends; Longitudinal Studies; Outcomes of
                 Education; *Program Effectiveness; *School Holding
                 Power; Student Attrition; *Student Personnel
                 Services; Two Year Colleges; *Two Year College
                 Students; Withdrawal (Education)
IDENTIFIERS   *Southwestern College CA

ABSTRACT
                 A longitudinal study was conducted at Southwestern
College (SWC) in Chula Vista, California, to assess the impact of the
matriculation process on SWC students. Three groups of students were
compared: students who started "Pre-Matriculation" (in 1985);
students who started during the "Phase-In" (in 1987); and students
who started "Post-Matriculation" (in 1989). The study compared the
enrollment patterns, academic performance, and academic experiences
of these three groups during the first five semesters of their
possible enrollment at SWC. Study findings, based on an examination
of the transcripts of 6,381 first-time students entering during 1 of
the 3 study years, included the following: (1) the gender and age
make up of the three groups remained essential the same, though
during the period there was a shift in ethnicity from Anglo to
Hispanic and a shift toward a higher percentage of students seeking
to transfer; (2) about 60% of the students enrolled for two
consecutive semesters; (3) by the third semester, 46% of all entering
students from each cohort were enrolled in at least one course; (4)
differences in retention, and units attempted and completed were much
more pronounced across age groups over the five semesters than after
the first semester; and (5) there was little relationship between
matriculation and first semester retention rate, number of units
completed, or successful pass rates. (KP)

Southwestern College

Longitudinal Study

A Retrospective Study of
Enrollments and Academic
Achievements: First-Time
Entering College Students,
Fall Semesters 1985, 1987,
and 1989

SPECIAL REPORTS

The major functions of the College Planning, Research, and Grants Development Office are to:

- Facilitate the strategic planning efforts of the College
- Augment the College's Management Information System (MIS), utilizing data bases maintained by computer services
- Conduct institutional research
- Assist faculty and administration to seek grants and respond to external public and private funding agencies

In order to carry out these interrelated functions, the College Planning Office collects, analyzes and synthesizes information from a wide variety of internal and external sources to help members of the College community better understand the changing environment and operations of the College.

Special reports are intended to provide information about institutional operations, programs, services, staff and students, as well as the community at large. The topics addressed in each special report contribute to the pool of knowledge necessary for planning, assessment, and on-going decision-making processes of the College.

The Governing Board, administration, faculty, and staff increasingly must share responsibility for conducting affairs that fulfill the College mission. It is important that this collaborative responsibility be carried out in a spirit of mutual understanding of the agreed upon goals of the College. It is also essential that they share a common information base with which to assess current and future conditions so that informed choices can be made. Objective appraisal of the strengths and weaknesses of the College's operations, programs and services is an essential prelude to their improvement. Special reports are intended to supply information to help in this endeavor.

Interested parties may request copies of such reports from the College Planning Office.

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SOUTHWESTERN COLLEGE

SPECIAL REPORT

Longitudinal Study
A Retrospective Study of Enrollments and Academic
Achievements: First-Time Entering College Students,
Fall Semesters 1985, 1987, and 1989

Produced by: Southwestern College
              College Planning Office
              900 Otay Lakes Road
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              May 1993

SOUTHWESTERN COLLEGE

Longitudinal Study
A Retrospective Study of Enrollments and Academic Achievements: First-Time Entering College Students, Fall Semesters 1985, 1987, and 1989

Table of Contents

Southwestern College

Longitudinal Study
A Retrospective Study of Enrollments and Academic
Achievements: First-Time Entering College Students,
Fall Semesters 1985, 1987, and 1989

Preface

The 1992-93 academic year at Southwestern College (SWC) has been devoted to reviewing
and revising its five-year institutional plan. It has also been a period of analyzing the
characteristics and performance outcomes of its students to ensure that the college mission
and strategic goals are aligned with the needs and educational expectations of the population
it serves.

Three recent studies have been central to describing the educational experiences and outcomes
of SWC students: 1) a review of student probation patterns for the past six to eight
semesters; 2) a longitudinal study of three first-time entering SWC student cohorts in Fall
semesters of 1985, 1987, and 1989; and 3) a student satisfaction survey which was
administered to a cross-section of students in the Fall of 1992. The findings from these
studies have been documented in separate reports and presentations made to college staff.
They will continue to be presented as part of the College Planning and Research Office
dissemination activities during the coming year.

The purpose of these studies, along with other institutional research efforts in the same vein,
is to stimulate discussion and development of strategies among faculty, administration, and
staff to improve institutional effectiveness in helping our students succeed in the attainment of
their educational goals. The specific purpose of this report is to summarize the significant
findings related to enrollment patterns and outcome measures of the three student cohorts.

Among the noteworthy findings of this study is the fact that about 15 percent of each Fall
cohort of new entering college students left SWC before the end of their first semester. Sixty
percent started the following semester and only 46 percent returned for a third semester.
These statistics indicate a loss of some 40 percent of new students between college entry and
the start of the second semester and a 54 percent loss by the third semester. Further analysis
showed that the attrition rates were higher for certain student groups: Anglos, African-
Americans, students 22 years of age or older, and those who were exempt from matriculation.
The data also indicate the importance of the first semester college experience on the
continuation of students in college and their academic success.

Southwestern College

Longitudinal Study
A Retrospective Study of Enrollments and Academic
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Fall Semesters 1985, 1987, and 1989

Introduction

The California legislative mandate known as "matriculation" (AB3) defines matriculation as:

> A process that brings a college and a student who enrolls for credit into an agreement for the purpose of realizing the student's educational objectives through the college's established programs, policies, and requirements.

At Southwestern College (SWC), students with the following stated goals participate in matriculation: transfer; an Associate of Arts or Associate of Science degree without intending to transfer, (within this report referred to as Associate Degree); vocational degree (also an Associate of Science degree) or certificate. Students whose goals are undecided also participate in matriculation. The five major components of matriculation include admission to the college; assessment of the student's skills in reading, English, math, and ESL; orientation to college programs and services; academic and career counseling and advisement, culminating in the development of an individual educational plan; and follow-up to monitor student progress and alert faculty and counselors to academic problems as they develop. Students who enter SWC with a goal of self-improvement or for job-related purposes (without seeking a degree or certificate) or who have a previous college degree are exempt from the matriculation process.

This longitudinal study was designed to assess the impact of the matriculation process as a whole on SWC students. Matriculation at SWC began in 1987. Therefore, three groups of students were compared as part of this study: students who started at SWC during "Pre-Matriculation" (in 1985), students who started during the "Phase-In" (in 1987), and students who entered SWC "Post-Matriculation" (in 1989).

The purpose of this study is to describe the enrollment patterns and academic performances of the three cohorts and to compare the academic experiences of the three groups for the first five semesters of their possible enrollment at SWC in order to gain an understanding of the relationship between matriculation and students' academic outcomes.

