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A CRITICAL ANALYSIS AND APPRAISAL OF THE MARTIN LUTHER KING DEVELOPMENTAL PROGRAM FOR MARGINAL STUDENTS AT WESTERN MICHIGAN UNIVERSITY

By

Raymond Snowden

A THESIS

Submitted to
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DOCTOR OF PHILOSOPHY

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1972

ABSTRACT

A CRITICAL ANALYSIS AND APPRAISAL OF THE MARTIN LUTHER KING DEVELOPMENTAL PROGRAM FOR MARGINAL STUDENTS AT WESTERN MICHIGAN UNIVERSITY

By

Raymond Snowden

Purpose of the Study

This study attempts to analyze the effectiveness of the Martin Luther King Developmental Program at Western Michigan University relative to its purpose which is preparing high-risk high school graduates to perform successfully in curriculums at Western Michigan University.

Methods and Techniques

A multivariate analysis of variance, a one sample t-test, and the Scheffe'Post hoc comparisons were the statistical techniques applied.

Three groups of students were selected as the basis for this study. The sample for the developmental group (Group I) consisted of the entire group of sixty-two Martin Luther King students. The subjects were selected to participate in the program in June, 1969, by the Program Director.

The mean high school grade point average of the group was 1.98 and the mean ACT score was 13. Twenty-nine females and thirty-three males were admitted and became the basis of this study. The group participated in a six-week resident Summer Orientation Program where developmental courses, counseling and financial assistance was provided. This group was enrolled as full-time students in the Fall of 1970, and were given additional counseling, tutoring and financial assistance.

The sample for the control group (Control Group II) consisted of twenty-nine females and thirty-three males. The subjects were randomly selected from 177 students who were admitted as freshmen at the beginning of the Fall, 1970 semester. All of the students of the control group were admitted as regular students without benefit of a special program. The mean high school grade point average of this control group was 2.17 and the mean ACT score was 18.

The sample for the control group (Control Group III) consisted of twenty-nine randomly selected females with high school grade point averages of exactly 2.50 and fifteen males with high school grade point averages of exactly 2.20. The mean high school grade point average for the group was 2.39 and the average ACT score was 18. All of the students in this control group were admitted as beginning freshmen

at the beginning of the Fall semester, 1970, without benefit of any special program.

Findings

This study was designed to evaluate the effectiveness of the developmental program at Western Michigan University relative to its purpose of preparing high-risk students to perform successfully in curriculums at Western Michigan University. The results of this study support the contention that such a program can benefit high-risk students in institutions of higher learning.

From the data and subsequent findings of this study the following conclusion regarding the effectiveness of the Martin Luther King Developmental Program is drawn.

> The Martin Luther King Developmental Program is successful in preparing high-risk high school graduates to perform successfully in curriculums as Western Michigan University.

Relative to this conclusion the major findings were:

1. The college grade point average of the Developmental Group was significantly higher than the grades two control groups.

2. The developmental students achieved higher grades than were predicted by the ACT program.

3. The Developmental Group not only met the 2.00 minimum requirement for good standing but significantly exceeded the 2.00 with an earned grade point average of 2.56.

4. The Developmental Group was able to maintain a level of academic persistence equal to that of the regularly admitted students in Control Groups II and III. In addition, while 19 per cent of all freshmen dropped out of school during their first year, only 16 per cent of the students in the Developmental Group dropped out.

TO CHARLENE

This thesis is affectionately dedicated to you for your unfailing encouragement, ready assistance, and willing sacrifices during this investigation.

To my son, Darrl, who somehow understood why the television had to be turned off during his favorite programs.

ACKNOWLEDGMENTS

The author wishes to express his sincere thanks to the numerous people who assisted, advised and encouraged him throughout the duration of this study.

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CHAPTER I

INTRODUCTION

Historically, blacks and other minority group members have been disproportionately represented in institutions of higher learning.[1] These groups have, by and large, been poorly prepared in our high schools and later refused admission to colleges and universities.

