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## ABSTRACT

This study assesses the effectiveness of innovative programs for high risk students at four community junior colleges with somewhat different approaches to remedial education. Each program is described in terms of organizational structure, subject matter content, instructional strategies, counseling services, philosophy and objectives, grading practices, and student selection criteria. Effectiveness was assessed in terms of student persistence (number of semesters of full-time enrollment) and academic performance (grade point average) for both program and control group students. Both groups of students were stratified according to ACT scores, race-ethnic group, and academic year. General conclusions were: (1) high risk students in special programs tend to persist to a greater degree and achieve academically at a higher level than comparable high risk students in regular programs; (2) there is an indication that each year academic performance and persistence rates of high risk students in special programs are increasing; and (3) minority group students tend to persist and achieve academically to a greater degree than majority group students. (RN)

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Final Report

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AN EVALUATION OF INNOVATIVE PROGRAMS DESIGNED  
TO INCREASE PERSISTENCE AND ACADEMIC  
PERFORMANCE OF HIGH RISK STUDENTS  
IN COMMUNITY COLLEGES

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The University of Texas

Austin, Texas

September 1972

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## ABSTRACT

The effectiveness of innovative programs for high risk students in four community junior colleges was assessed in this study. Effectiveness was assessed in terms of student persistence and academic performance in college. Subjects consisted of stratified random samples of students enrolled in developmental studies programs in each of the colleges in the academic years 1969-70, 1970-71, and 1971-72. Stratification variables were ACT score, race-ethnic group, and academic year. Control groups were formed at three of the colleges in 1971-72. High risk students enrolled in special programs persisted and achieved academically to a significantly greater degree than did high risk students in non-remedial programs. Minority group students tended to achieve and persist to a greater degree than did majority group students. Both persistence and academic performance declined after high risk students entered regular credit programs.

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## CHAPTER I

### INTRODUCTION

An awakened social conscience during the decade of the 1960's resulted in a national commitment to extending post-secondary educational opportunities to every American citizen. As a result of this commitment the community junior college enjoyed its greatest period of growth both in numbers of students enrolled and in new institutions opened. The expression "open door" became a descriptive term reserved almost exclusively for the two-year community college. An open admissions policy which has been enacted into law in most states provides that any high school graduate or person eighteen years of age or older is eligible to become a student in the community junior college. Concomitant with this open admissions policy is the implicit promise that the community junior college will provide successful learning experiences for all its students.

It was inevitable that great numbers of the new students who entered higher education during this period were low achieving, high risk students who had little chance of achieving academic success in the traditional four-year college or university. Coupled with the national commitment of bringing about the democratization of higher education was the paradoxical situation which existed during the late 60's and early 70's of many four-year colleges and universities imposing highly selective admissions policies in order to control burgeoning enrollments. The result was that the high risk student, in particular, was forced to matriculate in the community junior college.

The two-year college responded to the challenge by proclaiming itself a "teaching institution." It proudly rejected the notion of instructors becoming intensely involved in the research-and-publish mandate so prevalent in the four-year institutions of learning. Rather, great effort was exerted to point up that community college instructional staffs devoted full time to teaching. Accordingly, special courses and programs were established to accommodate the growing numbers of high risk students.

## Statement of the Problem

Yet, even with the great influx of high risk students on the college scene during this period, there are several national, regional, and state surveys which document the unwillingness of colleges and universities to provide effective programs for these students (Schenz, 1963; Gordon and Wilkerson, 1966; Bassone, 1966; Berg and Axtell, 1968; Roueche, 1968; Gordon and Thomas, 1969; Schafer, 1970; and Ferrin, 1971). In their extensive review of studies on programs for the disadvantaged Kendrick and Thomas (1970) concluded that evidence, while limited in quantity and scope, nevertheless pointed up the ineffectiveness of existing remedial programs. Studies by Chalhian (1969), Ludwig and Gold (1969), Heinkel (1970), and Snyder and Blocker (1970) indicated that while some programs for high risk students have produced favorable results when compared with control groups of low achieving students, the persistence rates and academic performance levels of these same students after they leave these special remedial programs and enter regular college credit programs are still appallingly low. A recent study by Kirk (1972) of remedial programs in selected urban junior colleges also reveals the relative ineffectiveness of special programs for high risk students after they exit the programs. According to Moore (1970:3), the "odds are that the remedial student will not be any better off academically after his college experience than he was before he had the experience."

## Purposes of the Study

The purposes of this investigation were three fold: (a) to assess the effects of current innovative programs upon high risk students' academic performance and persistence in college; (b) to determine and compare the persistence and academic performance of students when they are statistically subgrouped according to race-ethnic group; and (c) to identify and describe those characteristics of special programs which appear to be related to effectiveness in terms of student persistence and academic performance.

More specifically, the study was designed to answer the following questions:

1. To what extent do students in remedial programs persist in the community college?

2. To what extent do students in remedial programs perform academically in the community college?
3. Is academic performance of students in remedial programs, as measured by grade point average (GPA), superior to that of comparable students enrolled in non-remedial programs?
4. Are students in remedial programs more persistent, as measured by completion of full time enrollment in subsequent semesters, than comparable students enrolled in non-remedial programs?
5. Are there significant relationships existing between the variables of persistence and academic performance when high risk students are statistically subgrouped according to minority and non-minority groups?

In addition, the following kinds of information were determined:

1. Objectives of remedial programs
2. Subject areas in remedial programs
3. Organizational structure of the programs
4. Criteria used to place students in remedial programs
5. Mean entrance scores on pre-admissions tests of students in remedial programs
6. Qualifications necessary to enter regular credit courses
7. Grading practices and policies
8. Counseling services provided students in remedial programs
9. Instructional methods used in remedial programs

#### Definitions of Terms

For purposes of this study the following terms are defined according to their intended meaning in this investigation:

Remedial program: An educational program of special and extra services designed to remedy student deficiencies to a level where students can enter regular college credit courses.

The term "remedial" is used interchangeably throughout this report with the following words: guided, basic, compensatory, and developmental.

High risk student: An educationally disadvantaged student whose potential for failure in college is extremely high. The term is used interchangeably throughout this report with the following: low achieving, marginal, and remedial student.

Persistence: Numbers of semesters completed by full time students subsequent to initial semester of enrollment.

Academic performance: Mean grade point average (GPA) of a group of students for a designated semester or the cumulative mean GPA at selected intervals.

Control group: A group of high risk students who enrolled either by choice or by placement in the regular college program rather than in the remedial program.

Statistical significance: The probability level of .05 or less will denote statistical significance in chi square analysis and one-way analysis of variance.

Race-ethnic group: The currently accepted terms of "black," "white," "Chicano," and Indian are used to denote Negro-American, Anglo-American, Mexican-American, and American Indian.

Full time student: Completion of at least nine semester hours of college credit each semester subsequent to initial semester of full time enrollment.

## CHAPTER II

### DESCRIPTIONS OF THE PROGRAMS

This chapter describes each of the developmental studies programs at the four community junior colleges selected for study. Included in the descriptions are the following: program objectives; subject areas taught; means of identifying potentially low achievers; qualifications for entering regular college programs; grading policies; counseling and supplementary services provided; instructional methods used; size of programs in terms of student enrollment; race-ethnic make-up of programs and colleges; and mean ACT composite scores of high risk students.

For purposes of constructing tables showing data and statistical comparisons the community colleges were coded as follows:

College A - South Campus (Tarrant County Junior College District, Fort Worth, Texas)

College B - El Centro College (Dallas County Junior College District, Dallas, Texas)

College C - Southeastern Community College (Whiteville, North Carolina)

College D - Burlington County College (Pemberton, New Jersey)

#### College A

The developmental studies or Basic Studies program as it is referred to at Tarrant County Junior College is a block-type, vertical team approach operating within a separate division in the college. The program is one year in length, and with the exception of physical education, courses are taught by the Basic Studies staff.