Methodology

Data were collected from the transcripts of 6,381 students who had not previously attended college and who entered SWC in the Fall semesters of 1985, 1987, or 1989. The use of the three cohorts allowed for a comparison of five semesters of enrollment and performance data collected through Fall 1991, which was the latest semester for which data were available at the time of this study. For purposes of this study, the cohorts did not include high school students concurrently enrolled at SWC and their host high school nor students who had prior

college credit from SWC or another institution of higher learning. Thus this study included only new entering freshman students.

All data were obtained by SWC computer records for the fall and spring semesters during the time period from Fall 1985 to Fall 1991; the data did not include Summer sessions. Demographic data, including gender, age, ethnicity and self-reported educational goal, were collected for each of the 6,381 students in the sample. The outcome measures used in this study included semester retention rate, persistence rates, units attempted and completed, successful pass rates (grade of C or better), and grade point average (GPA). These outcome measures were selected because they were among the factors utilized in longitudinal studies conducted by other California Community Colleges and because data on each of the elements were available from the SWC computer database at the time this study was initiated.

Two time periods were used for comparison and analysis of these outcome measures:

(1)   first semester outcomes, because the first semester was deemed to be a critical period in the higher education academic career of new students (as the results of the study will show, this proved to be a valid assumption); and

(2)   a five semester time frame, because this allowed for comparison of the maximum common time period across the three cohorts (1985, 1987, and 1989). The Fall 1989 cohort had completed a total of five semesters of college by the end of the Fall 1991 semester, when the data for this study were obtained from the college database.

Based on SWC transcript data, the attendance patterns and classroom performance of each cohort (from the Fall semester in which they first entered SWC until Fall 1991) were analyzed. A total of ten outcome measures were determined, compiled, and computed for each student and then aggregated by cohort. The outcomes measured were:

* First semester and five semester retention;
* First semester and five semester units attempted;
* First semester and five semester units completed;
* First semester and five semester successful pass rate;
* First semester and five semester grade point average.

Organization of This Report

The results of this study are presented in three sections. Section I presents the demographic characteristics of the sample and provides an overview of the enrollment patterns of each of the three cohorts for all of the semesters of data available for each cohort. Section II presents the results of an analysis of the outcome measures for the students in all three cohorts combined. This analysis examines the extent to which the demographic characteristics of the students can predict their first semester and five semester outcomes. Section III presents an analysis that compares student outcomes across the three cohorts to evaluate the relationship between matriculation and the academic outcomes of the students in each cohort. This section contains a brief concluding statement summarizing some of the potential implications of the study findings.

2

8

STUDY HIGHLIGHTS

Analyses of data in this longitudinal study were divided into three categories: 1) demographics and enrollment patterns of three cohorts of students entering Southwestern College, 2) results of the first and five semester outcomes for the three cohorts combined, and 3) analysis of the impact of the implementation of matriculation on student outcomes. Key findings are summarized below by topic.

Demographics and Enrollment Patterns

- A total of 6,381 students were included in the three combined cohorts of new first time entering students in the Fall semesters of 1985, 1987, and 1989. The gender make up and age grouping of the three cohorts were essentially the same; but during the three comparative semesters there was a shift in ethnicity from Anglo to Hispanic students, which followed the institutional pattern during those academic years. There was also a shift toward a higher percent of students with transfer as an educational goal and a corresponding reduction in the percentage of students who sought an associate degree without transfer or who were undecided. Overall, 80 percent of the students included in the three cohorts were non-exempt from matriculation. (See Table 1.)

- About 9 percent of the 1985 cohort enrolled in at least one class 13 semesters later; 1 percent had enrolled in every consecutive semester without a break. For the semesters for which comparisons were possible, it appeared that the 1987 and 1989 cohorts were going to follow the same enrollment pattern. (See Table 2 in the body of the report.)

- About 6 out of 10 new entering students enrolled for two consecutive semesters. One out of four students enrolled for five consecutive semesters. Consecutive semester enrollment rates for transfer majors were significantly higher than for the total cohort of students. (See Tables 2 & 3.)

- By the third semester, 46 percent of all entering students from each of the three cohorts enrolled in at least one course. Anglo, African-American, students over age 21, and students exempt from matriculation had lower enrollment rates than average in the third semester. (See Table 4.)

- As a group, nearly 40 percent of the new entering transfer students had enrolled consecutively for five semesters compared to less than 25 percent of the cohort as a whole.

First Semester and Fifth Semester Comparisons

Analysis of first semester outcomes revealed that: (See Table 5.)

- Women started with fewer units than men but finished the same number and achieved a higher successful pass rate and average GPA than men (2.37 vs. 2.23).

- Students under age 21 attempted and completed more units than older students but had a considerably lower successful pass rate and average GPA (2.22 vs. 2.62+).

- Transfer students attempted the highest number of units during their first semester (10.3) and finished with the highest number (8.4), but they also dropped the highest number (1.9).

- Students declaring "other goals" enrolled in the second highest number of units (8.9) but dropped an average of 1.7 units during their first semester.

- Educational goal had a strong correlation to first semester retention, as did student ethnicity. Gender and age group did not have statistically significant relationships to first semester retention.

- Age group had a strong correlation to successful pass rate and average GPA; older students achieved higher scores on these measures. Gender and ethnicity also had significant relationships with these outcome measures. Educational goal, however, did not prove to have a significant relationship to GPA.

Analysis of five semester outcomes reveals that: (See Table 6.)

- Differences in retention, units attempted and units completed are much more pronounced across age groups over five semesters than after the first semester. Younger students had twice the retention rate of students over age 31 and they also took twice as many units as older students. However, older students achieved higher successful pass rates and average GPAs. Gender was not significantly related to five semester retention.

- Transfer students had the highest retention rates and attempted and completed the most units. They earned slightly higher average GPAs than other "matriculating" students, but not higher than students with educational goals related to self-improvement or "other" goals (although these students had finished far fewer units over five semesters).

- Educational goal was a factor in the number of units taken over five semesters; transfer students completed the highest number of units (31.1).

- Age group and gender were highly related to the five semester successful pass rate and average GPA.

4

10

- Student ethnicity had a significant relationship to pass rates and GPAs, with Anglo students registering higher successful pass rates than other ethnic groups.

- First semester GPA proved to have the strongest predictive value in projecting five semester average GPA.

Impact of Matriculation

Analysis of the performance of the three entering cohorts of new first-time students and the differences between exempt and non-exempt students revealed the following:

- 80 percent of all new first-time entering students were classified as non-exempt from matriculation.

- During the three Fall semesters that were compared, there was an increase in the percent of students declaring "transfer" as an educational goal and a corresponding decrease in the proportion of "undecided" students.

- There was little relationship between matriculation and first semester retention rate, the number of units completed, or successful pass rates for non-exempt students.

- There was an increase in first semester GPA for both exempt and non-exempt students between Fall 1985 and Fall 1989; therefore, it cannot be concluded that this was due to matriculation. However, there was a statistically significant increase in the number of units attempted by non-exempt students.

