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AUTHOR	Heinkel, Otto A.
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ABSTRACT

The effectiveness of the General Studies Program at San Diego City College is evaluated in this study. The program, offered during a student's initial semester of attendance, is designed to help potentially low academic achievers succeed in college. Using random selection techniques, students were chosen from first-time enrollees who had no prior college experience and who had standard English scores of 10 or less on the American College Tests. Students were then randomly assigned to groups. The experimental groups contained 122 students who enrolled in the General Studies Program; the control groups consisted of 128 students not in the program. Sex and ethnic subgroups were formed from the principal study groups. The criteria for the study were: college persistence rate, course attrition rate, and grade point average. Performance of the study groups and subgroups was evaluated for four consecutive semesters. Tests for significant differences included adjustments for small samples and for continuity. Completion of the General Studies Program encouraged males and minority students to re-enroll for a second semester. Minority students who enrolled in the Program dropped fewer units for the first semester than minority students who did not enroll in it. There were no other statistically significant differences that could be attributed to the Program. (Author/JO)

Final Report

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Evaluation of a General Studies Program for The Potentially Low Academic Achiever in California Junior Colleges

Otto A. Heinkel

San Diego Community Colleges

San Diego, California

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

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Bureau of Research

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SUMMARY

EVALUATION OF A GENERAL STUDIES PROGRAM FOR THE POTENTIALLY LOW ACADEMIC ACHIEVER IN CALIFORNIA JUNIOR COLLEGES

by

Otto A. Heinkel

Scope of the Study

The study evaluated effectiveness of the General Studies Program at San Diego City College. The Program was offered during the initial semester of attendance and was designed to help potentially low academic achievers succeed in college. The General Studies Program consisted of four courses: career planning, techniques of study, basic English and reading improvement.

The study sought to determine if completion of General Studies courses caused students to persist longer in college, withdraw from fewer courses while in college, and earn higher grade point averages in all course work attempted.

Procedures

Random selection and assignment was used to form the study groups. Students were selected from first-time enrollees at San Diego City College who had no prior college experience and who had standard English scores of 10 or less

on the American College Tests. The experimental groups contained 122 students who enrolled in the General Studies Program; the control groups consisted of 128 students. Sex and ethnic subgroups were formed from the principal study groups.

The criteria for the study were: College Persistence Rate, Course Attrition Rate, and Grade Point Average. Performance of the study groups and subgroups was evaluated for four consecutive semesters.

Tests for significant differences included adjustments for small samples and for continuity.

Conclusions

Completion of the General Studies Program encouraged males and minority students to reenroll for a second semester.

Minority students who enrolled in the General Studies Program dropped fewer units for the first semester than minority students who did not enroll in the General Studies Program.

There were no other statistically significant differences that could be attributed to the General Studies Program.

Discussion and Recommendations

The study indicates that the General Studies Program meets needs of minority students. The findings are important

in light of current unrest evidenced by minority groups.

Both male and minority students were encouraged through the General Studies Program to persist in College. However, the effects were only evident for the second semester of enrollment. Motivation might be extended by offering similar courses in succeeding semesters.

There was no indication that the reading improvement course added appreciably to the General Studies Program. A follow-up study should be conducted to determine which, if any, of the three remaining courses could be eliminated from the Program without decreasing its impact on minority or male students.

The evident success of the General Studies Program with minority and male students places a strong responsibility on San Diego City College to clearly and comprehensively document a description of the Program. This not only would permit other colleges to initiate similar programs, but would also help insure validity of possible additional studies.

Important questions which remain to be answered are:

1. To which course or combinations of courses could success of the Program be attributed?
2. Is the Program successful for males from both minority and non-minority groups?
3. Were the significant differences caused by the General Studies courses, the teachers, or both?

4. Is the Program successful with both male and female minority students?
5. Does the General Studies Program affect all minority groups or only certain ones?

The author considers it advisable to report incidental study findings that are believed to have important implications.

Students in the study were identified as potential "drop-outs" by a low English score on the American College Tests. Yet 57% of the students enrolled for four consecutive semesters.

The Joint Committee on Higher Education (1968, p. 22) used a Gross Persistence Ratio (the number of sophomores for a given year compared to the number of freshmen in the preceding year) as an indication of the "holding power" of junior colleges in California. The Gross Persistence Ratio for San Diego City College was 25.3%. Yet, 57% of those students considered least likely to succeed persisted through four consecutive semesters.

The above apparent discrepancies strongly indicate a need for a comprehensive study of college entrance tests and their uses, as well as an accountability study to accurately determine persistence rates in California community colleges.

CHAPTER I

INTRODUCTION

In 1959 the junior colleges were made a part of the tri-partite system of higher education in the state of California by the passing of the Donahoe Act. This act, together with article 5706 of the California Education Code which established the "open door" policy in all California junior colleges, committed them to accept all high school graduates and anyone over 18 years of age who could profit from instruction. As a result, the junior colleges in California are faced with the problem of providing an education for the less able academic achiever. At the same time, they must offer a comprehensive program that encompasses education requisite to continuance in a four-year higher education institution as well as education programs which can be completed within a two-year college.

Unfortunately, there is evidence to indicate that the "open door" of the junior colleges is becoming more and more a "revolving door". A report by the Joint Committee on Higher Education in California (1968, p. 23) states:

> For the junior colleges, in part because of their lower requirements and the fact that many students enroll for curricula which take only one year to complete,

> the gross attrition rates between the freshman and sophomore years are more striking. The junior colleges have experienced larger declines in already low persistence rates. The sophomore/freshman ratios have declined 37 per cent from .570 to .360 for full-time enrollments. If these declining persistence rates were complemented by increasing rates of transfers from junior colleges to senior colleges, they would be of far less significance. This is not the case. The total number of transfers from junior colleges as a percentage of junior college enrollments has been decreasing over a period where the ratio of vocational to academic students in the junior colleges has been quite stable.

Heinkel (1968, p. 3) used a similar gross persistence ratio (the number of sophomores compared to the number of freshmen from the preceding year) as an indication of gross attrition rates between the freshman and sophomore years in the San Diego Community Colleges. The gross persistence rate between 1966 and 1967 fall semesters was .219, an even lower rate than that indicated in the California report.

The trend indicated by the above statistics is contrary to the "open door" policy intended for California junior colleges. Attrition rates must be reversed. Clark (1960, p. 574) indicated that the junior college should be a place where hopes are let down gently and unexplosively. Through the junior college, students who are failing or barely passing should redefine their academic aspirations and future goals; junior colleges should offer students alternative paths rather than dropping them. Clark (1960, p. 576) views the junior colleges as a place where all high school graduates have the opportunity to explore possible careers and find the type of education appropriate to their

individual ability; in short, as a place where everyone is admitted and everyone succeeds.

Statement of the Problem

San Diego City College developed and put into operation a General Studies program designed to offer students the kind of college education described by Clark. The program is recommended for but not limited to first-time entering students whose standard English score on the American College Test is 10 or less. (eleventh percentile based on West Coast junior college norms, ACT, 1966, p. 98) Primary purpose of the program is to improve academic performance and persistence in college through intensive counseling and remedial instruction. Peterson and Bridgman (1959, p. 331) stated that "the junior college has a unique obligation in the area of remedial instruction." Chambers (1961, p. 253) recommended that experimental preparatory programs should be designed which would emphasize effective study habits or attempt to correct poor academic preparation. The General Studies program recognizes that many students attend junior colleges because "they are uncertain of their interests and motivations for a four-year degree program." (Cross, 1968, p. 25) Particular attention is given to the disadvantaged. Knoell (1968, p. 9) described the need such students have for counsel and information for selection of a career goal and for learning to succeed in college. Cosand

(1960, p. 6), Schenz (1964, p. 22), and others also indicated the need for junior college programs for potentially low achieving students.

Parenthetically, the writer considers it unfortunate that many of the authors in the literature continued to use such expressions as "terminal student" or "terminal program" when referring to junior college curriculums that were not designed for a student's eventual entry into a four-year institution. Also disappointing was the apparent acceptance of the junior college function as one of "weeding out" students who apparently would not survive academically in college. The philosophy indicated above is incompatible with this author's conviction that each individual should have access to continuous education. If one must apply an "adapt-or-perish" policy, let it be directed primarily to the educational institution rather than the individual. Cosand (1960, p. 6) stated, "Regardless of the approach taken, the ultimate goal [in junior colleges] is a program of studies suited to individual students."