According to Tarrant County's description of its program it is

. . . a one year, college level program in general education, designed for the marginal or high risk student . . . the student is placed in a dynamic environment which provides individualized attention by instructors . . . [and] the use of innovative teaching techniques, and an interdisciplinary approach to learning.

Students enroll in the program on a block schedule basis with course selections and times predetermined. Five sections consisting of a total of approximately 100 students are assigned to a "vertical team" made up of five instructors and one counselor. This team is responsible for the educational experiences of these students during their initial year in college. Three such vertical teams exist at the college. All staff members including a division head are volunteers.

Advantages accorded to the vertical team approach include: flexibility in scheduling for speakers, field trips, group research, group dynamics, and independent study; opportunity for strong peer relationships to develop; development of close student-instructor relationships; use of an interdisciplinary approach to learning; vehicle by which the program can be expanded without loss of personal contact with students.

The curriculum is designed around O'Banion's (1971) humanizing model of education whereby the student himself becomes the center of the curriculum. The program consists basically of thirty-five hours of college credit and includes communications, natural science, reading improvement, humanities, social science, and a personality foundations-career planning course.

A student who enters South Campus of Tarrant County Junior College is advised by the admitting counselor to enroll in Basic Studies if his composite score on the American College Test (ACT) is 13.0 or below; or if he scores below the 25th percentile on the ACT composite predictor score.

Other criteria established for placement purposes include: student possesses a high school diploma or its equivalent; student is between 17 and 21 years of age; student experienced little academic success in high school; student desires a full time day schedule; and the student aspires toward an Associate in Arts degree or beyond.

The following objectives are listed for the program:

1. To assist the student in developing group relationships within the college environment
2. To assist the student in becoming more aware of his community, its problems, and resources
3. To assist the student in solving his financial problems while he is attending school
4. To increase the duration of the student's involvement in college experiences
5. To assist the student in coping with his personal and academic problems
6. To provide a curriculum which is exciting and different from his high school experience in education
7. To assist the student in realistically assessing his vocational objectives so that they are commensurate with his interests, abilities, and achievement
8. To improve the student's chances of achieving academic success
9. To assist the student in the development of basic communication skills
10. To assist the student in developing a more positive and realistic self-concept

Instructors use Mager's (1962) Preparing Instructional Objectives as a guide for defining behavioral objectives in each of the courses. Instructional packages, video and audio tapes, and programmed materials are also used as means of individualizing instruction.

Along with providing social, personal, and academic counseling services, each counselor on a vertical team also serves as an instructor. He will teach the personality foundations course and the career planning course.

Data describing the program and sample populations in College A are presented in Tables 1, 2, and 3. The mean ACT composite scores for the various groups of high risk students studied were 11.2 for the

TABLE 1  
 POPULATION CHARACTERISTICS OF THE DEVELOPMENTAL STUDIES  
 PROGRAM AT COLLEGE A FOR A THREE YEAR PERIOD

Year	Program Size		Sample Size		Mean ACT Composite Score of Sample	Race-Ethnic Composition (Percent) <sup>a</sup>		
	Original N	%	Original N	Final %		Black	White	Chicano Other
1969-70	318	42	13	36	11.2	32	64	4
1970-71	274	31	11	28	12.0	28	68	4
1971-72	232	41	18	36	10.9	17	78	3

<sup>a</sup> Race-ethnic composition of the 1971-72 program was determined from the sample. Compositions of the 1969-70 and the 1970-71 programs were reported by the college.

TABLE 2

MEAN ACT COMPOSITE SCORES FOR RACE-ETHNIC GROUPS  
IN THE 1971-72 REMEDIAL PROGRAM AND THE  
CONTROL GROUP AT COLLEGE A

Group	N	Mean ACT Composite Score			
		Total Group	Black	White	Chicano <sup>a</sup> Other <sup>a</sup>
Program	36	10.9	8.2 <sup>b</sup>	11.1	-
Control	29	11.2	10.2	11.8	-

<sup>a</sup>Insufficient number of Chicano and Other students.

<sup>b</sup>Mean ACT score based on sample of six black students.

TABLE 3

RACE-ETHNIC COMPOSITIONS OF THE 1971-72 REMEDIAL PROGRAM  
AND THE CONTROL GROUP AT COLLEGE A :

Group	N	Race-Ethnic Composition (Percent)			
		Black	White	Chicano	Other
Program	36	17	78	3	3
Control	29	31	55	7	7

1969-70 group, 12.0 for the 1970-71 group, and 10.9 for the 1971-72 group (see Table 1). Black students in the 1971-72 group had an ACT mean score of 8.2 while white students had a mean score of 11.1 (see Table 2). The mean ACT score for Chicano students was not meaningful because of the small number of students involved.

Black students made up 32 percent of the developmental studies program enrollment in 1969-70 as compared to a total college black enrollment of 10 percent. In 1970-71 the percentage of black students in developmental studies dropped to 28 percent compared to a total college black enrollment of 12 percent. The sample of 1971-72 developmental studies students consisted of 17 percent black, 77 percent white, 3 percent Chicano, and 2 percent of unknown classification.

Members of the control group of high risk students at College A were not enrolled in developmental studies. This group consisted of 31 percent black, 55 percent white, 7 percent Chicano, and 7 percent of other or unknown classification (see Table 3).

The grading system used at College A is based on a four-point system and consists of the traditional A through F grade. The only exception to this grading system was the assignment of an "I" grade when the student for valid reasons had not completed requirements for the course.

### College B

The basic objective of the developmental or Guided Studies program as it is called at El Centro is stated simply as making the open door philosophy of the college a workable one for educationally disadvantaged students. This is best accomplished by providing success experiences which help eliminate negative attitudes toward learning. The program attempts to assist students to develop the skills needed to succeed in college and/or on the job.

The Guided Studies program at El Centro has existed in its present form, with minor variations, since the fall of 1969. Prior to that date remedial courses were taught in the division of communications and in the combination math-science division. In the fall of 1968 a separate division of developmental studies was organized and the complement of existing courses and services was placed within the division the following year.

A separate division of developmental studies was created for several reasons. First, in order to give proper recognition and emphasis to the teaching and counseling of high risk students it was felt that a separate division would enhance both the status of the personnel and the implementation of the philosophy and objectives of the program. Second, another factor considered in the creation of a single division of developmental studies was the belief that it would be educationally sound for instructors to cooperatively plan learning experiences for low ability students. Team teaching and interdisciplinary approaches, for example, would enable students to view their classroom experiences and endeavors as having a common purpose rather than being isolated learning tasks.

A final factor in the creation of a separate division of developmental studies was the belief that misunderstandings which typically exist between counselors and instructors in many educational institutions could be minimized in a single division. Not only would the close proximity of counselor to instructor enhance the possibilities for joint planning and consultation, but even more desirable, a merging of roles might occur.

Included among the special services and instructional strategies provided at El Centro is an open writing laboratory staffed by paraprofessional teacher aides. For the student needing assistance in the area of composition, special study materials are available. Other services offered include seminars conducted by the developmental reading staff for students at no charge. Seminars typically range from a few days to several weeks in length and cover such topics as speed reading, comprehension, vocabulary, spelling, study skills, and test-taking skills. Materials used include pre- and post-tests, workbooks, programmed texts, cassettes, and other instructional materials prepared by the staff and various educationally oriented commercial companies.

All students who score 11.0 or below on the composite of the ACT are strongly counseled to enroll in the Guided Studies program. The ACT mean composite scores for sample students enrolled in the remedial program at El Centro were 9.0 for the 1969-70 group, 8.0 for the 1970-71 group, and 8.9 for the 1971-72 group (see Table 4).

The race-ethnic breakdown of the 1971-72 sample of developmental studies students at the college was 40 percent black, 14 percent Chicano, 43 percent white, and 3 percent other or unknown (see Table 5).