- There were significant gains in fifth semester outcomes for non-exempt students related to retention rates, cumulative units attempted and completed, and increased average GPA. There was no significant impact on successful pass rates that could be attributed to matriculation.

Concluding Statement

Based on the retrospective study results, it appears that the first semester experience of new first-time students is critical to their continuation in college and their academic performance for the following semesters. As it turned out, students taking more than six units performed better on a number of outcome measures than those taking a lighter load.

Students' age was a characteristic highly related to first and five semester performance at SWC. Younger students attempted and completed more units but did not perform as well as older students. Although ethnicity was never the characteristic with the strongest relationship to any of the student outcomes used in this study, it was related to nearly all of them. For example, Filipino students ranked high on retention rates, units attempted and completed; Anglo students tended to have high successful pass rates and GPAs; and African-American students fared less well than other ethnic groups on each of the first and fifth semester

outcome measures used in the study. Finally, women seemed to do better than men on most outcome measures.

Transfer students had better retention rates than other students before matriculation was implemented and their retention rates improved after matriculation was implemented.

Taken as a whole, the educational goals of students did not have a strong relationship to student successful pass rates or GPAs. That is, transfer students did not earn a higher average GPA (2.45) than those who enrolled for self-improvement (2.51), but they did take and complete nearly three times more units. On the other hand, undecided students performed below average on most of the first and five semester outcome measures. Therefore, it appears that college efforts to help students define their educational goals may have a positive impact on their college performance.

The study indicates that matriculation shows stronger impact on longer-term performance than during the first semester. This suggests that further efforts are needed to help identify and serve the educational needs of new first-time entering students early in their college career. Extending such assistance prior to a student's entry to Southwestern College may also improve their performance.

SECTION I

Demographics and Enrollment Patterns

There was an increase in the number of new students from 1985 (1,707 students) to 1989 (2,544 students). A higher proportion of new students were Hispanic (37%, 1985; 47%, 1989), and more students entered SWC with a goal of transferring (34%, 1985 and 41%, 1989).

Table 1
Student Demographics: Total and Individual Cohorts

	All Cohorts	1985 Cohort	1987 Cohort	1989 Cohort
All Students	6,381	1,707	2,130	2,544
Sex				
Female	52%	51%	54%	51%
Male	48	49	46	49
Age Group				
17-21	70%	71%	70%	70%
22-30	16	14	15	18
31+	14	14	15	13
Average Age	22 yrs old	22	23	22
Ethnicity				
Anglo	33	38	35	28
African-American	6	7	6	6
Asian/Pacific Islander	4%	4%	4%	5%
Filipino	11	11	10	11
Hispanic	42	37	41	47
Other	4	3	4	3
Total non-Anglo	67	62	65	72
Educational Goal				
Transfer	38%	34%	38%	41%
Associate Degree, without transfer	13	14	13	12
Voc Degree/Certificate, without transfer	5	5	5	5
Job related	10	11	9	10
Self-improvement	10	10	8	10
Undecided	24	25	25	22
Matriculation Status				
All non-exempt	80%	78%	82%	80%
All exempt	20	22	18	20

13

Table 2 (below) shows the percent of students who attempted at least one course in the specified number of consecutive semesters. About 6 of every 10 students enrolled for two consecutive semesters, and about 25% of all students enrolled for five consecutive semesters. These rates were higher when only transfer-goal students were included.

Table 2

All Students -- Semesters of Consecutive Enrollment												
	2	3	4	5	6	7	8	9	10	11	12	13
1985	59%	37%	30%	21%	17%	11%	8%	5%	4%	3%	2%	1%
1987	60	41	32	23	18	12	9	6	-	-	-	-
1989	61	42	35	26	-	-	-	-	-	-	-	-

Transfer Goal Only -- Semesters of Consecutive Enrollment												
	2	3	4	5	6	7	8	9	10	11	12	13
1985	71%	52%	44%	31%	26%	18%	12%	8%	6%	4%	2%	1%
1987	73	56	47	36	28	19	14	8	-	-	-	-
1989	77	59	52	41	-	-	-	-	-	-	-	-

It may be noted that there was a stronger carryover from the Fall to the following Spring semester than from the Spring to the following Fall. That is, the change between Semester 2 (Spring of first year) and Semester 3 (Fall of following academic year) is greater than the change from Semester 3 to Semester 4 (the Spring of Year 2) . Summers seem to break the continuity of college attendance.

Table 3 shows the percent of students who attempted at least one course in each of the semesters following original enrollment. Note, this does not refer to continuous enrollment, i.e. a student might not have enrolled in the second semester but enrolled in the third or fourth semester. In the fifth possible semester of enrollment, students who started in 1989 had an 8% higher enrollment rate than 1985 starters. Students with a transfer goal were even more likely to attempt at least one course in a given semester: of the transfer goal students who started in 1989, 73% were attending SWC in their third possible semester, and 50% were attending in their fifth possible semester of enrollment.

Table 3
All Students -- Percent of Cohort Attempting at Least One Course in Semester

Year						Semester						
	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th
1985	59%	42%	38%	28%	27%	21%	19%	15%	13%	12%	10%	9%
1987	60	46	40	32	28	23	20	16	-	-	-	-
1989	61	48	43	36	-	-	-	-	-	-	-	-

Table 4 (below) shows the percent of students who completed at least one course in their third possible semester of enrollment. Notice that 46% of all students enrolled at SWC in the third semester. Anglo, African-American, students over age 21, and exempt students had the lowest attendance rates.

Table 4
Percent of Students who Did Enroll in Third Semester (Overall Retention Rates)

All Students   46%

Sex		Age Group	
Female	46%	17-21	53%
Male	47	22-30	26
		31+	32

Ethnicity		Educational Goal	
Anglo	40%	Transfer	61%
African-American	37	Associate Degree,	
Asian/Pacific Islander	51	without transfer	47
Filipino	60	Voc Degree/Certificate,	
Hispanic	47	without transfer	34
Other	48	Job related (exempt)	28
Total non-Anglo	48	Self-improvement (exempt)	23
		Undecided	39

Matriculation Status	
All non-exempt	51%
All exempt	25

SECTION II

Analysis of Student Outcome Measures for All Cohorts Combined
First and Fifth Semesters

In order to get a clearer picture of how new SWC students performed, data for the three entering cohorts of students were combined and analyzed to determine how differences in gender, age, ethnicity, and educational goal impact student outcomes.

First Semester Outcomes

Table 5 presents the mean first semester outcomes for students, grouped by demographic characteristics. Five first semester outcomes were assessed:

1. First semester retention: the percent of students who completed at least one course with a grade of A, B, C, D, F, Credit (C) or No Credit (NC) in their first semester of enrollment at SWC.

2. Average number of units attempted: the number of units of credit that the student enrolled in at the start of the semester.

3. Average number of units completed: the number of units of credit that students completed with a grade of A, B, C, D, F, C, or NC in their first semester.