The need for studies of programs for low achievers in junior colleges was summarized by Gregory. (1966, p. 29) She found that although frequent references in the literature were made to experimental remedial programs in junior colleges across the nation, specific studies concerning such programs were not done or had not been completed; there is little evidence of this type of research in the existing

literature. She stated, "Current support for such programs is based largely on experience and judgment. There is need for systematic studies dealing with their effectiveness." (Gregory, 1966, p. 8)

Purpose of the Study

The purpose of this study is to evaluate the effectiveness of the General Studies courses by seeking to answer the following specific questions:

1. Is the persistence rate in college significantly higher for students who enroll in General Studies courses than for students who do not enroll in General Studies courses?
2. Is the course attrition rate significantly lower for enrollees in General Studies courses than for students who do not enroll in General Studies courses?
3. Do students who complete General Studies courses maintain significantly higher grade point averages than students who do not enroll in General Studies courses?

Description of the Program

The General Studies Program was planned for the first semester of attendance. It consists of courses in career planning (9 weeks, 1½ units), techniques of study (9 weeks,

1½ units), basic English (18 weeks, 3 units) and reading improvement (18 weeks, 1 units).

General Studies 2, Career Planning, is a 1½ unit course meeting three hours per week for a nine week period. It consists of an intensive exploration and evaluation of abilities, interests and other characteristics related to career planning and successful living. Extensive use is made of standardized instruments exploring aptitudes, career and other personal interests, personality, temperament, and other non-test data used in appraising student characteristics.

General Studies 3, Techniques of Study, is also a 1½ unit course meeting three hours each week for one semester. It is designed to improve reading, listening, note-taking and other study skills.

English 10a, Reading Efficiency, is a 1 unit course meeting three hours each week for one semester. This course is designed to benefit all students who wish to read more efficiently, regardless of their present level of achievement. Emphasis is on improving comprehension, speed, and vocabulary, through the use of the most modern laboratory techniques.

English 60, Basic English, is a 3 unit, one semester course meeting five hours each week. It is an introduction to reading and writing practical prose.

Limitations of the Study

The three San Diego Community Colleges are part of the San Diego Unified School District, a K-14 district located in San Diego County. The total active district enrollment as of December 1, 1967 was 161,142. The junior college enrollment was 15,349. (SDUSD, 1967-1968, p. 6)

At the present time, there are three accredited San Diego Community Colleges: San Diego City College, San Diego Mesa College and San Diego Evening College. A fourth, San Diego Miramar College opened in September 1969 as a branch campus of San Diego City College. Total enrollment in the day colleges as of December 1, 1967 was 8,379; enrollment at San Diego City College was 3,279.

The study was limited to first-time entering students at San Diego City College for the 1967 fall semester, 1968 spring semester, and 1968 fall semester. Experimental and control groups were chosen for each of the forementioned semesters. Thus the 1968 spring and fall semester studies were basically replicates of the 1967 fall semester study.

Stratification techniques and random selection and assignment of students were used. Strict random selection and assignment of students in the experimental groups was somewhat hampered by practical considerations in the enrollment process. However, enrollment in the General Studies courses occurred with no apparent bias other than the

planned restriction that students with standard English scores of 10 or less on the American College Test were required to enroll in General Studies courses. Strict stratification and random selection and assignment procedures were used for the control groups.

CHAPTER II

REVIEW OF THE LITERATURE

The review of the literature is limited specifically to junior college institutions and to actual studies of programs designed to help the potentially low academic achiever succeed in junior colleges. Also, the review has been limited to literature that is of more recent date.

Experimental remedial programs at various junior college institutions have been described in the literature. They include: (1) Operation Second Chance at the Bronx Community College, (2) Developmental Reading Program at Coalinga College, (3) Program O at Bakersfield College, (4) Developmental Program at Grand Rapids Junior College, (5) Basic Studies Program at Miami-Dade Junior College, and (6) "Forced" Counseling at General College.

Operation Second Chance

Meister, Tauber, and Silverman (1967, pp. 78-88) described Operation Second Chance, which was an experimental program at Bronx Community College. The program was designed for students denied admission to publicly supported colleges because of poor high school records and low

admission test scores.

Students in the program received special guidance and instruction in English language and mathematics for four nights a week for one semester. One group of twenty students participated during the 1960 spring semester; a second group of forty students was included during the fall semester.

The staff and students involved in the program considered it beneficial. However, the study sample was small and a satisfactory objective evaluation and follow-up of the students involved was not conducted. Conclusions were drawn subjectively rather than from quantified data.

Developmental Reading Program

Mains and Collins (1960, pp. 123-129) describe the results of a remedial reading course at Coalinga College. One hundred nine students were enrolled in six sections of a developmental course in reading. The authors report that:

> How to draw conclusions, identify inferred meanings, generalize, skim rapidly, score for detail, analyze constructional clues, put subheads and topic sentences to work, employ glossaries and examine word-usage for shades of meaning began to be a fascinating enterprise with tangible rewards. Many students reported that they were using their mental powers beyond any previous effort. (1960, p. 125)

Students in the program were compared to a control group using grade point average, attrition rate, and standardized test scores as criteria. There was little

difference between the two groups in attrition rates and little difference in the percent of students whose grade point average was below 1.5 on a four point scale. Mains and Collins (1960, p. 129) also found that from the beginning to the end of the semester there was a small gain in mean score on the Cooperative English Comprehension test for the remedial group; the mean score change was from 40.7 to 43.0.

Program O

Program O at Bakersfield College started in 1956. Collins (1964, pp. 2-3) stated that students scoring below the tenth percentile on entrance tests in social sciences, mathematics, and English were required to enroll in remedial courses in these areas. Students required to enroll in at least two out of the three remedial courses were classified as Program O students. They were assigned to a special counselor for intensive counseling. Special orientation classes were scheduled. Goal identification and motivation were prime subjects for discussion.

In a three-year study of ninety-eight Program O students, Collins (1964, pp. 4-5) found that 47 per cent of the initial 1959 fall semester students did not re-enroll for the spring semester and that only 12 per cent remained for the 1962 spring semester. He reports that 43 per cent withdrew because of academic failure and 17 per cent

withdrew because of employment. Collins indicated that although the program definitely has promise, the study did not show that participation in Program O caused students to earn higher grade point averages or persist in college.

Developmental Program

Eldersveld (1961, pp. 154-158) described a developmental program established in 1960 at Grand Rapids Junior College. The purpose was to provide pre-college training for a group of high school graduates with low grades. The program contained remedial courses in English, reading, algebra and science. In addition, a how-to-study course was included. Eldersveld stated that the results were not very successful. Of the original seventy-seven students, only seventeen succeeded through the program.

Gregory (1966) also conducted a study of the Developmental Program at Grand Rapids Junior College. Her description of the program indicated that it had not changed much since Eldersveld's study. She (1966, p. 11) stated that the program consisted of remedial courses in English, reading, algebra, and courses in physical education and psychology (group guidance orientation). The courses were considered pre-college and were taught by counselors from Grand Rapids Junior College. A 2.0 grade point average in the program was required for admission to college level courses.

Gregory (1966, pp. 45-47) compared two developmental groups to a control group. Developmental Group I consisted of seventy-seven students who participated in the first experimental Developmental Program which began in the 1960 fall semester (the same group studied by Eldersveld). Developmental Group II consisted of all seventy-eight students who participated in the second Developmental Program which began in the 1962 spring semester. The Control Group consisted of fifty-six students who entered Grand Rapids Junior College at the beginning of the 1957 fall semester. They were all of those students in the freshman class who, because of their qualifications, would have been selected for the Developmental Program had it been in existence at that time.

Gregory (1966, pp. 102-105) concluded from her study that the Developmental Program helped low achieving high school graduates maintain a satisfactory grade point average while attending college.

Unfortunately, the groups used for comparison in Gregory's study were not drawn from the same population nor from the same year. There was no assurance that either the groups, the college, or the college experiences to which the students were exposed could be validly compared. Thus, stated conclusions from the study were considerably weakened or invalidated.

Basic Studies Program

During the first semester of the 1962-1963 school year a Basic Studies Program was put into action at Miami-Dade Junior College. Handy (1965, pp. 3-4) described it as a salvage program to meet the needs of students who made low scores on admissions tests or who ran into academic difficulties after being admitted. It consisted of remedial courses in reading, writing, and mathematics. In addition, each student was required to take a guidance course designed to help him solve vocational and personal problems.