TABLE 4  
 POPULATION CHARACTERISTICS OF THE DEVELOPMENTAL STUDIES  
 PROGRAM AT COLLEGE B FOR A THREE YEAR PERIOD

Year	Program Size <sup>a</sup>	Sample Size		Mean ACT Composite Score of Sample	Race-Ethnic Composition (Percent) <sup>b</sup>				
		Original N	Final N		Black	White	Chicano Other		
1969-70	570	64	11	63	11	9.0	-	-	-
1970-71	467	39	8	36	8	8.0	-	-	-
1971-72	376	45	12	35	9	8.9	40	43	14
									3

<sup>a</sup>Includes full-time and part-time remedial program students.  
<sup>b</sup>Race-ethnic data were not available for the 1969-70 and 1970-71 groups.

TABLE 5

RACE-ETHNIC COMPOSITIONS OF THE 1971-72 REMEDIAL PROGRAM  
AND THE CONTROL GROUP AT COLLEGE B

Group	N	Race-Ethnic Composition (Percent)			
		Black	White	Chicano	Other
Program	35	40	43	14	3
Control	28	71	14	7	8

As shown in Table 6, the ACT mean composite scores for black students and white students enrolled in developmental studies in 1971-72 were 8.5 and 9.8, respectively. The control group of high risk students not enrolled in developmental studies in 1971-72 consisted of 71 percent black, 14 percent white, 7 percent Chicano, and 8 percent unknown (see Table 5). The ACT mean composite scores for black students and white students were 8.8 and 10.8, respectively.

Subject areas included in Guided Studies at El Centro include reading, writing, mathematics, and a special group guidance and counseling course.

The A through F grading system used at El Centro is based on a four-point system. In addition, a "P" grade denoting "progress" is awarded to the student who in the opinion of the instructor has made significant progress in the course. The instructor and the student agree on the decision to award the P grade. The student is then allowed to enroll in the course again in an attempt to earn credit. If he does not re-enroll, however, the grade does not revert to F, and the student's record will continue to carry the P grade.

#### College C

The Advancement Studies Program, commonly referred to as ASP, is an experimental program for the non-traditional or high risk student at Southeastern Community College at Whiteville, North Carolina. The program is considered by the college as experimental because by design it is limited to a small number of students. In 1969-70, the initial year of the program, enrollment in ASP was limited to only 25 students. In 1970-71 and 1971-72 enrollment was expanded to 50 and 75 students, respectively. By controlling the enrollment the ASP staff and college administration contend that effective teaching-learning strategies can be developed and refined.

From its inception the ASP program was an experiment in remedial education. Entering students each year who were identified as potential low academic achievers constituted a pool from which students were randomly selected to go into ASP. A like number from the remaining high risk students were randomly selected as a control group which was subjected to more traditional approaches to instruction.

TABLE 6 .

MEAN ACT COMPOSITE SCORES FOR RACE-ETHNIC GROUPS  
IN THE 1971-72 REMEDIAL PROGRAM AND THE  
CONTROL GROUP AT COLLEGE B

Group	N	Mean ACT Composite Score <sup>a</sup>				
		Total Group	Black	White	Chicano	Other
Program	35	8.9	8.5	9.8	7.7 <sup>b</sup>	-
Control	28	9.5	8.8	10.8	-	-

<sup>a</sup>Insufficient number of Chicano students in the control group and Other students.

<sup>b</sup>Mean ACT score based on sample of five Chicano students.

h. the developmental studies program the student is allowed to a great extent to progress at his own rate. Behavioral objectives are stated for each of the courses included in ASP. Learning is individualized through the use of self-instructional packages, programmed materials, and various audio-tutorial methods. Learning activities are organized so as to be self-contained independent units of study.

The ASP staff lists the following goals of program:

1. To place the student at the center of the learning process by increasing learning activity options and providing opportunities for students to design portions of the curriculum
2. To recognize and respond to individual differences in skills, values, and learning styles through a flexible curriculum which permits learning at different rates and in different ways
3. To relate to students with openness and respect and to provide a supportive climate for learning
4. To provide students positive reinforcement and opportunities for success experiences
5. To provide a curriculum which will be experiential and process-oriented
6. To provide an interdisciplinary approach to the teaching-learning process.
7. To make the community an extension of the classroom.

Initially the program was called Experiment in Advancement Studies. Students selected for EAS were blocked into a twenty-hour week with English and psychology being the core of the program. Since that first year the program has been expanded to include science, reading, and mathematics. The math course, however, is not taught by the ASP staff. Extensive use has been made of team teaching, role playing, simulations, small and large group process sessions, sensitivity games, and community projects. Presently, two full time paraprofessional staff members fill the non-authoritarian roles of both counselor and tutor. Designated as "tutor-counselors" they attend classes with students enrolled in the program. The tutor-counselors work closely not only with students individually and in small group.

but also with the instructors. Because the tutor counselor is not charged with the responsibility of assigning grades, students relate well with him. During the 1971-72 academic year there was each a black and a white tutor-counselor. One held a degree from a four-year college while the other had completed the ASP program with an associate of arts degree.

Other than the two paraprofessional tutor-counselors there are no regular college counselors assigned exclusively to the developmental studies program. The regular college counselors, however, administer the testing program for placement and advisement purposes to all entering freshmen at the college. Those students who score in the lowest tertile are required to enroll in some developmental studies while the lower half of the middle tertile are advised strongly to enroll in developmental studies. From this pool of high risk students the ASP enrollees and the control group enrollees are randomly selected.

In addition to the two tutor-counselors there are one full time program coordinator and three instructors.

Students enrolled in ASP are required to be involved in community service projects. Advocating a wholeistic approach to education students learn to relate psychology, English, science, math, and reading to projects such as tutoring and counseling elementary school students, working with the mentally retarded, assisting the aged, initiating a Head Start program, and running recycling centers where glass, tin, and aluminum are collected, cleaned, packaged, and sold. Students learn to identify problems, research them, devise solutions, and eventually write up the results of the project as term papers in their courses.

A student may exit the program at any time during the year and enter regular college courses. Approximately fifty percent of the students exit the program prior to the one year duration. Most courses count toward graduation from the two-year college. Depending on the four-year college selected some courses may be accepted for credit by the transfer institution.

The ASP program as it presently exists consists of three major components. The communications component deals with the non-verbal communication process, printed aspect of communications; verbal or oral process, written composition, and finally the electronic media. The second component involves social psychology and the psychology of learning. Included are such topics as relating to others,

home and family relationships, career possibilities, community involvement, and leisure time management. The third major component of ASP is ecological biology. Here emphasis is placed on the cultivation of environmental consciousness in each student.

The college grading system consists of the traditional A, B, C, D, and F method of evaluating students. A departure from the system exists in that a student enrolled in ASP is not assigned a permanent grade in a developmental studies course until he attains at least a C grade. He may, however, be assigned an I grade, meaning incomplete, until he reaches the C level.

Data describing the race-ethnic compositions of the 1971-72 developmental studies program and the control group of high risk students are presented in Table 7. Black students made up 50 percent of ASP and 25 percent of the control group as compared to an estimated overall college black enrollment of 30 percent. Minority group enrollments in ASP and the control group were both approximately 55-60 percent of the total enrollments of the two groups.

#### College D

High risk students who enter Burlington County College at Pemberton, New Jersey, are required to enroll in developmental studies courses if they have sufficiently low ACT scores and high school grades. Neither criterion in itself is cause for placement in remedial courses.

There is no separately organized program or division of developmental studies. Rather these courses are taught by instructors in two academic divisions of the college. The developmental courses of English and reading are contained within the division of English while the developmental mathematics course is taught by staff in the division of mathematics.

The primary purpose of developmental courses at Burlington is listed in the catalogue as "to prepare the student to enroll and achieve in college level courses. The content of the developmental courses, then is concerned with the sequence of basic skills and abilities."