4. Successful pass rate: the number of credits completed with a grade of A, B or C as a percentage of all credits with a grade of A, B, C, D, F or W. Credits with grades of C or NC were not included in this outcome because the data received did not indicate how many such units were C and how many were NC.

5. Grade point average (GPA): the average grade point average (with A=4 points, B=3 points, etc.), weighted by the number of first semester units completed. Units with a grade of W, C or NC were excluded from the calculation of GPA.

As may be seen in Table 5, female students attempted a slightly lower average number of units than male students, but completed the same average number. Female students, however, had a higher average successful pass rate (74% vs. 70% for males) and a higher mean grade point average (2.37 vs. 2.23).

Overall, younger students (age 17-21) were likely to attempt and complete more units than students over age 21. The first semester retention rate is somewhat higher for the youngest age group (88% vs. 83% for ages 22-30 and 85% for ages 31+). However, the mean successful pass rate and GPA were considerably lower for the youngest students than for the students over age 21.

Overall, Asian and Filipino students had the highest first semester retention rates, at 90-91%; Anglo and African-American students had lower first semester retention rates, averaging 84% for both groups. Filipino students attempted and completed the highest number of units in their first semesters, while African-American students attempted and completed the fewest units overall. Anglo students had the highest mean successful pass rate (77%) and the highest average GPA (2.45) in their first semester. African-Americans had the lowest successful pass rate (65%) and the lowest first semester GPA (2.08) when compared with the other ethnic groups.

Table 5
First Semester Outcomes

	Percent Retention	No. of Units Attempted	No. of Units Completed	Successful Pass Rate	GPA
All Students	86%	8.6	6.9	72%	2.30
Sex					
Female	86%	8.5	6.9	74%	2.37
Male	87%	8.7	6.9	70%	2.23
Age Group					
17-21	88%	9.7	7.8	70%	2.22
22-30	83%	6.1	4.9	78%	2.62
31+	85%	5.7	4.8	82%	2.65
Ethnicity					
Anglo	84%	8.7	6.3	77%	2.45
African-American	84%	8.3	6.4	65%	2.08
Asian	90%	8.6	6.9	72%	2.38
Filipino	91%	9.3	7.7	75%	2.32
Hispanic	87%	9.0	7.2	70%	2.22
Other	85%	8.7	7.0	70%	2.26
Educational Goal					
Transfer	90%	10.3	8.4	72%	2.31
Associate Degree, without transfer	87%	8.7	7.2	73%	2.28
Voc Degree/Certificate, without transfer	84%	8.2	6.6	74%	2.31
Job related (exempt)	82%	6.4	4.8	70%	2.27
Self-Improvement (exempt)	82%	5.5	4.4	74%	2.37
Other	85%	8.9	7.2	79%	2.56
Undecided	85%	7.9	6.2	71%	2.29

In general, students who were exempt from matriculation (those whose educational goal was job-related or self-improvement) had the lowest first semester retention rates and the lowest average number of units attempted and completed. The first semester retention rates were higher for matriculating students (those with an educational goal of transfer, degree or certificate, or who were undecided), as were the number of units attempted and completed. However, educational goal does not appear to have the same relationship for successful pass rates and GPA; students with an educational goal of self-improvement or "other" had the highest successful pass rates and first semester GPAs.

Multiple regression analysis was used to evaluate the strength of the relationship between the demographic characteristics of students (gender, age, ethnicity and educational goal) and their first semester outcomes. It is important to note here that we are looking at correlational data. We did not have any statistical control over which student has what characteristics. Therefore, we cannot conclude with certainty that there is a **causal** relationship between the demographic characteristics and the academic outcomes -- only that there appears to be a relationship. Thus, we cannot conclude that age group causes good grades, for example -- only that there is a relationship between age group and grades. In addition, please note that although many of the relationships tested were statistically significant (at the 95% probability level), the demographic characteristics of students alone do not account for much of the variation in the academic outcome measures. Other factors not measured in this study, such as students' motivation, may be much more likely to account for more of the variation in retention, units attempted and completed, successful pass rates and GPA.

The results for each outcome measure are presented below:

First Semester Retention. Educational goal had the strongest significant relationship to first semester retention rates; as can be seen from Table 5, students with a transfer or Associate Degree goal had a considerably higher first semester retention rate than students with job-related or self-improvement goals. Ethnicity was the demographic variable with the second strongest significant relationship to first semester retention. Asian and Filipino students had considerably higher first semester retention rates (90-91%) than did Anglo or African-American students. Gender and age group did not have statistically significant relationships to first semester retention rates.

Units Attempted and Completed. The student outcome measures of average number of units attempted and completed were similar in their patterns of relationship to the demographic variables: age group was the most strongly related variable (with younger students tending to both attempt and complete significantly more units). Educational goal was the second most strongly related variable (with transfer and Associate Degree students tending to attempt and complete the highest number of units). Finally, ethnicity also proved to have a statistically significant relationship to the number of units attempted and completed. Filipino and Hispanic students proved likely to attempt and complete a significantly higher number of units in their first semester than did students from other ethnic groups.

Successful Pass Rate. The age of the student proved to be the variable most strongly related to the outcome measure of successful pass rates in the first semester of college; older students tended to successfully pass a significantly higher percentage of units in their first semester than did students aged 17-21. Gender was also significantly related to successful pass rate; female students passed a higher number of units overall than did male students. Educational goal also proved to have a statistically significant relationship to successful pass rate. The direction of this relationship is less clear than for age and gender, however; students with an educational goal of "other" (unspecified) had the highest successful pass rate overall, while students whose goal was job-related or who had not yet determined their educational goal had the lowest successful pass rates.

GPA. Age group and gender also proved to be the variables with the strongest significant relationships to first semester GPA. In general, the older the student the higher their first semester GPA. Female students also tended to have higher first semester GPAs than did male students. Ethnicity also proved to be significantly related to GPA. As can be seen in Table 5, Anglo students tended to have the highest first semester GPAs, followed by Asian and Filipino students. African-American students had considerably lower average first semester GPAs. Educational goal did not prove to have a statistically significant relationship to first semester GPA.

Five Semester Outcomes

Table 6 presents the average five semester outcomes for students, grouped by demographic characteristics. The five semester outcomes assessed included:

1.   Five semester retention: the percent of students who were continually enrolled from one semester to the next without interruption for a total of five semesters.

2.   Average number of units attempted: the cumulative number of units of credit that the student enrolled in during their first five possible semesters of enrollment at SWC.

3.   Average number of units completed: the cumulative number of units of credit that students completed with a grade of A, B, C, D, F, C, or NC during their first five possible semesters of enrollment at SWC.

4.   Five semester successful pass rate: the number of credits completed through five semesters with a grade of A, B or C as a percentage of all credits with a grade of A, B, C, D, F or W. Credits with grades of C or NC were not included in this outcome because the data received did not indicate how many such units were C and how many were NC.