The 1960s began a new era toward the education of minority group members in this country; an era that witnessed more blacks than ever before entering into institutions of higher education. Many of these "new students" were able, without any assistance from the institutions, to reach their educational goal. And at the same time, many of these newly admitted students were met by total frustration and failure as they soon found that what they thought was an open door to education was really a revolving door. Many of the marginal or high-risk students found themselves in no credit remedial programs that not only failed to teach them anything but also frustrated and discouraged them from continuing their education. Still other students found themselves wandering aimlessly as they attempted to wade

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[1]Robert A. Green, Racial Crisis in American Education (Chicago: Follett Educational Corporation, 1969), pp. 33-37.

their ways through program schedules that had been rubber stamped by their counselors. Many of these students were misdirected and uncertain of their goals. They were not aware of their own resources and had never learned proper study habits.[2]

Following the year 1967, many colleges and universities began to take a second look at their programs for minority students and found them woefully inadequate. Black studies programs were developed at several universities,[3] more remedial programs were added at others, and fewer still created comprehensive developmental programs in an attempt to meet the total needs of the "new students." A review of the literature suggest that, by and large, these programs were poorly conceived and lacking of scientific research to support their existence or to measure their effectiveness.

Fortunately, not all developmental programs fall into the above category. Many programs have been well thought out and are doing a seemingly good job in providing innovative and sound educational opportunities for high-risk students.

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[2]William Moore Jr., Against the Odds: The High Risk Student in the Community College (San Francisco, California: Jossey Bass, Inc., 1970.

[3]Armstead D. Robinson, Craig C. Foster, and Donald H. Oglilive, eds., Black Studies in the University (New York: Bantam Books, 1969).

One such program is the Martin Luther King Developmental Program at Western Michigan University to which this research is directed. The purpose of this study is to analyze and appraise the program relative to its purpose of helping low achieving high school graduates perform successfully in college.

Background

The Martin Luther King Program at Western Michigan University is a developmental program for marginal students. The Program began in September of 1968, as a result of a five-year grant from the Kellogg Foundation. The stated purposes of the program are: (1) to provide educational opportunities for disadvantaged students by recruitment efforts; (2) to force the re-examination of admission criteria for these students; (3) to encourage marginal students to pursue higher education by providing financial assistance, counseling and remedial help at the university level.

The typical Martin Luther King (MLK) participant is a black American student. He is no stranger to failure and to the fear that continued failure engenders. The student is typically from lower socio-economic groups, is notably deficient in academic strengths, and may fall into one or all of the following categories:

1. Real ability not identifiable by grades or test scores.

2. Individual potential not developed due to inadequate schooling.
3. Lack of referents who have the desire and ability to assist the individual in his educational career.

To effect the aforementioned three-fold purpose of the program the following projects were instituted:

1. To Provide Educational Opportunities for Disadvantaged Students.

In order to accomplish this end visits were made, by the program director and his staff, to six southwestern Michigan High schools to inform the students of the educational opportunities available to them at Western Michigan University (WMU). In addition, arrangements were made for 375 of these students to visit the campus of WMU. While on campus, these students met with university students, faculty and administrative staff.

2. To Force a Re-examination of Admission Criteria.

Operating on the contention that the background, environment, and aspirations of the educationally disadvantaged black student does not fit the mold of the average white aspirant to higher education, new admission criteria were developed. To this end, the existing high school grade point average (GPA) requirement of 2.20 for males and 2.50 for females was removed for the MLK students.

3. To Encourage Marginal Students to Pursue Higher Education by Providing Financial Assistance, Counseling and Remedial Help.

For each of the students accepted into the program a financial package was put together consisting of funds from one or all of the following: Economic Opportunity Grants, Work Study, or National Defense Loans.

The counseling team consisted of one half-time counselor, two graduate assistants and thirty junior and senior level student aides. The student aides had the primary responsibility for tutoring the students and for making visits to the respective instructors to determine the progress of the student. In addition, remedial programs were instituted to supplement and assist the students with their normal classroom assignments. One of the more promising remedial programs was that of the Study Center. The Study Center was located in the campus library. Each MLK student attended the Study Center two nights per week. The Center was staffed by graduate students, tutors and the Study Center Director.

To further encourage and assist marginal students in their efforts to attain higher education, a Summer Orientation Program was instituted. Attendance at the summer orientation program is required of each student planning to enter the following Fall semester. Students enrolled in the Summer session are registered for a full academic load of credit and non-credit courses. The accredited courses consist of Race and Culture (4 hours credit) and Adult Reading (2 hours credit). The non-accredited

courses are Speech and Library Science. Counseling services are also available. The Summer Session staff is made up of the Project Director and his assistant, a counselor, faculty members and student aides. The primary responsibility of the student aide is to serve as tutor-counselors in the residence halls and to offer needed assistance to faculty members.