Handy (1965) conducted a study to investigate the effectiveness of the Basic Studies Program at Miami-Dade Junior College from the standpoint of academic achievement. The experimental group consisted of one hundred thirteen students who took the remedial courses in the Basic Studies Program during the first semester of the 1962-1963 school year and advanced to junior college courses in the second semester. Two control groups were used for comparison purposes. One group was made up of one hundred ten low ability students drawn from the student body of the preceding school year (1961-1962). The second control group consisted of thirty-five students enrolled in college level courses during the first semester of the 1962-1963 school year; these were students who, in spite of their low test scores, were not assigned to Basic Studies.

Handy concluded, "The program of Basic Studies at Miami-Dade Junior College is effective in improving the achievement of low ability students." (1965, p. 100)

He also found that, "The program of Basic Studies at Miami-Dade Junior College is no more effective in improving academic achievement than is a program involving reduced hour load." (1965, p. 101) The same conclusion was also reached by Fury (1963, pp. 98-99) in a study involving students of a four-year university rather than a two-year college.

Handy's study was relatively well executed. However, some serious threats to validity were evident. The experimental group and the control group (one hundred ten students) were chosen from different years and populations. Members of the second control group were selected on a biased, non-random basis. The groups, as indicated by Handy (1965, p. 81), were not equivalent. Even though the remedial courses were not assigned college credit, the experimental group did gain a semester of college experience through the Basic Studies Program. Thus the second semester's grade point average for the experimental group was compared to the first semester's grade point averages for the control groups. Attrition produced a selective factor in choosing the experimental group. Of two hundred eighty-five students originally enrolled in the Basic Studies, only one hundred thirteen enrolled for the second

semester and were considered as the experimental group. Therefore, conclusions of the study should be qualified.

"Forced" Counseling

A "forced" counseling program was attempted at the General College, University of Minnesota. Subjects were sixty randomly selected low achieving University of Minnesota students who had transferred from four-year curriculums to the two-year General College. One group of twenty students participated in six weekly individual sessions with assigned counselors, a second group of twenty met in six fifty-minute group counseling sessions, and the twenty member control group received no counseling. Kingsley and Scheller (1966, pp. 1-12) conducted a study of the grade point averages for the three groups. Intergroup differences were not significant at the .05 confidence level. A follow-up study to determine whether the counseling process had long range effects also showed no significant differences. The authors concluded that short term forced counseling is not effective in dealing with "underachievement" problems.

General Conclusions

Although descriptions of many junior college programs for low achieving students have been written, only a few studies of such programs were encountered in the review of the literature. Of these studies, none established

causative relationships between participation in a program and performance criteria. Most of the studies had no control group for comparative purposes and were no more than descriptive studies documenting the history of students participating in the programs. In general, validity of the studies was threatened by such things as (1) small sample size, (2) non-randomized or non-matched selection and assignment of study subjects, (3) other questionable sampling techniques, (4) lack of follow-up of study subjects.

In most instances the investigators in the studies that were reviewed gave evidence of expertise in research methodology by indicating their awareness of threats to validity. The writer suspects that the researchers had to conduct their investigations under less than ideal circumstances and within the limitations of the population made available to them.

It is hoped that the design of the present study will permit a valid evaluation of the General Studies program. The investigation is designed to determine causative relationships between participation in the program and criterion variables chosen for this study.

CHAPTER III

RESEARCH DESIGN AND PROCEDURES

The study was conducted at San Diego City College, a public two-year junior college located in the city of San Diego, San Diego County, California. The college is one of three junior colleges that are a part of the San Diego Unified School District, a K-14 district. The total active junior college enrollment as of December 1, 1967 was 15,349; enrollment at San Diego City College was 3,279. (SDUSD 1967-68, p. 6)

The Population

The population from which the study sample was selected consisted of all first-time entering freshmen (enrollees with no prior college experience) over a three-semester period at San Diego City College. The semesters and number of students in the population were: 1967 fall semester, 1345 (Hatalsan, 1967, p. 1); 1968 spring semester, 497 (Hatalsan, 1968a, p. 1); and 1968 fall semester, 1255. (Hatalsan, 1968b, p. 1) Of these, the number of students who received an American College Test standard English score of 10 or less was 250 for the 1967 fall semester,

113 for the 1968 spring semester, and 165 for the 1968 fall semester. It was assumed that a low English score was indicative of potentially low academic achievement in college. Therefore, the study sample was limited to those students with standard English scores of 10 or less.

The 1968 fall semester population is described in more detail below; it is representative of the students from the two preceding semesters.

Table 1 shows the American College Tests indicated aptitude levels of fall, 1968 first-time entering students at San Diego City College.

TABLE 1

SCORES AND PERCENTILES, 1968 FIRST-TIME ENTERING STUDENTS

	English	Math	Social Studies	Natural Science	Composite
Mean Score	14.4	12.8	17.4	17.1	15.6
Percentiles*	28	21	36	39	30

*Based on West Coast norms for junior colleges (ACT, 1966, p. 98)

The ratio of males to females was approximately two to one. The ethnic or racial distribution was (1) Spanish Surname: 12%; (2) Other White: 66%; (3) Negro: 19%; and (4) Other: 3%.

Study Sample Selection Procedures

Students were randomly selected and assigned to form the Experimental Groups (students who enrolled in the General Studies Program). The Control Groups (students not enrolled in the General Studies Program) were formed by using stratified random sampling. Students who only enrolled in the Reading Improvement course (and none of the other General Studies courses) were considered not enrolled in the General Studies Program. Stratification was based on sex and units of enrollment (total unit credit of courses in which a student still was enrolled on the third Monday of the semester).

The procedure described above was used to select experimental and control groups from the 1967 fall semester, from the 1968 spring semester, and from the 1968 fall semester. Thus each semester's study sample could be analyzed separately as a replicate study; also, subjects from all three semesters could be combined to yield a single study sample.

The General Studies Classes

Table 2 reports the number of sections and students for each of the four General Studies courses. Since the study was limited to students who had no prior college experience and whose American College Test English score was 10 or less, only 15% of the students indicated in table 2 were included in the study sample.

TABLE 2

NUMBER OF SECTIONS AND STUDENTS IN GENERAL STUDIES COURSES

	Fall 1967		Spring 1968		Fall 1968	
	Secs.	Stds.	Secs.	Stds.	Secs.	Stds.
General Studies 2 (Career Planning)	4	96	3	95	4	107
General Studies 3 (Techniques of Study)	4	119	3	101	4	125
English 10a (Reading Efficiency)	11	288	8	204	10	239
English 60 (Basic English)	4	120	3	100	4	102
Total		623		500		573

General Studies 2 and General Studies 3 classes were taught by two instructors who had been associated with the program since the early stages of its development. The program was first initiated in 1964. English and reading courses were taught by the regular English department staff at San Diego City College.

Ability tests and interest inventories were administered to and analyzed with each student. Students were encouraged to develop career choice strategies which included several alternatives. Listening, note-taking and study skills were taught. The reading classes made use of

modern laboratory equipment and techniques. Instructors personalized individual counseling as much as possible.

The Study Groups

Four principal groups were formed for the study. As previously stated, all study subjects in the groups were first-time entering students at San Diego City College, had received an English standard score of 10 or less on the American College Test, and still were enrolled officially on the third Monday of their entering semester.

Group X1. Students who still were enrolled in all four General Studies courses on the third Monday of the semester.

Group X2. Students who still were enrolled in General Studies 3 (Techniques of Study), English 10a (Reading Efficiency), and English 60 (Basic English) on the third Monday of the semester; they did not enroll in General Studies 2 (Career Planning).

Group C3. Students who still were enrolled in English 10a on the third Monday of the semester; they did not enroll in any other General Studies course.

Group C4. Students who did not enroll in any of the General Studies courses.

Groups X1 and X2 were the experimental groups; groups C3 and C4 served as the control groups.

Table 3 describes the study groups for each of the three semesters. In each case the number of students in Control Group C4 and the stratification paramenters were based on data from Group X1.