5.   Grade point average (GPA): the average grade point average through five semesters (with A=4 points, B=3 points, etc.), weighted by the number of units completed. Units with a grade of W, C of NC were excluded from the calculation of GPA.

As may be seen in Table 6, female students tended to attempt and complete slightly fewer credits over five semesters than did male students. As in the first semester, however, female students had a higher average successful pass rate over five semesters (73% vs. 69% for males) and a higher mean grade point average (2.48 for females, 2.36 for males).

Table 6
Five Semester Outcomes

	Percent Retention	No. of Units Attempted	No. of Units Completed	Successful Pass Rate	GPA
All Students	24%	27.2	22.3	71%	2.42
Sex					
Female	23%	26.5	21.9	73%	2.48
Male	24%	28.0	22.6	69%	2.36
Age Group					
17-21	29%	32.5	26.5	69%	2.35
22-30	8%	14.3	11.6	76%	2.79
31+	15%	15.2	13.3	81%	2.74
Ethnicity					
Anglo	19%	23.6	19.4	75%	2.60
African-American	16%	22.8	18.3	65%	2.21
Asian	24%	28.3	23.2	73%	2.53
Filipino	37%	34.0	28.4	71%	2.35
Hispanic	26%	28.8	23.4	69%	2.33
Other	28%	28.6	23.4	71%	2.49
Educational Goal					
Transfer	37%	37.5	31.1	71%	2.45
Associate Degree, without transfer	22%	26.7	21.8	71%	2.41
Voc Degree/Certificate, without transfer	18%	21.8	18.0	73%	2.39
Job related (exempt)	8%	15.0	11.7	68%	2.37
Self-Improvement (exempt)	9%	13.5	11.1	74%	2.51
Other	23%	22.7	23.2	75%	2.70
Undecided	18%	29.4	18.3	69%	2.35

20

Differences in retention, units attempted and units completed are much more pronounced across age groups over five semesters than during the first semester. The retention rate for younger students (age 17-21) was almost twice that for students age 31+ and more than three times higher than for students age 22-30. Younger students also attempted and completed more than twice as many units as did the 22-30 and 31+ age groups. However, the average successful pass rate and GPA across five semesters were considerably lower for the younger students than for students over age 21.

Filipino students had the highest five semester retention rate (37%), followed by Hispanic and Asian students (26% and 24%, respectively). This same pattern is seen for the number of units attempted and completed over five semesters: Filipinos both attempted and completed the most units (34 attempted, 28.5 completed), followed by Hispanic students (with 28.8 units attempted and 23.4 completed) and Asian students (with 28.3 units attempted and 23.2 completed). African-American and Anglo students had the lowest five semester retention rates overall (16% and 19%, respectively); they also attempted and completed the lowest number of units (see Table 2). Although they attempted and completed fewer units overall, Anglo students tended to have the highest successful pass rate (at 75%) and the highest GPA (at 2.60 average). Asian students had the second highest successful pass rate and GPA. African-American students tended to have the lowest successful pass rate (65%) and GPA (2.21) of all of the ethnic groups compared.

As seen in the first semester outcomes, students who were exempt from matriculation (those whose educational goal was job-related or self-improvement) had the lowest five semester retention rates and the lowest number of units attempted and completed. Five semester retention rates were highest for those matriculating students whose educational goal was transfer; they also attempted and completed the most units over five semesters. However, the trend exhibited with first semester outcomes continued across five semesters: matriculating students did not have the highest successful pass rates or GPA over five semesters. Again, students with an educational goal of self-improvement or "other" had the highest successful pass rates and five semester GPAs. This would not appear to be a function of matriculation, however: those non-matriculating students whose educational goal was job related tended to have the lowest successful pass rate (68%) and the second lowest GPA (2.37, following students who were undecided at 2.35).

Multiple regression analysis was used to evaluate the strength of the relationship between the demographic characteristics of students (gender, age, ethnicity and educational goal) and their five semester outcomes. The results for each outcome measure are presented below.

Five Semester Retention. As found with first semester retention rates, educational goal had the strongest relationship to five semester retention rates. As can be seen in Table 2, students with a goal of transfer had much higher retention rates than average (37% vs. 24% overall). Age group was the demographic characteristic with the second strongest relationship to five semester retention. As noted above, students age 17-21 had a retention rate almost twice as high as that for older students. This finding differs from the pattern of relationships found for first semester retention, when age group was not significantly related to retention. Finally,

ethnicity showed the third strongest relationship to five semester retention. Gender did not have a significant relationship with five semester retention rates.

When first semester retention was entered into the regression equation, educational goal was still found to have the strongest relationship to five semester retention rates. First semester retention was the second most strongly related student characteristic, followed by age group and then ethnicity. Gender was still found to be not significantly related to five semester retention rate.

Number of Units Attempted Over Five Semesters. Age group was the demographic characteristic of students found to be most strongly related to the number of units attempted over five semesters (as noted earlier, students age 17-21 tended to attempt more than twice as many units over five semesters than students over age 21). Educational goal was the second most strongly related characteristic (with transfer students attempting the most units), followed by ethnicity (Filipinos attempted the most units). However, when the number of units attempted in the first semester was added to the regression equation, it became the factor most strongly related to the number of units attempted over five semesters (as may be expected, since it is a component of the five semester total). In addition, the pattern for the other demographic characteristics of students changed when the number of units attempted in the first semester was added as a predictor variable. The demographic characteristic with the strongest relationship to units attempted over five semesters was now educational goal (instead of age group), followed by age group. Ethnicity was no longer found to have a statistically significant relationship to units attempted over five semesters.

Units Completed Over Five Semesters. Educational goal was the demographic characteristic with the strongest relationship to the number of units completed over five semesters (again, students with a transfer goal completed the most units). Age group was the second most strongly related characteristic (with younger students completing almost twice as many units as those over age 21). Ethnicity also proved to have a statistically significant relationship to the number of units completed, with Filipino students completing the most units over five semesters. This pattern of relationships between demographic characteristics and the number of units completed continued when the number of units completed in the first semester was added into the regression equation, except that the number of units completed in the first semester became the factor most strongly related to the number of units completed over five semesters.

Five Semester Successful Pass Rate. As seen in the first semester, the age of the student proved to be the variable most strongly related to successful pass rate across five semesters: older students tended to pass a significantly higher percentage of units in five semesters than did students age 17-21. Educational goal also was significantly related to five semester successful pass rate. However, the direction of this relationship is unclear; students with an educational goal of "other" (unspecified) had the highest five semester successful pass rate. Gender was also found to have a significant relationship to five semester successful pass rate, with female students tending to pass a greater percentage of courses. Finally, ethnicity also was found to have a statistically significant relationship to five semester successful pass rate,

with Anglo students having the highest and African-American students the lowest five semester successful pass rates.

When the students' first semester successful pass rate is added to the equation predicting their five semester pass rates, it becomes the most significantly related predictor variable, followed by educational goal and then age group (reversing the pattern for these two variables). However, gender and ethnicity were no longer found to have significant relationships to the five semester successful pass rate when first semester successful pass rate was included as a variable.