The Problem

This study attempts to analyze the effectiveness of the Martin Luther King Developmental Program at Western Michigan University relative to its purpose which is preparing high-risk high school graduates to perform successfully in curriculums at Western Michigan University. The study is based on the analysis of three groups of students:

1. Developmental Group I whose participants were admitted to the University at the beginning of the Summer Session of 1969, as members of the Martin Luther King Developmental Program; 2. Control Group II whose members were enrolled as freshmen at the beginning of the Fall Semester, 1970, and whose high school grade point average (GPA_{hs}) were 2.49 or lower females and 2.19 or below for males; 3. Control Group III whose members were enrolled as freshmen at the beginning of the Fall Semester, 1970 and whose high school grade point averages were 2.50 for females and 2.20 for males.

Academic success or failure, and correspondingly, program success, of Developmental Group I will be determined on: (1) the basis of the members' ability to obtain a 2.00 (4.0 scale) college grade point average (GPA_c) at the end of one year's attendance; (2) a comparison of the level of persistence of Group I with Group II and Group III.

Purpose of the Study

The purpose of the study is to analyze and appraise the Martin Luther King Developmental Program for Marginal Students at Western Michigan University relative to helping low-achieving high school graduates perform successfully at the college level. More specifically, this study attempts to:

1. Describe the Developmental Program as it is now operating at Western Michigan University.

2. Compare the rate of persistence of those students who entered the MLK Program during the Summer of 1969, with a group of regularly admitted students who entered during the Fall of 1970, and whose high school grade point averages were below the reported 2.50 and 2.20 minimum standard required for regular admission.

3. Compare the rate of persistence of those students who entered the MLK program during the Summer of 1969, with a group of regularly admitted students who entered during the Fall of 1970, and whose GPA_{hs} were at the 2.50 and 2.20 minimum standard required for regular admission.

4. Compare the college grade point averages of those students who entered the MLK Program during the Summer of 1969, with the college grade point average of a group who entered during the Fall of 1970, and whose GPA_{hs} were below the reported 2.50 and 2.20 minimum standard required for regular admission.

5. Compare the grade point averages of those students who entered the MLK Program during the Summer of 1969, with the grade point averages of a group who entered during the Fall of 1970, and whose GPA_{hs} at the 2.50 and 2.20 minimum standard required for regular admission.

6. Compare the predicted grade point average (GPA'_p), derived from the American College Testing Program (ACT), with the college GPA_c of each of the three groups.

7. Identify, clarify and interpret the data as they might relate to future developmental programs.

Generally, then, the results of this study can be useful in determining whether such a program is a practical means of providing further education for high school graduates who were a "high-risk" for higher education because of a lack of basic skills rather than a lack of intellectual ability.

General Statement of Hypotheses

The primary purpose of this study is to determine the success of the single structured developmental program

at Western Michigan University in preparing high-risk high school graduates to perform successfully at Western Michigan University. In order to accomplish the stated goals of this study it is necessary to examine the three groups in terms of group difference and sex differences as well as interaction between groups and sexes.

Relative to these goals the major hypotheses are:

H_1: The mean of Developmental Group I will be equal to the mean of Control Group II and Control Group III on GPA_C, drop-out rate, and on the discrepancy between the predicted GPA and the actual GPA.

H_2: The mean of the males will be equal to the mean of the females on GPA_C, drop-out rate and on the discrepancy between the predicted GPA and the actual GPA.

H_3: The mean of each of the three groups will be equal to the mean of each of the two genders on GPA_C, drop-out rate and on the discrepancy between the predicted GPA and the actual GPA.

Design

All data was obtained from the records office at Western Michigan University. Demographic information such as age, and sex has been compiled for each group. In addition, the standard scores on the ACT test were compiled, were available, for each member in each of the three groups.

The sample for Group I consists of all of the 62 students (29 females and 33 males) who participated in the Summer Orientation Program in 1969, and who enrolled in the Fall. Grade point averages were compiled for the Summer, Fall and Winter terms.

WMU reported the minimum high school GPA required for regular admission to be 2.20 male and 2.50 female. However, a number of students were given regular admission status during the Fall of 1970, with GPA_{hs} of 2.19 (male) and below and 2.49 (female) and below.

Therefore, the membership of Control Group II was derived from a stratified random sample of 29 females having GPA_{hs} ranging from 1.86 to 2.49 and 33 males having GPA_{hs} ranging from 1.72 to 2.19 and who were enrolled as freshmen during the Fall term, 1970, without benefit of any special program. (The mean GPA_{hs} of all beginning freshmen in Fall, 1970, was 2.83.)

Control Group III consist of a random sample of 29 females and 15 males (only 15 males had GPA_{hs} of exactly 2.20) who were enrolled as freshmen during the Fall term, 1970, without benefit of any special program.