TABLE 3

NUMBERS OF STUDENTS IN STUDY SAMPLES AND GROUPS

	Mean Units of Enrollment	Number of Males	Females	Total Number
1967 Fall Study Sample				
Group X1	12.0	33	21	54
Group X2	12.8	21	8	29
Group C3	12.2	18	5	23
Group C4	11.6	33	21	54
Sub-total		105	55	160
1968 Spring Study Sample				
Group X1	8.3	1	5	6
Group X2	9.2	0	3	3
Group C3	7.5	4	1	5
Group C4	5.8	1	5	6
Sub-total		6	14	20
1968 Fall Study Sample				
Group X1	11.5	18	12	30
Group X2	----	--	--	--
Group C3	11.5	9	1	10
Group C4	11.2	18	12	30
Sub-total		45	25	70
Total		166	94	250

General Studies Program, Evaluative Criterion Measures

Three preliminary definitions are needed to define the criterion measures chosen for the study.

Units of Enrollment: Unit credit of courses in which a student continued to be enrolled on the third Monday of a semester.

Units Attempted: Unit credit of those courses in which a student was enrolled on the last day of a semester (excludes courses in which a student received an incomplete).

Grade Points Earned: Total grade points obtained by taking the sum of the product of the unit credit of a course by the grade point equivalent of the grade earned (A = 4 points, B = 3 points, C = 2 points, D = 1 point, and F = 0 points).

The criterion measures chosen to evaluate the General Studies program were (1) College Persistence Rate, (2) Course Attrition Rate, and (3) Grade Point Average. The criterion measures were determined as follows:

1. The College Persistence Rate for a group was determined by dividing the total number of initial students of a group into the number of students from that group who reenrolled in succeeding semesters.

2. The Course Attrition Rate of a group for a given semester was determined by subtracting the units attempted from the units of enrollment and dividing this result by the number of students in the group who enrolled for the semester.

3. The Grade Point Average of a group for a given semester was determined by dividing the group's total grade points earned by its total units attempted for the semester.

Method of Analysis

The previously stated hypotheses (page 5) investigated by this study are restated in null form for statistical purposes.

Hypothesis 1. There are no statistically significant differences between groups in College Persistence Rates.

Table 4 identifies the study samples and numbers of students used in testing hypothesis 1 relative to reenrollment for a second, third and fourth semester at San Diego City College.

TABLE 4

STUDY SAMPLES AND NUMBERS OF STUDENTS USED TO TEST HYPOTHESIS 1

Study Samples:	Fall 1968 Spring 1968 Fall 1967	Fall 1968 Spring 1968 Fall 1967	---- Spring 1968 Fall 1967
Reenrollment for:	Second Sem.	Third Sem.	Fourth Sem.
Group X1 (N = 90)	90	90	60
Group X2 (N = 32)	32	32	32
Group C3 (N = 38)	38	38	28
Group C4 (N = 90)	90	90	60
Total	250	250	180

The number of students in the original study samples of 1967 fall, 1968 spring and 1968 fall semesters were used as a base to determine College Persistence Rates relative to reenrollment for the second and third semesters. The fourth semester rates were determined by comparing to 1967 fall and 1968 spring study samples only. The 1968 fall study sample had not completed three semesters; therefore, fourth semester reenrollment status could not be determined.

Z - tests (Guilford, 1965, pp. 185-187) for significance of the difference between two independent proportions were applied to the College Persistence Rates. When appropriate, a correction factor, $\frac{1}{2}(1/N_1 + 1/N_2)$ was used for continuity. If expected frequencies were too small for valid use of the Z - tests, an alternative Chi square test using Yates correction for small samples was used. (Ferguson, 1966, pp. 206-208)

Subgroups were formed from the original four study samples by using sex and ethnic or racial affiliation as classification variables. Because of the smaller number of students in the subgroups, Chi square was used to test for significant differences.

Hypothesis 2. There are no statistically significant differences between groups in Course Attrition Rates.

Table 5 shows the study samples and numbers of students used in the application of significance tests to hypothesis 2.

The declining numbers of students for each semester was due in part to the time interval of the study as explained for hypothesis 1. An additional reduction occurred each succeeding semester when students did not reenroll.

TABLE 5

STUDY SAMPLES AND NUMBERS OF STUDENTS USED TO TEST HYPOTHESIS 2

Study Sample	Fall 1968 Spring 1968 Fall 1967	Fall 1968 Spring 1968 Fall 1967	---- Spring 1968 Fall 1967	---- ---- Fall 1967
Enrollment Semester	First	Second	Third	Fourth
Group X1 (N = 90)	90	77	37	30
Group X2 (N = 32)	32	30	23	17
Group C3 (N = 32)	38	30	19	13
Group C4 (N = 90)	90	67	39	31
Total	250	204	118	91

Group differences in Course Attrition Rates were tested for statistical significance by means of one-way analyses of variance for unequal sample sizes. The Scheffé procedure was used for a posteriori comparisons following significant overall F-ratios ($p < .05$). As suggested by Scheffé, the .10 level of significance was used for a posteriori tests. (Ferguson, 1966, pp. 296-297) Similar analyses were conducted

for subgroups classified as male, female, minority and non-minority.

Hypothesis 3. There are no statistically significant differences between groups in Grade Point Averages.

Table 6 indicates the study samples and numbers of students available for significance tests of differences in Grade Point Averages. Only students still enrolled on the last day of a semester were used in the tests. Thus, the number of students used for the second, third and fourth semester tests was not only diminished by factors noted under hypothesis 2, but also by course attrition during the semester.

TABLE 6

STUDY SAMPLES AND NUMBERS OF STUDENTS USED TO TEST HYPOTHESIS 3

Study Samples	Fall 1968 Spring 1968 Fall 1967	Fall 1968 Spring 1968 Fall 1967	Spring 1968 Fall 1967	Fall 1967
Enrollment Semester	First	Second	Third	Fourth
Group X1 (N = 90)	87	73	36	26
Group X2 (N = 32)	31	29	23	16
Group C3 (N = 38)	36	25	17	12
Group C4 (N = 90)	82	61	34	24
Total	236	188	110	78

One-way analysis of variance was used to test for group differences. The Scheffé procedure was employed for *a posteriori* comparisons following significant overall F-ratios ($p < .05$). As suggested by Scheffé, the .10 level of significance was used for *a posteriori* tests.

CHAPTER IV

FINDINGS AND CONCLUSIONS

Chapter 4 includes a presentation, analysis and interpretation of the data relative to each hypothesis.

College Persistence Rates (Hypothesis 1)

Hypothesis 1 is: There are no statistically significant differences between groups in College Persistence Rates.

Table 7 presents the College Persistence Rates for each of the four principal groups. The rates are shown as ratios (R) to indicate the actual numbers of students. Also included are the equivalent per cent values. The latter were used to compare groups and conduct the significance tests summarized in table 8.

Tables 9 through 12 present similar information for male and female subgroups; data for minority and non-minority subgroups are included in tables 13 through 16.

TABLE 7

COLLEGE PERSISTENCE RATES

Study Samples:		Fall, 1968 Spring, 1968 Fall, 1967	Fall, 1968 Spring, 1968 Fall, 1967	---- Spring, 1968 Fall, 1967
Semester:		Second	Third	Fourth
Group X1	R	77:90	56:90	34:60
	%	85.6	62.2	56.7
Group X2	R	30:32	23:32	19:32
	%	93.8	71.9	59.4
Group C3	R	30:38	24:38	17:28
	%	78.9	63.2	60.7
Group C4	R	68.90	52:90	33:60
	%	75.6	57.8	55.0

Mean persistence rates of the four groups were 82% for the second semester, 62% for the third and 57% for the fourth. This indicates that approximately 38% of the students withdraw from college during or at the completion of their first year of college. Most students who enrolled for a third semester enrolled for a fourth semester as well.

Table 8 shows the differences in College Persistence Rates together with values indicating the significance of the differences.

Generally, "Z" values are shown. However, in some instances Chi square values were computed due to small expected frequencies. The latter values are enclosed in parentheses to differentiate them from "Z" scores.