Five Semester GPA. Age group was the factor found to be most significantly related to five semester GPA (with the youngest students having the lowest GPAs), followed by educational goal. It is unclear, howevei, just how educational goal related to GPA, since the students with an unspecified goal of "other" have the highest five semester GPA. Educational goal was not found to be significantly related to first semester GPA. Gender proved to have the third strongest relationship to GPA (with female students tending to have a higher five semester GPA than males), followed by ethnicity. When first semester GPA was added to the regression equation as a predictor variable, it proved to have the strongest relationship to five semester GPA. The other four demographic characteristics continued to show a statistically significant relationship to five semester GPA, although ethnicity proved to be stronger than gender in this equation.

Section II Summary

Section II reviewed the relationship between demographic characteristics of SWC students who enrolled between 1985 and 1989 (including gender, age, ethnicity and educational goal) and their first and five semester academic outcomes. In general, we found that:

- Age group of the students is the most influential factor affecting first and five semester outcomes. This demographic characteristic was the one with the strongest relationship to the number of units attempted and completed, successful pass rate, and GPA in the first semester. Age group had the strongest relationship to the number of units attempted, successful pass rate and GPA over five semesters. In general, the youngest students (age 17-21) attempted and completed the most units in both the first and across five semesters. Older students (over age 21) tended to have higher successful pass rates and GPAs. Age group reflects the maturity of the students, which is a major factor in handling college challenges; all of the students in each cohort had no previous college experience.

- Educational goal was the second most influential of the four demographic characteristics studied. It showed the strongest relationship to first semester retention, five semester retention and the number of units completed across five semesters. In general, students with a goal of transfer or an Associate Degree had the highest retention rates and completed the most units. Educational goal was the characteristic second most strongly related to units attempted in the first and across five semesters.

23

- <u>Ethnicity</u> was significantly related to all outcomes except first semester successful pass rate. However, it was never the characteristic with the strongest relationship to any of the ten student academic outcomes studied. Ethnicity generally followed age group and educational goal in strength of relationship to an outcome. In general, Filipino students had the highest rate of retention and units attempted and completed (both in the first and across five semesters). Anglo students tended to have the highest successful pass rates and GPAs. African-American students tended to have the lowest level of each of the ten outcome measures (except units completed in the first semester).

- <u>Gender</u> was significantly related to first and five semester successful pass rate and GPA. However, it was not the most strongly related factor on these outcomes. Female students tended to have higher successful pass rates and GPAs than male students, both in the first semester and across five semesters.

SECTION III

Impact of Matriculation

The purpose of this section of the study is to evaluate the strength of the relationship between matriculation and students' academic outcomes. Therefore, this section of the study centers on those students who entered SWC with self-reported educational goals that were not exempt from matriculation - transfer, Associate Degree, vocational degree/certificate, or undecided. Dependent on when they started at SWC, students were retroactively classified into one of three groups - "Pre-matriculation" (Fall 1985 entering students), "Phase-in" (Fall 1987), or "Post-matriculation" (Fall 1989).

The analyses performed in this section focused on the relationship matriculation seemed to have with the academic outcomes of matriculating students. When a significant finding was discovered for a particular group of matriculating (non-exempt) students, a similar analysis of non-matriculating (exempt) students was done to help interpret the effects "time" may have had on students (which could falsely be identified as matriculation's impact). For instance, the five semester retention rate of non-exempt students has increased since matriculation: pre-matriculation (24%), phase-in (26%), and post-matriculation (31%). This was determined to be significant, but was the increase due to matriculation or some "time" element? Though this cannot be exactly determined, one way to get an idea is to look at the five semester retention rate of exempt students over the same time period. If there were some type of "time" effect, we would expect to see the rate increase for the three groups of exempt students as it did for the three groups of non-exempt students. But this was not the case. The five semester retention rate of exempt students was 10 percent for the 1985 cohort, 10 percent for the 1987 cohort, and 7 percent for the 1989 cohort. This would *suggest* that matriculation is having the positive impact on the five semester retention rate of non-exempt students, not some "time" factor. All analyses were examined in this fashion; therefore any statements made regarding the significant differences between groups of non-exempt students did not seem to be explained by some "time" element.

Table 7 displays the percent of the original 6,381 who were classified as "non-exempt". Overall, there was a total of 5,111 such students (80% of the total student population). In general, male students were somewhat more likely to claim an educational goal that made them non-exempt from matriculation (78% of female students vs. 83% of male students were not exempt from matriculation). Younger students were also more likely to be non-exempt from matriculation; students age 31+ were most likely to be exempt from matriculation, enrolling in SWC to take classes to meet a job-related or self-improvement goal. In fact, the percentage of students over age 21 who were not exempt from matriculation dropped by 10 percentage points between the 1985 and 1989 cohorts. Overall, Anglo students were most likely to be exempt from matriculation, and Filipino students were least likely to be exempt. The percent of African-American students who entered SWC with a matriculating goal decreased from 90 percent in 1985 to 80 percent in 1989.

Table 7
Percent of Students Classified as Non-Exempt from SWC Matriculation

	All Cohorts	1985 Cohort	1987 Cohort	1989 Cohort
All Students	5,111 (80%)	1,336 (78%)	1,744 (82%)	2,031 (80%)
Sex				
Female	78%	74%	81%	78%
Male	83	83	84	82
Age Group				
17-21	89%	85%	89%	91%
22-30	67	71	71	61
31+	52	54	59	44
Ethnicity				
Anglo	78	75	80	79
African-American	86	90	89	80
Asian/Pacific Islander	76%	74%	81%	74%
Filipino	87	81	88	91
Hispanic	79	78	81	78
Other	86	88	89	82
Total non-Anglo	81	80	83	80
Educational Goal				
Transfer	100%	100%	100%	100%
Associate Degree, without transfer	100	100	100	100
Voc Degree/Certificate, without transfer	100	100	100	100
Job related	0	0	0	0
Self-improvement	0	0	0	0
Undecided	100	100	100	100

Table 8 displays a summary of the three cohorts of students' outcome measures. Each of these ten measures is discussed in detail on following pages. Please note that the means for the successful pass rates (both first semester and five semester) and for GPA (again, both first and five semester) are weighted by the number of courses completed.