Instruction for high risk students is provided in two sequential courses in English, three sequential courses in mathematics, and two sequential

TABLE 7

RACE-ETHNIC COMPOSITIONS OF THE 1971-72 REMEDIAL PROGRAM  
AND THE CONTROL GROUP AT COLLEGE C

Group	N	Race-Ethnic Composition (Percent)			
		Black	White	Indian	Other
Program	40	50	40	10	0
Control	24	25	38	29	8

courses in reading. A student may enroll in as few or as many developmental courses as he chooses during one semester. If he is deficient in any of the subject areas, then he must successfully achieve the objectives specified in each of the courses in that subject area before he can enroll in the first college level credit course. A student enrolled in developmental courses may at the same time be enrolled in regular credit courses in other subject areas.

For the most part developmental courses are taught by the same instructors each semester. Along with these courses instructors generally teach regular credit courses. Behavioral objectives have been developed in every course and self-instructional packets have been designed for most of them.

Burlington College is totally committed to individualizing instruction. Self-instructional packages, programmed materials, and auto-tutorial methods have been designed for perhaps 80 percent of the total college program. It is hoped that by the fall of 1973 the college will be completely geared for individualized learning. Furthermore, it was hoped that continuous registration could be made operational. Students would be able to enroll and complete courses at any time during the year.

The commitment to establishing an educational program that is self-instructional in design is reinforced by a combination media center and instructional objectives writing center. This center has a full time staff of three people who assist instructors in writing behavioral objectives and in constructing self-learning packages. The most recent and authoritative literature in the field is contained in this center. Included also are copyrighted materials which instructors in the college have developed.

Both a reading laboratory and a writing laboratory have been established to accommodate the "walk-in" student, the referral type student, and the student who reports to the lab as part of the requirements of the course he is taking. Lab personnel may administer diagnostic tests and then prescribe remedial action for the high risk student.

A special testing center has also been established for students who complete course objectives and wish to be evaluated. Many tests can be machined scored while other tests are collected daily by the instructor.

There are no counselors assigned exclusively for high risk students. Other than a brief orientation session prior to enrollment, a pre-

enrollment interview with a college counselor, and a testing session at entrance the low achieving student may have little contact with a counselor. If the student has declared an academic major or a vocational program, he is assigned to a faculty advisor in that field. For the student who is undeclared he is randomly assigned to one of the college counselors. Students are also provided the opportunity of enrolling in a group guidance course as a means of determining educational and career objectives.

The mean ACT composite scores of students enrolled full time in developmental studies in 1969-70, 1970-71, and 1971-72 were 10.8, 10.9, and 10.6, respectively. Race-ethnic data for individuals were not available at Burlington County College. The approximate race-ethnic composition of the college is 91 percent white, 7 percent black, and 2 percent of Spanish-speaking origin.

Grades in regular credit courses are awarded on the degree to which the student has obtained the objectives of the course. The following guidelines are outlined by the College:

<u>Grade</u>	<u>Explanation</u>
A	Mastery of essential elements, acceptable knowledge of a sampling of related concepts, plus either accomplishment of a special project or demonstrated excellence or originality.
B	Mastery of essential elements and acceptable knowledge of related concepts.
C	Mastery of essential elements only.
D	Acceptable knowledge of a sampling of related concepts only.
F	Failure to demonstrate acceptable knowledge of course content.
X	This grade assigned when the student has been doing satisfactory work but will not complete the stated objectives of the course by the end of term.

Because developmental courses do not count toward graduation at Burlington and are not computed in a student's GPA, grade points are

not assigned. However, a grading system which parallels the regular course grading system of the college is as follows:

<u>Grade</u>	<u>Explanation</u>
O	Outstanding
P	Pass
SP	Satisfactory Progress
U	Unsatisfactory
I	Incomplete

The grade of P signifies that the student is ready to proceed to the next course.

The approach to instruction at Burlington can be illustrated by examining the developmental mathematics program (Burris and Schroeder, 1971). The developmental math program consists of three sequential courses designed to prepare the student for college level work in mathematics. The student is placed in developmental math by a counselor who considers the student's ACT math score, his math background, and his academic or career aspirations. The student is administered a diagnostic test by the math department in order to determine the level or course in which the student should be placed. For example, the first course is Basic Math and is presented in the independent study mode in the math lab. The student listens to a tape which is accompanied by a text-workbook. He performs the prescribed tasks and then takes a post-test on the material. He must achieve at least 80 percent on the post-test in order to move to the next subunit. After completing all the units in the course the student again takes the placement test.

The second course in developmental math is Beginning Algebra. The two modes of available study are independent study and seminar. Three learning strategy options are available. They include a programmed text, an audio-tape workbook, and a standard text.

The third level of developmental math, Intermediate Algebra, utilizes three modes of instruction. First, large groups are used for presentations of concepts. Second, seminars are used for reinforcement of large group presentations. Third, independent study supplemented with programmed texts and a tape-workbook presentation. Testing is

done in a special math lab consisting of appropriate materials, tutors, learning aids, a study center, and a testing center. Carrels contain a carousel slide projector, film loop projector, electronic desk calculator, and cassette tape recorder.

## CHAPTER III

### RESEARCH DESIGN AND METHODOLOGY

This chapter presents a discussion of: (1) the design used to assess the effectiveness of special programs for high risk students, including the criteria and methods used in selecting the colleges and students of the study; (2) the procedures followed in collecting data relating to academic performance and persistence of students; (3) the sources from which the programs at each of the four colleges were described; and (4) the hypotheses tested in the study.

#### Design of the Study

Most programs which claim to be innovative in their approaches to remedying student deficiencies have been organized within the past three years. As a result little evaluative data exist on the effectiveness of these programs.

This study was undertaken in order to determine the extent to which these recent and innovative approaches to remediation have proved effective in increasing persistence and improving academic performance of high risk students. Remediation efforts, until at least three years ago, consisted largely of watered-down versions of regular college courses. In most cases each department of the college assumed responsibility for organizing and teaching the course. Because of the absence of discussion and exchange of ideas among instructors the programs lacked direction, a common philosophy, and administrative leadership.

#### Selection of the Colleges

Four community junior colleges located in three states were selected for this study. They were: (1) South Campus of the Tarrant County

Junior College District of Fort Worth, Texas; (2) El Centro College of the Dallas County Junior College District of Dallas, Texas; (3) Burlington County College of Pemberton, New Jersey; and (4) Southeastern Community College of Whiteville, North Carolina.

These four colleges were selected for several reasons. First, each community college has developed within the past three years a somewhat different approach to remedial education. Second, each college enrolls significant numbers of minority group young people at least in terms of numbers residing in the college district. Third, with the exception of Tarrant County's South Campus and Dallas's El Centro, the colleges are widely separated geographically. Finally, whereas South Campus and El Centro provide programs for youth in urban areas, the programs at Burlington and Southeastern represent attempts to salvage youth living in more rural areas.

#### Selection of the Students

Students identified by the four community colleges as potential low academic achievers in the fall school terms of 1969-70, 1970-71, and 1971-72 constituted the populations from which the sample subjects were randomly selected. In each case students who had American College Test composite scores of 16 or greater were eliminated in order to obtain a more homogeneous group in terms of this one variable. Only at Southeastern Community College was the total program population used as the sample. Here the remedial program was sufficiently small in number of students to justify this procedure.

In order to compare persistence and academic performance of high risk students enrolled in remedial programs with comparable students enrolled in non-remedial or regular programs, control groups were formed at three of the colleges during the 1971-72 academic year. Because at Burlington County College all low ability students were placed in the developmental studies program, no control group was established.

The 1969-70 group of remedial program students was selected because most of these students have had sufficient time to graduate or complete a program of college study. Subjects identified as potential low achievers in the fall term of 1970-71 served as a more recent group for comparative purposes.