TABLE 8

DIFFERENCES IN COLLEGE PERSISTENCE RATES

SEM.	Groups a	Groups b	Persistence Rates (%) a	Persistence Rates (%) b	a-b	Z or (X^2)	p
II	X1	X2	85.6	93.8	- 8.2	(0.81)	
	X1	C3	85.6	78.9	6.7	0.67	
	X1	C4	85.6	75.6	10.0	1.70	
	X2	C3	93.8	78.9	14.9	(2.02)	
	X2	C4	93.8	75.6	18.2	1.97	.05
	C3	C4	78.9	75.6	3.3	0.17	
	X1,X2	C3,C4	87.7	76.6	11.1	2.29	.05
III	X1	X2	62.2	71.9	- 9.7	0.99	
	X1	C3	62.2	63.2	- 1.0	0.11	
	X1	C4	62.2	57.8	4.4	0.60	
	X2	C3	71.9	63.2	8.7	0.77	
	X2	C4	71.9	57.8	14.1	1.41	
	C3	C4	63.2	57.8	3.4	0.57	
	X1,X2	C3,C4	64.8	59.4	5.4	0.87	
IV	X1	X2	56.7	59.4	- 2.7	0.25	
	X1	C3	56.7	60.7	- 4.0	0.35	
	X1	C4	56.7	55.0	1.7	0.19	
	X2	C3	59.4	60.7	- 1.3	0.10	
	X2	C4	59.4	55.0	4.4	0.41	
	C3	C4	60.7	55.0	5.7	0.50	
	X1,X2	C3,C4	57.6	56.8	0.8	0.11	

The tests yielded statistically significant differences ($p < .05$) for the first semester of reenrollment. A greater proportion of the General Studies students reenrolled after completion of one semester.

There were no statistically significant differences ($p < .05$) in College Persistence Rates subsequent to the second semester of enrollment.

Conclusion: Principal Study Groups. Hypothesis 1 was rejected at the .05 level of confidence for the second semester of enrollment, but not for the third and fourth. The analysis indicated that participation in the General Studies Program caused a greater Persistence Rate for the second semester of enrollment, but not for succeeding semesters.

Tables 9 and 10 present College Persistence Rates for the male and female subgroups. Results of the significance tests for differences between subgroups are presented in tables 11 and 12. Because of relatively small numbers in the subgroups, Chi square was used for all significance tests.

TABLE 9

COLLEGE PERSISTENCE RATES

MALES

Study Samples:		Fall, 1968 Spring, 1968 Fall, 1967	Fall, 1968 Spring, 1968 Fall, 1967	---- Spring, 1968 Fall, 1967
Semester:		Second	Third	Fourth
Group X1	R	49:52	38:52	21:34
	%	94.2	73.1	61.8
Group X2	R	20:21	15:21	13:21
	%	95.2	71.4	61.9
Group C3	R	24:31	19:31	11:22
	%	77.4	61.3	50.0
Group C4	R	41:51	33:51	21:33
	%	80.4	64.7	63.6

TABLE 10

COLLEGE PERSISTENCE RATES

FEMALES

Study Samples:		Fall, 1968 Spring, 1968 Fall, 1967	Fall, 1968 Spring, 1968 Fall, 1967	----: Spring, 1968 Fall, 1967
Semester:		Second	Third	Fourth
Group X1	R	28:38	18:38	13.26
	%	73.7	47.4	50.0
Group X2	R	10:11	8:11	6:11
	%	90.9	72.7	54.5
Group C3	R	6: 7	5: 7	6: 6
	%	85.7	71.4	100.0
Group C4	R	27:39	19:39	12:27
	%	69.2	48.7	44.4

TABLE 11

DIFFERENCES IN COLLEGE PERSISTENCE RATES

MALES

SEM.	Groups a	Groups b	Persistence Rates (%) a	Persistence Rates (%) b	Persistence Rates (%) a-b	χ^2	p
II	X1	X2	94.2	95.2	- 1.0	*	
	X1	C3	94.2	77.4	16.8	3.71	
	X1	C4	94.2	80.4	13.8	3.30	
	X2	C3	95.2	77.4	17.8	1.84	
	X2	C4	95.2	80.4	14.8	1.52	
	C3	C4	77.4	80.4	- 3.0	0.00	
	X1,X2	C3,C4	94.5	79.3	15.3	6.42	.01
III	X1	X2	73.1	71.4	1.7	0.02	
	X1	C3	73.1	61.3	11.8	0.77	
	X1	C4	73.1	64.7	8.4	0.84	
	X2	C3	71.4	61.3	10.1	0.21	
	X2	C4	71.4	64.7	6.7	0.08	
	C3	C4	61.3	64.7	- 3.4	0.10	
	X1,X2	C3,C4	72.6	63.4	9.2	1.49	
IV	X1	X2	61.8	61.9	- 0.1	0.08	
	X1	C3	61.8	50.0	11.8	0.35	
	X1	C4	61.8	63.6	- 1.8	0.03	
	X2	C3	61.9	50.0	11.9	0.23	
	X2	C4	61.9	63.6	- 1.7	0.03	
	C3	C4	50.0	63.6	-13.6	0.53	
	X1,X2	C3,C4	61.8	58.2	3.6	0.15	

* Expected frequencies too low for valid comparison.

TABLE 12

DIFFERENCES IN COLLEGE PERSISTENCE RATES

FEMALES

	Groups		Persistence Rates (%)				
SEM.	a	b	a	b	a-b	χ^2	p
II	X1	X2	73.7	90.9	-17.2	0.63	
	X1	C3	73.7	85.7	-12.0	*	
	X1	C4	73.7	69.2	4.5	0.19	
	X2	C3	90.9	85.7	5.2	*	
	X2	C4	90.9	69.2	21.7	1.12	
	C3	C4	85.7	69.2	16.5	0.19	
	X1,X2	C3,C4	77.6	71.7	5.8	0.42	
III	X1	X2	47.4	72.7	-25.3	3.34	
	X1	C3	47.4	71.4	-24.0	0.58	
	X1	C4	47.4	48.7	- 1.3	0.01	
	X2	C3	72.7	71.4	1.3	*	
	X2	C4	72.7	48.7	24.0	1.14	
	C3	C4	71.4	48.7	22.7	0.49	
	X1,X2	C3,C4	53.1	52.2	0.9	0.01	
IV	X1	X2	50.0	54.5	- 4.5	0.01	
	X1	C3	50.0	100.0	-50.0	3.19	
	X1	C4	50.0	44.4	5.6	0.16	
	X2	C3	54.5	100.0	-45.5	*	
	X2	C4	54.5	44.4	10.1	0.04	
	C3	C4	100.0	44.4	55.6	4.07	.05
	X1,X2	C3,C4	51.3	54.5	- 3.2	0.07	

* Expected frequencies too low for valid comparison.

Overall persistence rates of males were 86% for the second semester, 68% for the third semester, and 60% for the fourth semester. In contrast, the female persistence rates were 75%, 53% and 53%, respectively. Persistence rates for females were consistently lower than the rates for males.

Among the males, significantly more General Studies students (Groups X1 and X2) enrolled for a second semester.

Among females, there was a statistically significant difference between control Groups C3 and C4 for the fourth semester. The latter conclusion is weakened, however, by the relatively small number of students involved in the test (6 and 12, respectively).

Conclusion: Sex Subgroups. Hypothesis 1 was rejected at the .05 level of confidence for the second semester of enrollment for males and the fourth semester for females. The General Studies Program apparently encouraged males to reenroll for a second semester. The analysis did not indicate that the General Studies Program caused greater College Persistence Rates among females.

Tables 13 and 14 present the College Persistence Rates for minorities and non-minorities, respectively. The rates are shown as ratios (R) and per cent values.

Tables 15 and 16 present results of the significance tests for differences between groups. Because of relatively small numbers in the subgroups, Chi square was used.