26

Table 8
Outcomes for Cohorts of Matriculating and Exempt Students

	Pre-Matriculation (1985)	Phase-In (1987)	Post-Matriculation (1989)
1st Semester Retention			
Matriculating Students	86%	88%	88%
Exempt Students	84%	84%	80%
1st Semester Units Attempted			
Matriculating Students	9.0 units	9.2 units	9.4 units
Exempt Students	6.4 units	6.2 units	5.8 units
1st Semester Units Completed			
Matriculating Students	7.4 units	7.5 units	7.4 units
Exempt Students	5.2 units	4.9 units	4.2 units
1st Semester Successful Pass Rate			
Matriculating Students	74%	71%	72%
Exempt Students	71%	73%	71%
1st Semester GPA			
Matriculating Students	2.29	2.28	2.32
Exempt Students	2.23	2.37	2.36
5 Semester Retention			
Matriculating Students	24%	26%	31%
Exempt Students	10%	10%	7%
5 Semester Units Attempted			
Matriculating Students	28.7 units	29.7 units	32.0 units
Exempt Students	16.8 units	14.7 units	12.8 units
5 Semester Units Completed			
Matriculating Students	23.8 units	24.5 units	26.0 units
Exempt Students	13.8 units	11.6 units	10.1 units
5 Semester Successful Pass Rate			
Matriculating Students	71%	71%	71%
Exempt Students	72%	71%	70%
5 Semester GPA			
Matriculating Students	2.34	2.45	2.44
Exempt Students	2.38	2.46	2.51

The outcomes of non-exempt students who entered SWC before the implementation of matriculation (in 1985) were compared with the outcomes of students who entered SWC after matriculation had been implemented (in 1989) to evaluate the strength of the relationship between the implementation of matriculation and the first and five semester outcomes studied.

When a significant relationship between the two cohorts was found, the same comparison was conducted on the outcomes for the students who were exempt from matriculation -- those whose educational goal was job-related or self-improvement. As noted above, this comparison was conducted to assess whether the relationship was related to matriculation or an effect of time. Therefore, if the significant relationship was found only for the non-exempt, matriculating students, we have evidence that the relationship is likely to reflect the effects of the implementation of matriculation. If the same significant relationship is found between the cohorts and outcomes for the exempt students, however, we must conclude that one or more other variables affect our outcomes -- possibly the simple passage of time between the first enrollment dates of the two cohorts.

Again, it is important to note here that we cannot prove that matriculation is the **cause** of any of the statistically significant results we have found. This is because we have correlational data only; we did not have experimental control over who is a matriculating student or who is exempt. Therefore, any number of other factors may be affecting our results. All we can conclude is that there appears to be a **relationship** between matriculation and a given student outcome.

The results of these comparisons for each of the ten outcome measures are presented below:

First Semester Retention. Although there was a slight increase in first semester retention rates for matriculating students (from 86% in 1985 to 88% in 1989), no significant relationship between the cohorts and the first semester retention rate was found. At the same time, although there was a slight drop in first semester retention rates for exempt students (from 84% in 1985 to 80% in 1989), no significant relationship between the students' cohort and their retention rate was found.

First Semester Units Attempted. There was a statistically significant increase in the number of first semester units attempted between the 1985 and the 1989 cohort. This may well be an effect of matriculation, since the number of first semester units attempted dropped for the exempt students, from 6.4 units in 1985 to 5.8 in 1989. This was a significant (but negative) relationship between the cohort and the number of first semester units attempted for exempt students.

First Semester Units Completed. There was no change in the number of units completed in the first semester across cohorts for matriculating students; the average number of units completed was 7.4 in both 1985 and 1989. However, there was a significant drop in the number of units completed for exempt students across cohorts, which reflects the drop in the number of units attempted for this group of students.

First Semester Successful Pass Rate. There was no significant relationship between the cohorts and the first semester successful pass rate for either the matriculating or the exempt students.

First Semester GPA. There was a significant relationship between the cohorts and the first semester GPA for the matriculating students. That is, the first semester GPA was significantly

22   28

higher for the matriculating students who enrolled after the implementation of matriculation (1989 cohort) than before the implementation of matriculation (1985). However, we cannot conclude that this effect was related to the implementation of matriculation; exempt students also showed significant increases in their average first semester GPAs between 1985 and 1989.

Five Semester Retention. There was a statistically significant increase in the five semester retention rate from the pre-matriculation 1985 cohort to the post-matriculation 1989 cohort (a 24% rate in 1985 to 31% in 1989). This change would appear to be related to the implementation of matriculation rather than simply the passage of time, since there was a statistically significant decline in five semester retention rate for the exempt students over this same period of time (dropping from 10% in 1985 to 7% in 1989).

Five Semester Units Attempted. The number of units attempted over five semesters increased significantly from the 1985 to the 1989 cohort (28.7 cumulative units attempted for the 1985 cohort, vs. 32 units attempted for the 1989 cohort). This would appear to be related to the implementation of matriculation, since the cumulative number of units attempted by exempt students actually dropped by an average of 4 units between the 1985 and 1989 cohorts (a statistically significant change).

Five Semester Units Completed. There was a statistically significant increase in the number of units completed over five consecutive semesters between the 1985 (pre-matriculation) and the 1989 (post-matriculation) cohorts. We also see a significant effect in the opposite direction for students who were exempt from matriculation (a decline from an average of 13.8 units completed for the 1985 cohort to 10.1 units completed for the 1989 cohort). This would suggest that the implementation of matriculation rather than time is affecting the number of units completed over five semesters.

Five Semester Successful Pass Rate. There was no significant relationship between the cohorts and the fifth semester successful pass rate for either the matriculating or the exempt students.

Five Semester GPA. There was a statistically significant increase in five semester GPA between the 1985 and the 1989 cohorts for both matriculating and exempt students. However, because both matriculating and exempt students showed significant improvement in their five semester GPA, we cannot conclude that this was related to the implementation of matriculation.

29

Concluding Statement

The student attrition data reviewed in Section I of this study indicate that the first semester is of critical importance to the continuation of students in college and their academic success. Approximately 15 percent of each Fall cohort of new entering college students left SWC before the end of their first semester. Sixty percent started the following semester, but only 46 percent returned for a third semester. Thus, we lose 40 percent our new students between college entry and the start of the second semester, and 54 percent are lost by the third semester. Further analysis showed that the attrition rates were higher for certain student groups, especially Anglos, African-Americans, students 22 years of age or older, and those who were exempt from matriculation.

Our data suggest that the first semester of a student's college experience is critical to their continuation in college and their academic success. Although there was a somewhat lower attrition rate among students with a transfer goal, we do not know from this study whether students who left did so because they attained their educational objectives or because they did not deem their college experience as satisfactory.

In addition, summers seem to break the continuity of college attendance after the first year of college. There was a stronger carry over from the fall to the following spring semester than from the spring to the following fall. That is, the change between semester 2 (spring of first year) and semester 3 (fall of following academic year) is greater than the change from semester 3 to semester 4 (the spring of Year 2).

One might assume that the more units a student takes the less likely the student would be to do well in his or her courses. However, this assumption did not hold true for the 6,381 students in this study:

1st Semester GPA:

0-6 units completed	6.5+ units completed
17-21 years old = 1.76	17-21 years old = 2.30
22+ years old = 2.41	22+ years old = 2.78

Also, first semester units completed and first semester GPA had a correlation of 0.23, and similar five semester measures had a correlation of 0.37. These positive correlations suggest that the more units a student takes, the more likely the student would have a higher GPA.