At the end of the academic year the cumulative grade point averages for each student in each group was tabulated and analyzed to determine the effect of the Developmental Program on the academic success of Developmental Group I. The number of students in each group who successfully completed one academic year was also tabulated and analyzed and, finally, a comparison was made between the predicted GPA and the actual college GPA_c at tne end of one year's attendance.

Since all three groups have GPA_{hs} substantially below the mean for all freshmen, regression toward the mean was anticipated. To assure that any difference in college GPA_c reflected a true difference, consideration was given to using multivariate analysis of covariance (MANOCVA).

Thus, the proposed analysis consist of a 3 x 2 x 3 block design using group membership and sex as the independent variables and multivariate analysis of covariance with high school GPA_{hs} as covariables and drop-out rate, college GPA_c and the discrepancy between predicted GPA and actual GPA as dependent variables.

Delimitations

This investigation was limited to one hundred and sixty-eight students who were beginning freshmen in 1970, at Western Michigan University. Regularly admitted students, with high school grade point averages below admission standards, constituted one control group and regularly admitted students, with high school grade point averages at the admission standard level, made up the second control group. The experimental group consisted of marginal students placed in a developmental program.

Definitions

Drop-out.--Any student who was enrolled at the beginning of Summer or Fall semesters, 1970, but was not enrolled at the beginning of Fall semester, 1971.

Regular Admitted Student.--Any student admitted to WMU at the beginning of Fall semester, 1970, with a high school GPA of 2.50 or below, who was not a member of any special developmental program and was given regular admission status by the university.

One Year's Attendance.--Any student who completes the Fall and Winter semesters, 1970, is said to have completed one year's attendance.

Persistence.--Any student who was enrolled as a beginning freshman in June, 1969, or Fall, 1970, completed Fall and Winter semesters and who was also enrolled in Fall, 1971, is said to have persisted.

Overview

In this chapter the problems which generated the study are discussed along with the background and description of the program to be evaluated. The problem was stated as an attempt to analyze the effectiveness of the Martin Luther King Developmental Program at Western Michigan University relative to its purpose which is preparing high-risk high school graduates to perform successfully in curriculums at Western Michigan University. The purpose has been discussed, the major hypotheses stated in research form, and the research design has been described. The completion of this thesis will be presented in four additional chapters.

In the next chapter, Chapter II, a review of the literature relating to developmental programs and marginal

high school students is presented. The focus will be confined to the current and most pertinent aspects of those studies.

The sampling techniques, measurement procedures, research design and other measures used in this study is presented in Chapter III. The analysis procedures and hypotheses are also described.

In Chapter IV the analysis of the data is presented, the hypotheses are examined and findings discussed in relation to the data.

The entire study is summarized, conclusions are drawn, and implications for future research are discussed in Chapter V.

CHAPTER II

REVIEW OF THE LITERATURE

In this chapter the review of the literature is presented. The chapter is divided into three sections. In the first section the interest in developmental education is discussed. In the second part a review of some of the studies related to academic achievement is presented, and in the third section a description of four currently existing developmental programs is presented.

Interest in Developmental Education

Many colleges and universities have instituted special programs for disadvantaged or minority students. A discussion on developmental programs should not begin without a clear understanding of what is meant by such terms as disadvantaged, high-risk, marginal or other terms usually intended to refer to poorly prepared high school graduates. William Moore uses such terms as high-risk, marginal, educationally disadvantaged, and academically unsuccessful, interchangeably to refer to students whose poor high school grades, economic plight, low standard test scores, and race, cultural or class distinctions place them at a disadvantage with the majority of students

entering into college.[1] Moore contends that while many of these students appear to have little prognosis for success, many of them possess intangible qualities. These intangible qualities of creativity, personality and tenacity counteract the customary indicators of academic prowess.[2] In fact, he says, the students considered disadvantaged or high-risk on one campus would be considered intellectually elite on other campuses.[3] Disadvantagement is defined by many colleges within the context of their own student bodies; "that is, disadvantaged students are those whose educational and economic background is considered markedly inferior to that of their regular students."[4] The term high-risk is defined by Williams as the financially poor student who, in terms of traditional predictive criteria, has a poor chance of succeeding at a particular college.[5] William's definition of high-risk appears a little too narrow to give the full picture of the type of student generally referred to as high-risk. Moore, on the other hand, seems to have a better grasp of the high-risk student.

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[1]Moore, op. cit., p. 5.

[2]Ibid., p. 6.

[3]Robert L. Williams, "What Are We Learning From Current Programs for Disadvantaged Students," Journal of Higher Education (April, 1969), pp. 274-275.