## Procedures Used in Obtaining Data

The effectiveness of remedial programs was assessed in terms of the variables of student persistence and academic performance. While individual measures for students were required, program effectiveness was assessed in terms of group mean scores.

Grade point averages and number of semesters of full time enrollment for both program and control group students were determined through an examination of official grades on permanent record cards located in the college registrar's office or from computer printouts of those grades.

In order to make comparisons among colleges it was necessary to correlate fall and spring semesters and quarter semesters of attendance. Accordingly, the fall and winter terms at each of Burlington and Southeastern were combined to correspond to the fall semester at South Campus and El Centro. Similarly, the spring and summer terms at Burlington and Southeastern were combined to correspond to the spring semester at South Campus and El Centro.

## Sources of Program Descriptions

In an effort to identify characteristics of the developmental studies programs which appeared to be related to increased persistence and academic performance on the part of students the following information was sought (see Chapter I):

1. Objectives of remedial programs
2. Subject areas in remedial programs
3. Organizational structure of the programs
4. Criteria used to place students in remedial programs
5. Mean entrance scores on pre-admissions tests of students in remedial programs
6. Qualifications necessary to enter regular credit courses

7. Grading practices and policies
8. Counseling services provided students in remedial programs
9. Instructional methods used in remedial programs

These data and related information were obtained from two sources. First, available written materials such as college catalogues, student and faculty handbooks, policy handbooks and statements, program evaluations, and course descriptions were examined carefully. Second, program directors, counselors, and faculty members were interviewed by the writer to obtain accurate and up-to-date descriptions of the remedial programs. A cassette recorder was used in the interviews for purposes of reviewing, organizing, and developing narrative descriptions of the programs.

## Hypotheses

### Academic Performance

- Hypothesis 1: There is no significant difference in academic performance between students enrolled in remedial programs and comparable students not enrolled in remedial programs.
- Hypothesis 2: There is no significant difference in academic performance within each of the colleges between students enrolled in the remedial program and comparable students not enrolled in the remedial program.
- Hypothesis 3: There is no significant difference in academic performance between race-ethnic groups enrolled in remedial programs and like race-ethnic groups not enrolled in remedial programs.
- Hypothesis 4: There is no significant difference in academic performance within each of the colleges between race-ethnic groups enrolled in the remedial program and like race-ethnic groups not enrolled in the remedial program.

- Hypothesis 5: There is no significant difference in academic performance among colleges between unlike race-ethnic groups enrolled in remedial programs.
- Hypothesis 6: There is no significant difference in academic performance within each of the colleges between unlike race-ethnic groups enrolled in the remedial program.
- Hypothesis 7: There is no significant difference in academic performance among colleges for students enrolled in remedial programs.
- Hypothesis 8: There is no significant difference in academic performance among different year-groups within each of the colleges for students enrolled in the remedial program.

#### Persistence

- Hypothesis 9: There is no significant difference in persistence between students enrolled in remedial programs and comparable students not enrolled in remedial programs.
- Hypothesis 10: There is no significant difference in persistence within each of the colleges between students enrolled in the remedial program and comparable students not enrolled in the remedial program.
- Hypothesis 11: There is no significant difference between race-ethnic groups enrolled in remedial programs and like race-ethnic groups not enrolled in remedial programs.
- Hypothesis 12: There is no significant difference in persistence within each of the colleges between race-ethnic groups enrolled in the remedial program and like race-ethnic groups not enrolled in the remedial program.
- Hypothesis 13: There is no significant difference in persistence among colleges for students enrolled in remedial programs.
- Hypothesis 14: There is no significant difference in persistence within each of the colleges between unlike race-ethnic groups enrolled in the remedial program.

Hypothesis 15: There is no significant difference in persistence among colleges between like race-ethnic groups enrolled in remedial programs.

## CHAPTER IV

### PRESENTATION AND ANALYSIS OF DATA

This chapter contains a presentation and an analysis of data that were collected for this study of the effectiveness of innovative programs for high risk students.

The results of the tests of the hypotheses are presented in two major sections. Hypotheses testing the differences between mean grade point averages (GPA) of various groups are presented in the sections dealing with academic performance. Likewise, hypotheses relating to persistence are treated in its appropriate section.

Academic performance data were analyzed by Program ANOVAR in Veldman's (1967, 1971) EDSTAT-V library of computer programs on the Control Data Corporation 6600 computer in the Computation Center at The University of Texas at Austin. Persistence data were analyzed by Program CHICHI (Veldman, 1967, 1971) on the CDC 6600 computer. A probability level (p) of .05 or less was considered an adequate level of significance for chi square and for the F-ratio when one-way analysis of variance was applied to the problem of determining the significance of the difference between mean scores for the groups.

#### Academic Performance

Academic performance was defined in Chapter I as the mean grade point average earned by high risk students at selected intervals of college attendance. The hypotheses which follow were tested in order to determine the level of academic performance achieved by students enrolled in developmental studies programs in the four community colleges included in the study.

Hypothesis 1: There is no significant difference in academic performance between students enrolled in remedial programs and comparable students not enrolled in remedial programs.

This hypothesis was rejected. Students enrolled in remedial programs made significantly higher grades ( $p < .01$ ) than did comparable students in non-remedial programs. As shown in Table 8, students in remedial programs earned a mean GPA of 2.66, almost three-fourths a letter grade higher than the 1.96 mean GPA earned by high risk students in non-remedial programs.

The two groups of students were compared only on first semester GPA's since spring semester grades were not available from South Campus and El Centro at the time data were collected from these two colleges. It should be noted that Burlington was not involved in comparisons of remedial and non-remedial programs since all potential low achievers were placed in the remedial program at that college.

Hypothesis 2: There is no significant difference in academic performance within each of the colleges between students enrolled in the remedial program and comparable students not enrolled in the remedial program.

This hypothesis was rejected for South Campus and Southeastern and accepted for El Centro (see Table 8). Students in both remedial and non-remedial programs at South Campus earned a C average. Those enrolled in the remedial program, however, earned significantly higher grades ( $p < .05$ ) than those enrolled in the regular college credit program.

While at El Centro the difference in mean GPA's of the two groups closely approached statistical significance, it did not reach the .05 level.

At Southeastern, the difference was highly significant ( $p < .01$ ). High risk students in the developmental program earned almost a B average, 2.91, while the students in the regular program earned less than a C average.

Hypothesis 3: There is no significant difference in academic performance between race-ethnic groups enrolled in remedial programs and like race-ethnic groups not enrolled in remedial programs.

TABLE 8

COMPARISON OF FIRST SEMESTER MEAN GPA'S FOR 1971-72 HIGH RISK STUDENTS  
IN REMEDIAL AND NON-REMEDIAL PROGRAMS AT EACH OF COLLEGES  
A, B, AND C AND FOR THE THREE COLLEGES COMBINED.

College	N	1st Semester Mean GPA Remedial	1st Semester Mean GPA Non-remedial	F-ratio	Probability
A	64	2.54	2.13	5.650	.0194 **
B	44	2.43	1.87	3.628	.0605
C	64	2.91	1.83	27.446	.0000 *
A+B+C	172	2.66	1.96	31.065	.0000 *

\*Significant at .01 level.

\*\*Significant at .05 level.

This hypothesis was rejected when first semester GPA's of like race-ethnic groups in remedial and non-remedial programs were compared (see Table 9). Black students in remedial programs earned a mean GPA of 2.94 while comparable black students in non-remedial programs earned no higher than a mean GPA of 1.98. Likewise, white students in remedial programs earned a mean GPA of 2.49 compared to a mean GPA of 1.84 earned by high risk white students in non-remedial programs. In both cases students enrolled in developmental studies programs earned strong first semester B averages while like race-ethnic groups in regular programs earned no higher than a D average.

Burlington (College D) was not involved in the test of this hypothesis because of the lack of race-ethnic designation. Only black students and white students in sufficient numbers were common to the three colleges for purposes of making statistical comparisons. While Chicano students and Indian students were enrolled in the institutions, they did not exist in sufficient numbers for statistical analyses.