TABLE 13

COLLEGE PERSISTENCE RATES

MINORITY

Study Samples:		Fall, 1968 Spring, 1968 Fall, 1967	Fall, 1968 Spring, 1968 Fall, 1967	---- Spring, 1968 Fall, 1967
Semester:		Second	Third	Fourth
Group X1	R	42:51	30:51	19:34
	%	82.4	58.8	55.9
Group X2	R	16:17	13:17	10:17
	%	94.1	76.5	58.8
Group C3	R	18:24	12:24	10:16
	%	75.0	50.0	62.5
Group C4	R	35:50	30:50	22:33
	%	70.0	60.0	66.7

TABLE 14

COLLEGE PERSISTENCE RATES

NON-MINORITY

Study Samples:		Fall, 1968 Spring, 1968 Fall, 1967	Fall, 1968 Spring, 1968 Fall, 1967	---- Spring, 1968 Fall, 1967
Semester:		Second	Third	Fourth
Group X1	R	35:39	26:39	15:26
	%	89.7	66.7	57.7
Group X2	R	14:15	10:15	9:15
	%	93.3	66.7	60.0
Group C3	R	12:14	12:14	7:12
	%	85.7	85.7	58.3
Group C4	R	33:40	22:40	11:27
	%	82.5	55.0	40.7

TABLE 15

DIFFERENCES IN COLLEGE PERSISTENCE RATES

MINORITY

SEM.	Groups a	Groups b	Persistence Rates (%) a	Persistence Rates (%) b	a-b	χ^2	p
II	X1	X2	82.4	94.1	-11.7	0.63	
	X1	C3	82.4	75.0	7.4	0.19	
	X1	C4	82.4	70.0	12.4	2.13	
	X2	C3	94.1	75.0	19.1	1.40	
	X2	C4	94.1	70.0	24.1	2.84	
	C3	C4	75.0	70.0	5.0	0.03	
	X1,X2	C3,C4	85.3	71.6	13.7	3.88	.05
III	X1	X2	58.8	76.5	-17.7	1.03	
	X1	C3	58.8	50.0	8.8	0.52	
	X1	C4	58.8	60.0	- 1.2	0.01	
	X2	C3	76.5	50.0	26.5	1.92	
	X2	C4	76.5	60.0	16.5	0.87	
	C3	C4	50.0	60.0	-10.0	0.66	
	X1,X2	C3,C4	63.2	56.8	6.5	0.62	
IV	X1	X2	55.9	58.8	- 2.9	0.01	
	X1	C3	55.9	62.5	- 6.6	0.02	
	X1	C4	55.9	66.7	-10.8	0.82	
	X2	C3	58.8	62.5	- 3.7	0.02	
	X2	C4	58.8	66.7	- 7.9	0.06	
	C3	C4	62.5	66.7	- 4.2	0.00	
	X1,X2	C3,C4	56.9	65.3	- 8.4	0.75	

TABLE 16

DIFFERENCES IN COLLEGE PERSISTENCE RATES

NON-MINORITY

	Groups		Persistence Rates (%)				
SEM.	a	b	a	b	a-b	χ^2	p
II	X1	X2	89.7	93.3	- 3.6	*	
	X1	C3	89.7	85.7	4.0	*	
	X1	C4	89.7	82.5	7.2	0.37	
	X2	C3	93.3	85.7	7.6	*	
	X2	C4	93.3	82.5	10.8	0.34	
	C3	C4	85.7	82.5	3.2	0.02	
	X1,X2	C3,C4	90.7	83.3	7.4	0.74	
III	X1	X2	66.7	66.7	0.0	0.10	
	X1	C3	66.7	85.7	-19.0	1.02	
	X1	C4	66.7	55.0	11.7	1.13	
	X2	C3	66.7	85.7	-19.0	2.66	
	X2	C4	66.7	55.0	11.7	0.22	
	C3	C4	85.7	55.0	30.7	2.98	
	X1,X2	C3,C4	66.6	63.0	3.7	0.16	
IV	X1	X2	57.7	60.0	- 2.3	0.03	
	X1	C3	57.7	58.3	- 0.6	0.10	
	X1	C4	57.7	40.7	17.0	1.52	
	X2	C3	60.0	58.3	1.7	0.09	
	X2	C4	60.0	40.7	19.3	0.77	
	C3	C4	58.3	40.7	17.6	0.45	
	X1,X2	C3,C4	58.5	46.2	12.4	1.23	

* Expected frequencies too low for valid comparison.

Overall mean persistence rates of minority students for the second, third and fourth semesters were 78%, 60% and 61%, respectively; for non-minority students the corresponding rates were 87%, 65% and 52%.

Significantly more minority students who completed the General Studies Program (Groups X1 and X2) reenrolled for a second semester. There were no other statistically significant ($p < .05$) differences.

Conclusion: Ethnic Subgroups. Hypothesis 1 was rejected at the .05 level of confidence for the second semester for minority students. In all remaining tests, hypothesis 1 could not be rejected at the .05 level. The analysis showed that the General Studies Program caused greater College Persistence Rates for minority students for the second semester of enrollment. Non-minority students showed no significant differences.

Course Attrition Rate (Hypothesis 2)

Hypothesis 2 is: There are no statistically significant differences between groups in Course Attrition Rates.

Table 17 shows the course attrition rates for the four principal groups as well as the sex and ethnic subgroups.

Tables 18 through 22 present resultant F values from the overall analysis of variance. The only significant F values (.05 level) occurred with minority students for the first and second semesters (table 21).

TABLE 17

COURSE ATTRITION RATES ($\bar{X}$)

SEM.	Group	All Students N	All Students $\bar{X}$	Males N	Males $\bar{X}$	Females N	Females $\bar{X}$	Minority N	Minority $\bar{X}$	Non-Minority N	Non-Minority $\bar{X}$
I	X1	90	1.28	52	1.32	38	1.24	51	0.97	39	1.69
	X2	32	1.19	21	1.36	11	0.86	17	0.91	15	1.50
	C3	38	2.46	31	2.56	7	1.64	24	3.06	14	1.25
	C4	90	2.11	51	2.43	39	1.70	50	2.29	40	1.88
II	X1	77	2.31	49	2.57	28	1.86	42	1.96	35	2.73
	X2	30	1.68	20	1.42	10	2.20	16	0.81	14	2.68
	C3	30	3.80	24	3.92	6	3.33	18	4.11	12	3.33
	C4	67	2.27	41	2.37	26	2.12	35	1.89	32	2.69
III	X1	37	2.22	23	2.41	14	1.89	20	2.62	17	1.74
	X2	23	1.52	15	1.60	8	1.38	13	1.15	10	2.00
	C3	19	2.00	14	1.21	5	4.20	9	1.11	10	2.80
	C4	39	2.35	25	2.12	14	2.75	24	1.77	15	3.27
IV	X1	30	2.43	20	2.72	10	1.85	18	2.53	12	2.29
	X2	17	3.47	13	3.23	4	4.25	9	2.89	8	4.12
	C3	13	1.97	9	2.33	4	2.12	8	1.13	5	4.10
	C4	31	3.66	20	3.80	11	3.41	20	3.88	11	3.27

TABLE 18

ANALYSIS OF VARIANCE
COURSE ATTRITION RATES

SEM.	Source	df	SS	MS	F	Required F
I	Treatment	3	56.85	18.95	2.21	$F_{.95}$ (3,246) > 2.64
	Error	246	2109.23	8.57		
	Total	249	2166.08			
II	Treatment	3	75.85	25.28	1.65	$F_{.95}$ (3,200) = 2.65
	Error	200	3065.23	15.33		
	Total	203	3141.08			
III	Treatment	3	10.73	3.58	0.34	$F_{.95}$ (3,114) > 3.07
	Error	114	1188.59	10.43		
	Total	117	1199.32			
IV	Treatment	3	33.85	11.28	0.75	$F_{.95}$ (3,87) > 3.10
	Error	87	1306.60	15.02		
	Total	90	1800.79			

TABLE 19

ANALYSIS OF VARIANCE
COURSE ATTRITION RATES

MALES

SEM.	Source	df	SS	MS	F	Required F
I	Treatment	3	51.70	17.23	1.53	$F_{.95}$ (3,151) > 2.65
	Error	151	1699.47	11.25		
	Total	154	1751.17			
II	Treatment	3	71.44	23.81	2.06	$F_{.95}$ (3,130) > 2.66
	Error	130	1502.98	11.56		
	Total	133	1574.43			
III	Treatment	3	15.06	5.02	0.54	$F_{.95}$ (3,73) > 2.72
	Error	73	680.42	9.32		
	Total	76	695.49			
IV	Treatment	3	18.10	6.03	0.35	$F_{.95}$ (3,58) > 2.76
	Error	58	987.75	17.03		
	Total	61	1005.84			

TABLE 20

ANALYSIS OF VARIANCE
COURSE ATTRITION RATES

FEMALES

SEM.	Source	df	SS	MS	F	Required F
I	Treatment	3	7.63	2.54	0.60	$F_{.95}$ (3,91) > 2.70
	Error	91	387.51	4.26		
	Total	94	395.15			
II	Treatment	3	10.83	3.61	0.44	$F_{.95}$ (3,66) > 2.74
	Error	66	546.52	8.28		
	Total	69	557.34			
III	Treatment	3	29.87	9.96	0.79	$F_{.95}$ (3,37) > 2.84
	Error	37	469.14	12.68		
	Total	40	499.01			
IV	Treatment	3	23.34	7.78	0.63	$F_{.95}$ (3,25) = 2.99
	Error	25	309.37	12.37		
	Total	28	332.71			

TABLE 21

ANALYSIS OF VARIANCE
COURSE ATTRITION RATES

MINORITIES

SEM.	Source	df	SS	MS	F	Required F
I	Treatment	3	98.71	32.90	3.64*	$F_{.95}$ (3,138) < 2.68
	Error	138	1248.52	9.05		$F_{.99}$ (3,138) > 3.91
	Total	141	1347.23			
II	Treatment	3	101.65	33.88	3.08*	$F_{.95}$ (3,107) < 2.70
	Error	107	1178.95	11.02		$F_{.99}$ (3,107) > 3.94
	Total	110	1280.61			
III	Treatment	3	23.31	7.77	0.83	$F_{.95}$ (3,62) > 2.74
	Error	62	583.51	9.41		
	Total	65	606.82			
IV	Treatment	3	46.67	15.56	1.24	$F_{.95}$ (3,51) > 2.76
	Error	51	638.44	12.52		
	Total	54	685.11			

* Significant at .05 level.