In general, the enrollment patterns and academic achievements of students in their first semester at SWC were fairly indicative of how students will do through the first five semesters of possible enrollment at SWC. This reinforces the conclusion that the student's first semester of enrollment at SWC is particularly critical.

Several demographic characteristics of students were related to their academic outcomes in their first semester and across five semesters. The student's age proved to be the demographic characteristic most strongly related to first and five semester outcomes. In general, the youngest students (age 17-21) attempted and completed the most units in both

their first and across five semesters, but older students (over age 21) tended to have higher successful pass rates and GPAs. Younger students tended to remain at SWC longer and attempted more units than older students but did not perform as well in the classroom as older students.

Educational goal was the second most influential of the four demographic characteristics studied. Overall, students with a goal of transfer or an Associate Degree had the highest retention rates and completed the most units.

Although ethnicity was never the characteristic with the strongest relationship to any of the ten student academic outcomes studied, it was significantly related to all outcomes except first semester successful pass rate. In general, Filipino students had the highest scores on retention and units attempted and completed (both in the first and across five semesters). Anglo students tended to have the highest successful pass rates and GPAs. African-American students tended to have the lowest scores on each of the ten outcome measures (except units completed in the first semester).

Gender was significantly related to successful pass rates and the student's GPA. Female students tended to attempt a slightly lower average number of units than male students but completed the same average number. However, female students had higher successful pass rates and GPAs than male students, both in the first semester and across five semesters.

Matriculation appears to be most strongly related to longer-term student performance -- especially student retention across five semesters and the number of units attempted and completed during five semesters. In the student's first semester, matriculation was significantly related only to the number of units attempted.

These findings suggest that there were some similarities across student groups in their performance and need for support services, especially when the age of the student was considered. In general, younger students appear to be embarking on their college careers. They were more likely to plan to transfer to a four-year institution and take a full load of classes. Older students, on the other hand, appear to enroll in SWC courses that were job-related or geared to self-improvement. These older students tended to take fewer courses but performed better in the classroom than did younger students.

In general, Filipino and Hispanic students were above the total cohort average in retention rates, the number of units attempted and the number of units completed in their first semester. Anglo and African-American students tended to be below the overall average on these outcome measures, and Asian students tended to be close to the overall average. However, when we look at academic performance as measured by successful pass rate and GPA, this pattern changes: Anglo students had the highest successful pass rate in the first semester, followed by Filipinos, while Hispanic and African-American students passed a lower percentage of their classes than the overall average (and Asians remained close to the average). This trend continued for first semester GPA as well: Anglo students had the highest first semester GPA, followed by Asian students. Filipino students were closer to the

31

average in first semester GPA, but Hispanic and African-American students were below the overall average in their first semester GPA. (See Figure 1.)

This pattern is repeated across the five semester outcomes: Filipino and Hispanic students consistently had higher than average retention rates, number of units attempted and number of units completed, while Anglo and African-American students were below the overall average on these measures. However, when we looked at successful pass rates and five semester GPA, Anglo and Asian students performed above average, while Hispanic and African-American students were below the overall average on these measures. Filipino students were at the overall average on successful pass rate, but below the average on GPA. Thus, we see some patterns emerging in performance across ethnic groups: Filipino and Hispanic students tended to try the most courses and stay with them (retention), but they did not tend to perform up to the total cohort average in their courses. Anglo students took and completed fewer classes but achieved better grades. Asian students tended to be at or above the average on all outcomes. African-American students, however, tended to perform below the cohort average on all student outcome measures. (See Figure 2.)

Over five semesters, undecided students had a lower retention rate (18%) than any other non-exempt student group. They attempted more units than any other student group except transfer majors and dropped more units (11.1) than any other group of students. They had one of the lowest successful pass rates (69%) and the lowest average GPA of any group (2.35), including exempt students.

- First and fifth semester outcomes indicate that student educational goal did not have a strong relationship to successful pass rates or GPA. That is, students with a transfer goal did not earn a higher average GPA than those who enrolled for self-improvement (2.45 vs. 2.51), even though they completed nearly three times more units over five semesters. However, undecided students had relatively low successful pass rates (69%) and GPAs (2.35) compared to students with specified educational goals.

- Educational goal was significantly related to retention rates and number of units attempted and completed.

Based on the pattern of student performance using the outcomes analyzed in this study, it appears that assisting students to define their educational goal will have a positive impact on their short (one semester) and longer term (five semesters) college experience. One must remember, however, that low retention rates (semester to semester) and a relatively low number of units attempted or completed are not necessarily negative outcomes. These outcomes may be the result of students achieving their own learning or personal objectives. Of greater concern is the low academic attainment of undecided students, including their lower successful pass rates and average GPAs. These students may not develop the academic skills needed to succeed once they do define their educational goal.

Figure 1
First Semester Outcomes
By Ethnicity

Percent Retention	Units Attempted	Units Completed	Successful Pass Rate	Grade Point Average
	Filipino (9.3 units)	Filipino (7.7 units)		
Filipino (91%)				Anglo (2.45)
			Anglo (77%)	
Asian (90%)	Hispanic (9.0 units)		Filipino (75%)	Asian (2.38)
		Hispanic (7.2 units)		
Hispanic (87%)				Filipino (2.32)
	Anglo (8.7 units)			
		Asian (6.9 units)		
Average for all Students Studied — 86%	Asian (8.6 units) — 8.6 units	6.9 units	Asian (72%) — 72%	2.30
Anglo (84%)				
African-American (84%)			Hispanic (70%)	Hispanic (2.22)
	African-American (8.3 units)	African-American (6.4 units)		
		Anglo (6.3 units)		
			African-American (65%)	African American (2.08)

Figure 2
Five Semester Outcomes
By Ethnicity

Percent Retention	Units Attempted	Units Completed	Successful Pass Rate	Grade Point Average
Filipino (37%)				
	Filipino (34.0)	Filipino (28.4)		Anglo (2.60)
			Anglo (75%)	
				Asian (2.53)
	Hispanic (28.8)		Asian (73%)	
Hispanic (26%)				
	Asian (28.3)	Hispanic (23.4)		
		Asian (23.2)		
Asian (24%)			Filipino (71%)	
Average for all Students Studied — 24%	27.2	22.3	71%	2.42
			Hispanic (69%)	Filipino (2.35)
Anglo (19%)	Anglo (23.6)	Anglo (19.4)		Hispanic (2.33)
	African-American (22.8)	African-American (18.3)	African-American (65%)	
African-American (16%)				African-American (2.21)

A:\FIGURE1B

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Overall, we may conclude that the first semester of enrollment in college is critical to long term student success and achievement of educational goals. The finding that matriculation appears to impact longer-term outcomes most strongly suggests that additional approaches are needed to help our students succeed in their first semester of college. Matriculation, while appearing to have a positive impact on longer-term success, has not yet provided the support and academic encouragement new students need to complete that critical first semester and return for a second.

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