Hypothesis 4: There is no significant difference in academic performance within each of the colleges between race-ethnic groups enrolled in the remedial program and like race-ethnic groups not enrolled in the remedial program.

With the exception of black students at Tarrant County and white students at El Centro this hypothesis was rejected at each of the three colleges when race-ethnic groups in remedial programs were compared with like race-ethnic groups in non-remedial programs (see Table 9). In each case students in remedial programs earned higher grades than did students enrolled in regular programs. Larger numbers of students in the other cases might also have caused significant differences.

Hypothesis 5: There is no significant difference in academic performance between unlike race-ethnic groups enrolled in remedial programs.

This hypothesis was rejected. As shown in Table 10, collectively black students enrolled in remedial programs in the three colleges (A, B) and C) had higher GPA's at the end of their initial semester than did white students enrolled in remedial programs at the three colleges. Black program students earned almost one half letter grade higher, 2.94, than did white students who earned a 2.49 GPA.

TABLE 9

COMPARISON OF FIRST SEMESTER MEAN GPA'S FOR 1971-72 RACE-ETHNIC GROUPS  
IN REMEDIAL PROGRAMS WITH LIKE HIGH RISK RACE-ETHNIC GROUPS IN  
NON-REMEDIAL PROGRAMS AT COLLEGES A, B, AND C AND FOR  
THE THREE COLLEGES COMBINED

College/Race- Ethnic Group	N	1st Semester Mean GPA		F-ratio	Probability
		Remedial Program	Non-remedial Program		
A Black White	15	2.28	1.90	1.204	.2927
	44	2.58	2.07	5.697	.0204 **
B Black White	26	2.92	1.99	9.127	.0060 *
	15	1.98	1.18	1.140	.3057
C Black White Indian	26	3.15	2.04	8.056	.0089 *
	16	2.71	1.59	9.085	.0062 *
	11	2.55	1.94	4.897	.0523
A+B+C Black White	67	2.94	1.98	25.274	.0000 *
	84	2.49	1.84	10.565	.0021 *

\*Significant at .01 level.

\*\*Significant at .05 level.

TABLE 10

COMPARISON OF FIRST SEMESTER MEAN GPA'S FOR 1971-72 UNLIKE RACE-ETHNIC GROUPS  
IN REMEDIAL PROGRAMS AT EACH OF COLLEGES A, B, AND C  
AND FOR THE THREE COLLEGES COMBINED

College	N	1st Semester Mean GPA		F-ratio	Probability
		Black	White		
A	35	2.28	2.58	1.894	.1749
B	22	2.92	1.98	5.067	.0339 **
C	36	3.15	2.71	2.552	.1158
A+B+C	93	2.94	2.49	7.058	.0091 *

\*Significant at .01 level.

\*\*Significant at .05 level.

Hypothesis 6: There is no significant difference in academic performance within each of the colleges between unlike race-ethnic groups enrolled in the remedial program.

Only at El Centro (College B) was this hypothesis rejected. As shown in Table 10, black remedial program students at El Centro earned a first semester GPA of 2.92 compared to a 1.98 GPA earned by white students enrolled in the remedial program.

Hypothesis 7: There is no significant difference in academic performance among colleges for students enrolled in remedial programs.

The results of the test of this hypothesis are reflected in Tables 11, 12, and 13. When first semester mean GPA's of the four remedial groups at the community colleges for the year 1971-72 were compared, a significant difference was found (see Table 11). The first semester mean GPA ranged from a 2.16 at Burlington (College D) to a 2.91 at Southeastern (College C). Furthermore, it is noted that the mean GPA's at each of the four colleges were in the C average range.

For the 1970-71 remedial groups there were significant differences at every interval except for the first semester when the mean GPA's for all of the colleges were clustered around the C average (see Table 12). Of special significance is the semester GPA earned during the vital third semester when high risk students at each of the colleges were, for the most part, in regular college credit courses. Only students at El Centro and Southeastern earned a C average.

When GPA's of remedial groups at the four community colleges were compared over a period of two years, significant differences in GPA's among the colleges were found only for the second semester and for the cumulative of two semesters (see Table 13). Only at El Centro and Southeastern did remedial program students earn C averages for the second and fourth semesters of college work. However, even at these two colleges students failed to earn passing grades for the third semester of college which for the most part is the initial semester of regular college credit work.

Hypothesis 8: There is no significant difference in academic performance among different year-groups within each of the colleges for students enrolled in remedial programs.

Because 1971-72 spring semester grades were not available when data were collected at Tarrant County (College A) and El Centro (College B),

TABLE 11

COMPARISON OF FIRST SEMESTER MEAN GPA'S AMONG  
COLLEGES A, B, C, AND D FOR 1971-72 GROUPS  
OF REMEDIAL PROGRAM STUDENTS

College	1st Semester Mean GPA
A	2.54
B	2.43
C	2.91
D	2.16

N = 139    F-ratio = 6.214    Probability = .0008\*

\*Significant at .01 level.

TABLE 12  
 COMPARISON OF MEAN GPA'S AMONG COLLEGES A, B, C, AND D AT SEMESTER INTERVALS  
 FOR 1970-71 GROUPS OF REMEDIAL PROGRAM STUDENTS

Semester Interval	N	Mean GPA's				F-ratio	Probability
		College A	College B	College C	College D		
1st	116	2.46	2.53	2.36	2.20	1.428	.2372
2nd	101	2.68	2.17	2.53	1.98	5.066	.0030 *
Cum 2	104	2.63	2.39	2.45	2.15	3.475	.0186 **
3rd	75	1.93	2.05	2.35	1.72	3.123	.0306 **
Cum 3	75	2.50	2.44	2.50	2.01	4.199	.0087 *

\*Significant at .01 level.

\*\*Significant at .05 level.

TABLE 13  
 COMPARISON OF MEAN GPA'S AMONG COLLEGES A, B, C, AND D AT SEMESTER INTERVALS  
 FOR 1969-1970 GROUPS OF REMEDIAL PROGRAM STUDENTS<sup>a</sup>

Semester Interval	N	Mean GPA's				F-ratio	Probability
		College A	College B	College C	College D		
1st	133	2.06	2.35	2.31	2.07	1.687	.1715
2nd	110	1.83	2.26	2.21	1.80	4.058	.0091 *
Cum 2	115	2.01	2.38	2.25	1.97	4.791	.0039 *
3rd	82	1.62	1.98	1.86	1.76	.830	.4843
Cum 3	85	1.93	2.20	2.10	1.99	1.225	.3054
4th	60	1.92	2.36	2.28	1.99	1.408	.2491
Cum 4	61	1.99	2.37	2.18	2.14	2.147	.1030

\*Significant at .01 level.

<sup>a</sup>Insufficient data for 5th semester and cumulative of 5 semesters.

it was possible to compare only the 1969-70 and the 1970-71 groups for three semesters of academic work.

When comparing the 1969-70 group of remedial students with the 1970-71 group at College A, there was a significant difference ( $p < .05$ ) in the mean GPA's of the groups at the end of the first semester (see Table 14). The 1969-70 group, had a 2.06 GPA while the 1970-71 group had a 2.46. There was also a highly significant difference ( $p < .01$ ) in the two year-groups for the second semester. The 1969-70 group, as shown in Table 14, dropped to a second semester GPA of 1.83 while the 1970-71 group increased their GPA to a 2.68. The cumulative first year GPA of 2.01 for the 1969-70 group was significantly different than the 2.63 earned by the 1970-71 group. The third semester, which for the students was no longer developmental studies but the regular college program, both the 1969-70 and 1970-71 groups at College A fell below a C average and were not significantly different. The 1969-70 group attained a third semester GPA of 1.62 while the 1970-71 group earned a 1.93 GPA. At the end of three semesters in college there was a significant difference ( $p < .01$ ) in cumulative GPA's for the two year-groups. The 1969-70 group had an overall GPA of 1.93 while the 1970-71 group of students still retained a strong C average of 2.50. Thus, at College A the hypothesis of no difference between year-groups was rejected for every interval except for the vital third semester when students left the relative security of the remedial program for the uncertainty of the regular programs. Here both groups fell below a C average. On the whole, students in the 1970-71 developmental studies program did much better academically than students in the previous year's program.