TABLE 22.

ANALYSIS OF VARIANCE
COURSE ATTRITION RATES

NON-MINORITIES

SEM.	Source	df	SS	MS	F	Required F
I	Treatment	3	4.60	1.53	0.20	$F_{.95}$ (3,104) > 2.68
	Error	104	813.56	7.82		
	Total	107	818.16			
II	Treatment	3	4.18	1.39	0.07	$F_{.95}$ (3,89) > 2.71
	Error	89	1834.02	20.61		
	Total	92	1838.20			
III	Treatment	3	21.92	7.31	0.70	$F_{.95}$ (3,48) > 2.79
	Error	48	503.59	10.49		
	Total	51	525.51			
IV	Treatment	3	20.76	6.92	0.35	$F_{.95}$ (3,32) > 2.87
	Error	32	631.49	19.73		
	Total	35	652.25			

Applying the Scheffe method for a posteriori significance tests (.10 level) to the minority groups showed that Group C3 had a higher Course Attrition Rate than Group X1 for the first semester and a higher Course Attrition Rate than Group X2 for the second semester.

An additional analysis was conducted for minority students by combining Groups X1 and X2 (students enrolled in all four General Studies courses or in all but the Career Guidance course) and Groups C3 and C4. The latter two groups showed a statistically significant higher attrition rate than Groups X1 and X2 for the first semester. The conclusion is weakened by the fact that from 5½ to 7 units of enrollment for Groups X1 and X2 were in General Studies courses the first semester. This fact introduced the possiblity of contaminating bias.

Conclusion: Principal Study Groups. Hypothesis 2 could not be rejected at the .05 level of confidence. The analysis did not indicate that participation in the General Studies Program resulted in lower Course Attrition Rates.

Conclusion: Sex Subgroups. Hypothesis 2 could not be rejected at the .05 level of confidence. The analysis did not indicate that the General Studies Program caused lower Course Attrition Rates among males or females.

Conclusion: Ethnic Subgroups. Hypothesis 2 could not be rejected at the .05 level of confidence for non-minority students.

In the case of minority students, hypothesis 2 could be rejected (.05 level of confidence) for the first and second semesters, but not for the third and fourth semesters.

Group C3 had a significantly higher Course Attrition Rate than Group X1 for the first semester and Group X2 for the second semester.

For the first semester, Groups X1 and X2 combined had a lower Course Attrition Rate than Groups C3 and C4 combined.

Grade Point Average (Hypothesis 3)

Hypothesis 3 is: There are no statistically significant differences between groups in Grade Point Averages.

In addition to those factors mentioned under hypothesis 2 that reduced the numbers of students used in the significance tests, there was an additional reduction in sample size when testing hypothesis 3. Only students completing a course were used; therefore course attrition during the semester reduced the numbers.

Table 23 shows the Grade Point Averages for the four principal study groups as well as the sex and ethnic subgroups.

Tables 24 through 28 present resultant F values from the overall analysis of variance.

TABLE 23

GRADE POINT AVERAGES ($\bar{X}$)

SEM.	Group	All Students N	All Students $\bar{X}$	Males N	Males $\bar{X}$	Females N	Females $\bar{X}$	Minority N	Minority $\bar{X}$	Non-Minority N	Non-Minority $\bar{X}$
I	X1	87	2.26	50	2.24	37	2.28	49	2.23	38	2.30
	X2	31	2.26	20	2.37	11	2.06	17	2.29	14	2.23
	C3	36	2.01	29	1.96	7	2.19	22	1.80	14	2.34
	C4	82	2.03	47	2.08	35	1.97	44	2.00	38	2.07
II	X1	73	1.95	47	1.98	26	1.89	40	1.98	33	1.90
	X2	29	1.75	20	1.79	9	1.67	16	1.77	13	1.73
	C3	25	1.95	20	1.90	5	2.15	15	1.79	10	2.19
	C4	61	2.08	38	1.99	23	2.24	32	2.09	29	2.07
III	X1	36	2.03	22	2.01	14	2.07	19	2.05	17	2.02
	X2	23	2.04	15	2.13	8	1.86	13	1.97	10	2.13
	C3	17	2.15	13	2.21	4	1.95	8	1.93	9	2.34
	C4	34	2.16	21	2.20	13	2.08	23	2.01	11	2.47
IV	X1	26	2.15	17	2.13	9	2.21	15	2.13	11	2.18
	X2	16	2.11	12	1.94	4	2.63	9	2.11	7	2.11
	C3	12	1.92	9	1.98	3	1.76	8	1.65	5	2.46
	C4	24	2.26	16	2.30	8	2.19	15	2.40	9	2.02

TABLE 24

ANALYSIS OF VARIANCE
GRADE POINT AVERAGES

SEM.	Source	df	SS	MS	F	Required F
I	Treatment	3	3.27	1.09	2.11	$F_{.95}$ (3,232) > 2.64
	Error	232	119.68	0.52		
	Total	235	122.94			
II	Treatment	3	1.15	0.38	0.63	$F_{.95}$ (3,181) > 2.65
	Error	181	109.91	0.61		
	Total	184	111.05			
III	Treatment	3	1.77	0.59	1.26	$F_{.95}$ (3,94) > 2.70)
	Error	94	44.04	0.47		
	Total	97	45.81			
IV	Treatment	3	1.95	0.65	1.83	$F_{.95}$ (3,65) > 2.74
	Error	65	23.10	0.36		
	Total	68	25.05			

TABLE 25

ANALYSIS OF VARIANCE
GRADE POINT AVERAGES

MALES

SEM.	Source	df	SS	MS	F	Required F
I	Treatment	3	2.61	0.87	1.88	$F_{.95}$ (3,142) > 2.11
	Error	142	65.87	0.46		
	Total	145	68.48			
II	Treatment	3	0.63	0.21	0.31	$F_{.95}$ (3,121) > 2.11
	Error	121	81.93	0.68		
	Total	124	82.56			
III	Treatment	3	0.50	0.17	0.33	$F_{.95}$ (3,67) > 2.13
	Error	67	34.11	0.51		
	Total	70	34.61			
IV	Treatment	3	1.07	0.36	0.98	$F_{.95}$ (3,50) > 2.18
	Error	50	18.29	0.37		
	Total	53	19.36			

TABLE 26

ANALYSIS OF VARIANCE
GRADE POINT AVERAGES

FEMALES

SEM.	Source	df	SS	MS	F	Required F
I	Treatment	3	1.92	0.64	1.05	$F_{.95}$ (3,86) > 2.13
	Error	86	52.51	0.61		
	Total	89	54.43			
II	Treatment	3	2.76	0.92	1.82	$F_{.95}$ (3,59) > 2.18
	Error	59	29.80	0.51		
	Total	62	32.56			
III	Treatment	3	0.30	0.10	0.20	$F_{.95}$ (3,35) > 2.23
	Error	35	17.34	0.50		
	Total	38	17.64			
IV	Treatment	3	1.20	0.43	0.76	$F_{.95}$ (3,20) = 2.38
	Error	20	11.41	0.57		
	Total	23	12.71			

TABLE 27

ANALYSIS OF VARIANCE
GRADE POINT AVERAGES

MINORITIES

SEM.	Source	df	SS	MS	F	Required F
I	Treatment	3	3.88	1.29	2.26	$F_{.95}$ (3,128) > 2.66
	Error	128	73.34	0.57		
	Total	131	77.22			
II	Treatment	3	1.60	0.53	1.09	$F_{.95}$ (3,99) > 2.70
	Error	99	48.49	0.49		
	Total	102	50.09			
III	Treatment	3	0.11	0.04	0.07	$F_{.95}$ (3,59) > 2.76
	Error	59	30.77	0.52		
	Total	62	30.87			
IV	Treatment	3	3.36	1.12	2.89*	$F_{.95}$ (3,43) < 2.84
	Error	43	16.70	0.39		$F_{.99}$ (3,43) > 4.25
	Total	46	20.06			

* Significant at .05 level.