As shown in Table 15, the hypothesis was accepted at each of the grading intervals at College B. There was no significant difference in mean GPA's for the two year-groups at any time during the three semester period. Both the 1969-70 and the 1970-71 year-groups at College B maintained C averages through their first year. For the third semester the 1969-70 group slipped slightly below the C point while the 1970-71 group retained the C average. At the end of three semesters both groups were in the C grade category.

Southeastern (College C) and Burlington (College D) remedial program groups for 1969-70, 1970-71, and 1971-72 could be compared through two semesters of college work. As shown in Table 16, there was a significant difference among the three year-groups for the first semester GPA. Each succeeding year-group earned a higher mean GPA in 1969-70 and increasing to a 2.91 GPA in 1971-72. The hypothesis

TABLE 14

COMPARISON OF MEAN GPA'S AT SEMESTER INTERVALS BETWEEN 1969-70 AND 1970-71  
GROUPS OF REMEDIAL PROGRAM STUDENTS AT COLLEGE A

Semester Interval	N	Mean GPA's		F-ratio	Probability
		1969-70 Group	1970-71 Group		
1st	64	2.06	2.46	4.555	.0346 **
2nd	59	1.83	2.68	23.276	.0001 *
Cum 2	59	2.01	2.63	17.571	.0003 *
3rd	42	1.62	1.93	1.568	.2154
Cum 3	42	1.93	2.50	11.763	.0018 *

\*Significant at .01 level.

\*\*Significant at .05 level.

TABLE 15  
 COMPARISON OF MEAN GPA'S AT SEMESTER INTERVALS BETWEEN 1969-70 AND 1970-71  
 GROUPS OF REMEDIAL PROGRAM STUDENTS AT COLLEGE B

Semester Interval	N	Mean GPA's		F-ratio	Probability
		1969-70 Group	1970-71 Group		
1st	70	2.35	2.53	.960	.3320
2nd	45	2.26	2.17	.154	.6990
Cum 2	53	2.39	2.39	.000	.9938
3rd	33	1.98	2.05	.055	.8109
Cum 3	37	2.19	2.44	1.401	.2431

TABLE 16

COMPARISON OF MEAN GPA'S AT SEMESTER INTERVALS AMONG 1969-70, 1970-71, AND 1971-72 GROUPS OF REMEDIAL PROGRAM STUDENTS AT COLLEGE C.

Semester Interval	N	Mean GPA's			F-ratio	Probability
		1969-70 Group	1970-71 Group	1971-72 Group		
1st	98	2.31	2.36	2.91	9.153 *	.0004 *
2nd	87	2.21	2.53	2.28	1.720	.1834
Cum 2	87	2.25	2.45	2.60	2.451	.0904

\*Significant at .01 level.



was not rejected, however, for the second semester. While each of the year-groups earned a C average for the second semester, the GPA's were not significantly different.

At Burlington (College D) there were no significant differences in mean GPA's earned by the three year-groups for either the first or second semester of academic work (see Table 17).

### Persistence

Persistence was defined in Chapter I as the number of semesters completed by full time students subsequent to their initial semester of enrollment.

Hypothesis 9: There is no significant difference in persistence between students enrolled in remedial programs and comparable students not enrolled in remedial programs.

This hypothesis was rejected. The test of this hypothesis did not include Burlington (College D) since no control group was formed at the college.

As shown in Table 18, 82 percent of the students enrolled in developmental programs completed at least two semesters of college while only 70 percent of high risk students in non-remedial programs completed two semesters of work.

Hypothesis 10: There is no significant difference in persistence within each of the colleges between students enrolled in the remedial program and comparable students not enrolled in the remedial program.

As shown in Table 19, this hypothesis was accepted at each of the three colleges. It is noted, however, that the level of significance closely approached the .05 level at Tarrant County (College A). The remedial program at Tarrant County is a two-semester block of time whereas at El Centro and Southeastern a student may exit from the program after the first semester if he shows sufficient progress. In fact, students at the latter two colleges may be enrolled in some regular college credit courses during their first semester of academic work. At Tarrant County the student is, with the exception of physical education, enrolled solely in basic or remedial studies.

TABLE 17

COMPARISON OF MEAN GPA'S AT SEMESTER INTERVALS AMONG 1969-70, 1970-71, AND 1971-72 GROUPS OF REMEDIAL PROGRAM STUDENTS AT COLLEGE D

Semester Interval	N	Mean GPA's			F-ratio	Probability
		1969-70 Group	1970-71 Group	1971-72 Group		
1st	97	2.07	2.20	2.16	.261	.7746
2nd	80	1.79	1.98	2.07	1.040	.3594
Cum 2	80	1.97	2.15	2.25	2.143	.1222

TABLE 18

COMPARISON OF SECOND SEMESTER PERSISTENCE RATES  
 BETWEEN 1971-72 HIGH RISK STUDENTS IN  
 REMEDIAL AND NON-REMEDIAL PROGRAMS  
 AT COLLEGES A, B, AND C COMBINED

Program	2nd Semester Persistence Rate (Percent)	
	Persist	Not Persist
Remedial	82	18
Non-remedial	70	30

N = 192     $\chi^2 = 4.176$     P = .0387 (significant  
 at .05 level)

TABLE 19

COMPARISON OF SECOND SEMESTER PERSISTENCE RATES  
 BETWEEN 1971-72 HIGH RISK STUDENTS IN  
 REMEDIAL AND NON-REMEDIAL PROGRAMS  
 AT EACH OF COLLEGES A, B, AND C

College/ Program	2nd Semester Persistence Rate (Percent)	
	Persist	Not Persist
<u>A</u>		
Remedial	94	6
Non-Remedial	76	24
<u>B</u>		
Remedial	80	20
Non-Remedial	64	36
<u>C</u>		
Remedial	78	22
Non-remedial	71	29

College A: N = 65	$\chi^2 = 3.222$	P = .0693
College B: N = 63	$\chi^2 = 1.234$	P = .2661
College C: N = 64	$\chi^2 = .089$	P = .7634

Hypothesis 11: There is no significant difference in persistence between race-ethnic groups enrolled in remedial programs and like race-ethnic groups not enrolled in remedial programs.

This hypothesis was accepted (see Table 20). While black students in remedial programs persisted in greater numbers than did high risk black students in non-remedial programs, the difference was not significant. The same was true for white students.

Hypothesis 12: There is no significant difference in persistence within each of the colleges between race-ethnic groups enrolled in the remedial program and like race-ethnic groups not enrolled in the remedial program.

As shown in Tables 21, 22, and 23 this hypothesis was accepted at Tarrant County, El Centro, and Southeastern. Burlington had neither a control-group nor were students identified as to race-ethnic group. At each of the three colleges the small numbers of students involved in most of the tests of these hypotheses possibly may have prevented any significant differences in persistence rates between like race-ethnic groups enrolled in remedial and non-remedial programs.

Hypothesis 13: There is no significant difference in persistence among colleges for students enrolled in remedial programs.

This hypothesis was accepted for the 1971-72 college groups of high risk students. Table 24 indicates no significant difference in second semester persistence rates for the four groups of students.

Hypothesis 14: There is no significant difference in persistence within each of the colleges between unlike race-ethnic groups enrolled in the remedial program.

This hypothesis was accepted. As shown in Table 25, there was no significant difference in persistence rates among unlike race-ethnic groups in each of the three community college remedial programs.