TABLE 28

ANALYSIS OF VARIANCE
GRADE POINT AVERAGES

NON-MINORITIES

SEM.	Source	df	SS	MS	F	Required F
I	Treatment	3	1.26	0.42	0.96	$F_{.95}$ (3,100) = 2.70
	Error	100	43.64	0.44		
	Total	103	44.90			
II	Treatment	3	1.70	0.57	0.72	$F_{.95}$ (3,81) > 2.71
	Error	81	63.51	0.78		
	Total	84	65.22			
III	Treatment	3	1.58	0.52	1.19	$F_{.95}$ (3,43) > 2.81
	Error	43	18.98	0.44		
	Total	46	20.56			
IV	Treatment	3	0.55	0.18	0.41	$F_{.95}$ (3,27) = 2.96
	Error	27	12.07	0.45		
	Total	30	12.62			

The only significant F value occurred with minority students for the fourth semester (table 27). Applying the Scheffé method for a posteriori significance tests (.10 level) showed that the Control Group C4 had a higher Grade Point Average than Group C3 (students who enrolled in the one unit reading course but not in any of the other General Studies courses). It should be noted that the N's in the two minority subgroups for the fourth semester were only 15 and 8, respectively. There were no other significant individual group differences.

An additional analysis was conducted by combining Groups X1 and X2 (students enrolled in all four General Studies courses or in all but the Career Guidance course) and Groups C3 and C4. There was no statistically significant difference.

Conclusion: Principal Study Groups. Hypothesis 3 could not be rejected at the .05 level of confidence. The analysis did not indicate that participation in the General Studies Program resulted in higher Grade Point Averages.

Conclusion: Sex Subgroups. Hypothesis 3 could not be rejected at the .05 level of confidence. The analysis did not indicate that the General Studies Program caused higher Grade Point Averages among males or females.

Conclusion: Ethnic Subgroups. Hypothesis 3 could not be rejected at the .05 level of confidence for non-minority students.

For minority students, Control Group C4 had a statistically significant (.05 level) higher Grade Point Average than Group C3. However, there were only 15 and 8 students in the two groups. Also, students in Groups C3 and C4 were not enrolled in the basic General Studies Program.

The analysis did not indicate that the General Studies Program caused higher Grade Point Averages for either minority or non-minority students.

Summary of Conclusions

Hypothesis 1. Does the General Studies Program cause students to persist in college?

Principal Study Groups: Yes. Completion of the General Studies Program caused a greater College Persistence Rate for the second semester; there was no indication that the Program affected third and fourth semester persistence.

Males: Yes. Completion of the General Studies Program caused a greater College Persistence Rate for the second semester; there was no indication that the Program affected third and fourth semester persistence.

Females: No significant effects were evident.

Minorities: Yes. Completion of the General Studies Program caused a greater College Persistence Rate for the second semester; there was no indication that the Program affected third and fourth semester persistence.

Non-Minorities: No significant effects were evident.

Hypothesis 2. Does the General Studies Program cause students to drop fewer courses?

Principal Study Groups: No significant effects were evident.

Males: No significant effects were evident.

Females: No significant effects were evident.

Minorities: Yes. Students enrolled in the General Studies Program dropped fewer units during the first semester. During the second semester General Studies Group X2 dropped fewer units than Control Group C3; however, a comparison of all General Studies Groups to all Control Groups did not support this difference. There was no indication that the Program affected third and fourth semester Course Attrition Rates.

Non-Minorities: No significant effects were evident.

Hypothesis 3. Does the General Studies Program cause students to earn higher grade point averages?

Principal Study Groups: No significant effects were evident.

Sex and Ethnic Subgroups: No significant effects were evident.

CHAPTER V

DISCUSSION AND RECOMMENDATIONS

The study indicates that the General Studies Program meets needs of minority students. The findings are important in light of current unrest evidenced by minority groups.

Both male and minority students were encouraged through the General Studies Program to persist in College. However, the effects were only evident for the second semester of enrollment. Motivation might be extended by offering similar courses in succeeding semesters.

There was no indication that the reading improvement course added appreciably to the General Studies Program. A follow-up study should be conducted to determine which, if any, of the three remaining courses could be eliminated from the Program without decreasing its impact on minority or male students.

The evident success of the General Studies Program with minority and male students places a strong responsibility on San Diego City College to clearly and comprehensively document a description of the Program. This not only would permit other colleges to initiate similar programs, but would also help insure validity of possible additional studies.

Important questions which remain to be answered are:

1. To which course or combinations of courses could success of the Program be attributed?
2. Is the Program successful for males from both minority and non-minority groups?
3. Were the significant differences caused by the General Studies courses, the teachers, or both?
4. Is the Program successful with both male and female minority students?
5. Does the General Studies Program affect all minority groups or only certain ones?

The author considers it advisable to report incidental study findings that are believed to have important implications.

Students in the study were identified as potential "drop-outs" by a low English score on the American College Tests. Yet 57% of the students enrolled for four consecutive semesters.

The Joint Committee on Higher Education (1968, p. 22) used a Gross Persistence Ratio (the number of sophomores for a given year compared to the number of freshmen in the preceding year) as an indication of the "holding power" of junior colleges in California. The Gross Persistence Ratio for San Diego City College was 25.3%. Yet 57% of those students considered least likely to succeed persisted through four consecutive semesters.

The above apparent discrepancies strongly indicate a need for a comprehensive study of college entrance tests and their uses, as well as an accountability study to accurately determine persistence rates in California community colleges.

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AUTHOR
HEINKEL, OTTO A.

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ABSTRACT

THE STUDY EVALUATED EFFECTIVENESS OF THE GENERAL STUDIES PROGRAM AT SAN DIEGO CITY COLLEGE. THE PROGRAM WAS OFFERED DURING THE INITIAL SEMESTER OF ATTENDANCE AND WAS DESIGNED TO HELP POTENTIALLY LOW ACADEMIC ACHIEVERS SUCCEED IN COLLEGE. RANDOM SELECTION AND ASSIGNMENT WAS USED. STUDENTS WERE SELECTED FROM FIRST-TIME ENROLLEES WHO HAD NO PRIOR COLLEGE EXPERIENCE AND WHO HAD STANDARD ENGLISH SCORES OF 10 OR LESS ON THE AMERICAN COLLEGE TESTS. THE EXPERIMENTAL GROUPS CONTAINED 122 STUDENTS WHO ENROLLED IN THE GENERAL STUDIES PROGRAM; THE CONTROL GROUPS CONSISTED OF 128 STUDENTS. SEX AND ETHNIC SUBGROUPS WERE FORMED FROM THE PRINCIPAL STUDY GROUPS. THE CRITERIA FOR THE STUDY WERE: COLLEGE PERSISTENCE RATE, COURSE ATTRITION RATE, AND GRADE POINT AVERAGE. PERFORMANCE OF THE STUDY GROUPS AND SUBGROUPS WAS EVALUATED FOR FOUR CONSECUTIVE SEMESTERS. TESTS FOR SIGNIFICANT DIFFERENCES INCLUDED ADJUSTMENTS FOR SMALL SAMPLES AND FOR CONTINUITY. COMPLETION OF THE GENERAL STUDIES PROGRAM ENCOURAGED MALES AND MINORITY STUDENTS TO REENROLL FOR A SECOND SEMESTER. MINORITY STUDENTS WHO ENROLLED IN THE GENERAL STUDIES PROGRAM DROPPED FEWER UNITS FOR THE FIRST SEMESTER THAN MINORITY STUDENTS WHO DID NOT ENROLL IN THE PROGRAM. THERE WERE NO OTHER STATISTICALLY SIGNIFICANT DIFFERENCES THAT COULD BE ATTRIBUTED TO THE GENERAL STUDIES PROGRAM.