Hypothesis 15: There is no significant difference in persistence among colleges between like race-ethnic groups enrolled in remedial programs.

This hypothesis was accepted (see Table 26). Persistence rates among colleges for both black students and white students were not significantly different. The probability level did, however, closely approach significance for white students.

TABLE 20

COMPARISON OF SECOND SEMESTER PERSISTENCE RATES  
 BETWEEN 1971-72 LIKE HIGH RISK RACE-ETHNIC  
 GROUPS IN REMEDIAL AND NON-REMEDIAL  
 PROGRAMS AT COLLEGES A, B, AND  
 C COMBINED

Race-Ethnic Group/Program	2nd Semester Persistence Rate (Percent)	
	Persist	Not Persist
<b>Black</b>		
Remedial	88	12
Non-remedial	74	26
<b>White</b>		
Remedial	81	19
Non-remedial	66	34

Black: N = 75     $\chi^2 = 1.365$     P = .2412  
 White: N = 88     $\chi^2 = 1.884$     P = .1666

TABLE 21

COMPARISON OF SECOND SEMESTER REENROLLMENT RATES BETWEEN  
1971-72 LIKE HIGH RISK RACE-ETHNIC GROUPS IN REMEDIAL  
AND NON-REMEDIAL PROGRAMS AT COLLEGE A

Race-Ethnic Group/Program	2nd Semester Reenrollment Decision (Percent)	
	Reenroll	Not Reenroll
<u>Black</u>		
Remedial	100	0
Non-remedial	67	33
<u>White</u>		
Remedial	93	7
Non-remedial	75	25

Black: N = 15     $\chi^2 = .851$     P = .3593

White: N = 44     $\chi^2 = 1.449$     P = .2267

TABLE 22

COMPARISON OF SECOND SEMESTER REENROLLMENT RATES BETWEEN  
1971-72 LIKE HIGH RISK RACE-ETHNIC GROUPS IN REMEDIAL  
AND NON-REMEDIAL PROGRAMS AT COLLEGE B

Race-Ethnic Group/Program	2nd Semester Reenrollment Decision (Percent)	
	Reenroll	Not Reenroll
<u>Black</u>		
Remedial	86	14
Non-remedial	75	25
<u>White</u>		
Remedial	73	27
Non-remedial	50	50

Black: N = 34  $\chi^2 = .109$  P = .7412  
White: N = 19  $\chi^2 = .082$  P = .7716

TABLE 23

COMPARISON OF SECOND SEMESTER PERSISTENCE RATES  
 BETWEEN 1971-72 LIKE HIGH RISK RACE-ETHNIC  
 GROUPS IN REMEDIAL AND NON-REMEDIAL  
 PROGRAMS AT COLLEGE C

Race-Ethnic Group/Program	2nd Semester Persistence Rate (Percent)	
	Persist	Not Persist
<u>Black</u>		
Remedial	85	15
Non-remedial	83	17
<u>White</u>		
Remedial	69	31
Non-remedial	56	44
<u>Indian</u>		
Remedial	75	25
Non-remedial	86	14

Black: N = 26	$\chi^2 = 0.000$	P = 1.0000
White: N = 25	$\chi^2 = .051$	P = .8163
Indian: N = 11	$\chi^2 = 0.000$	P = 1.0000

TABLE 24

COMPARISON OF SECOND SEMESTER PERSISTENCE RATES  
 AMONG COLLEGES A, B, C, AND D FOR 1971-72  
 REMEDIAL PROGRAM STUDENTS

College	2nd Semester Persistence Rates (Percent)	
	Persist	Not Persist
A	94	6
B	80	20
C	78	22
D	75	25

N = 151       $\chi^2 = 5.588$       P = .1326

TABLE 25

COMPARISON OF SECOND SEMESTER PERSISTENCE RATES  
 BETWEEN 1971-72 UNLIKE RACE-ETHNIC GROUPS  
 IN REMEDIAL PROGRAMS AT EACH OF  
 COLLEGES A, B, C, AND D

College/Race- Ethnic Group	2nd Semester Persistence Rates (Percent)	
	Persist	Not Persist
<b>A</b>		
Black	100	0
White	93	7
<b>B</b>		
Black	86	14
White	73	27
<b>C</b>		
Black	85	15
White	69	31
Indian	75	25

College A:	N = 34	$\chi^2 = 0.000$	P = 1.0000
College B:	N = 29	$\chi^2 = .132$	P = .7172
College C:	N = 40	$\chi^2 = 1.362$	P = .5110

TABLE 26

COMPARISON OF SECOND SEMESTER PERSISTENCE RATES  
 BETWEEN 1971-72 LIKE RACE-ETHNIC GROUPS  
 IN REMEDIAL PROGRAMS AMONG  
 COLLEGES A, B, AND C

Race-Ethnic Group/College	2nd Semester Persistence Rates (Percent)	
	Persist	Not Persist
<u>Black</u>		
A	100	0
B	86	14
C	85	15
<u>White</u>		
A	93	7
B	73	27
C	69	31

Black: N = 75     $\chi^2 = 1.012$     P = .6088

White: N = 59     $\chi^2 = 4.755$     P = .0912

## CHAPTER V

### SUMMARY, MAJOR FINDINGS, AND CONCLUSIONS

The purpose of this chapter is to summarize the study, review major findings, and present general conclusions within the limitations of the study.

#### Summary

This study was an investigation of the effectiveness of special programs for high risk students in four community junior colleges. Effectiveness was assessed in terms of student persistence and academic performance in college. Subjects consisted of stratified random samples of students enrolled in developmental studies programs in each of four colleges in the academic years 1969-70, 1970-71, and 1971-72. Stratification variables were ACT score; race-ethnic group, and academic year. Control groups of high risk students enrolled in non-remedial programs were formed at three of the colleges in 1971-72. Academic performance and persistence data were collected from an examination of appropriate college records.

Each of the developmental studies programs in the four colleges was described in terms of organizational structure, subject matter content, instructional strategies, counseling services, program philosophy and objectives, grading practices, and student selection criteria.

#### Major Findings

The results of each of the hypotheses tested in the previous chapter are not reviewed in this section. Only major findings are reviewed.

1. Students in remedial programs earned significantly higher grades than did high risk students in non-remedial programs (see Hypothesis 1).

Based on the first semester of the 1971-72 academic year, first year college students in developmental studies programs earned a GPA of 2.66 while comparable students in non-remedial programs earned a GPA of 1.96.

Likewise, race-ethnic groups enrolled in these special programs earned significantly higher grades than did like high risk race-ethnic groups enrolled in non-remedial programs. Black students in the first category earned a 2.94 GPA while black students in regular programs earned a 1.98 GPA. White students in developmental programs earned a 2.49 while white students in regular programs earned a 1.84 GPA.

2. Minority group students in remedial programs earned significantly higher grades than did majority group students in these same programs (see Hypothesis 5).

Minority students, black students in this case, earned a 2.94 GPA while majority or white students earned a 2.49 GPA for their initial year in college.

3. Students enrolled in remedial programs persisted in college, at least during the initial year, to a significantly greater degree than did comparable students enrolled in non-remedial programs (see Hypothesis 9).

Eighty-two percent of high risk students in special developmental programs completed one year of college while 70 percent of high risk students in regular programs completed one year of college.

4. There was no significant difference in persistence rates between minority and majority group students enrolled in remedial programs (see Hypothesis 14).

#### Conclusions

The following general conclusions are offered as a result of this study of the effectiveness of special developmental studies programs for high risk students in community junior colleges:

1. High risk students in special programs tend to persist to a greater degree and to achieve academically to a higher level than do comparable high risk students who enroll in regular programs.

Persistence and academic performance of these students, however, drop significantly after these students leave the remedial programs and enter regular college credit programs.

2. There is some indication that each year academic performance and persistence rates of high risk students in special programs are increasing.
3. Minority group students tend to persist and achieve academically to a greater degree than do majority group students.

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