[4]Ibid., p. 275.

[5]Ibid.

For the sake of this discussion all of the terms used above will be used interchangeably to refer to those students whose low prognosis for success is conteracted by a sincere desire to learn.

Recent reports indicate that probably more than 50 per cent of the institutions of higher education have special programs for high-risk students.[6] Most of these programs, according to Egerton are little more than token efforts and with the exception of predominantly Negro colleges, private schools have evidenced more involvement than have public institutions.[7] The extent to which these programs constitute a viable approach to higher learning is a subject of controversy. A recent study by McDaniel and McKee suggest that, for the most part, colleges and universities are not responsive to the needs of minority students as they relate to higher learning.[8] From a survey of 2,764 predominantly white colleges and universities, the authors found that 57 per cent of the 1,393 respondents stated that they had open admissions. Twenty-five per cent of the respondents reported that they had adjusted their admission criteria to admit more minority students. Slightly over 50 per cent

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[6]John Egerton, Higher Education For "High Risk" Students (Atlanta: Southern Education Foundation, 1968), p. 59.

[7]Ibid., p. 13.

[8]Ruben R. McDaniel and James W. McKee, An Evaluation of Higher Education's Response to Black Students (Indiana University: September, 1971).

of the institutions reported the existence of an academic help program. In an attempt to meet the cultural needs of the minority students, one half of the institutions reported the presence of some form of ethnic studies program. Forty-five per cent of the institutions reported the existence of training programs geared toward the improvement of race relations. However, the majority of the programs were geared only toward the counseling staff leaving the faculty members almost totally uninvolved. Activities geared towards the active recruitment of minority faculty members was reported by 44 per cent of the respondents. Other results of this study showed that 8 per cent of the colleges were making efforts to provide residential patterns which promoted good race relations and 25 per cent were providing financial aid programs. One fifth of the institutions reported the use of institutional funds to support special programs and less than 30 per cent of the institutions had developed policy statements concerning race which might act as guides for institutional behavior.[9]

McDaniel's and McKee's study appears less saddening when one reviews the study by Cash involving seventeen colleges and universities in the state of Georgia. Cash found that the majority of the predominantly white institutions provided no academic support programs for high-risk students beyond admitting them on a probationary basis when

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[9] Ibid.

they failed to meet the unadjusted high school grade point average and SAT requirements.[10] On the other hand, Trent writes that the impatience of today's youth in their unwillingness to accept traditional promises and platitudes have spurred many universities to re-evaluate their policies and to provide more educational opportunities to disadvantaged students. He continues that although circumstances such as lack of background, knowledge, resources or pressure to take immediate action have hindered the proper development of many support programs, some universities have designed programs which are beginning to serve the educationally disadvantaged student. Trent cautions, however, that ill-designed programs are often degrading and exclusionary and fail to achieve the goals of the student or the university.[11]

Community colleges appear to have taken the lead in addressing themselves to meeting the higher learning needs of minority students, as evidenced by Edmund Gleazer's comments.

> The Association [American Association of Junior Colleges] recognizes that poverty and prejudice are barriers to opportunity for millions of American and thus impediments that restrict and threaten national progress. AAJC also believes that education, and particularly two year colleges, must help lead the assault on these

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[10] Carol D. Cash, Educationally Inferior Students: Getting In and Out of College (University of Missouri: May, 1970).

[11] William T. Trent, College Compensatory Programs for Disadvantaged Students, Report No. 3 (Washington, D.C.: Eric Clearinghouse, Sept. 1970).

> barriers--an assault which is only in its formative stages. This assault must close not only the gap in educational opportunities, but cultural and economic gaps as well, and the two year colleges can and should play a leading role in overcoming all of these gaps.[12]

Dorothy Knoell concluded from her study of five cities that, while community colleges are doing well in attracting minority students to their institutions, the problem appears to be of insuring successful performance after admission.[13]

In terms of insuring success, Gordon Morgan has made several points worth mentioning in detail. First, traditional teaching methods are not effective for the poorly prepared student. Innovative techniques are essential to educating these students. Second, the student from the ghetto is less concerned with academic success than with improving living conditions and opportunities of people living in the slums. Third, these students feel that colleges do not want them, view them and their culture disparagingly, and have no intention of being truly relevant to the needs of the black community.[14] Gordon concludes . . . it appears

> that colleges need to rethink and re-orient their activities, teaching practices and expectations in

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[12]Edmund J. Gleazer, cited in Dorothy Knoell, Black Student Potential (Washington, D.C.: American Association of Junior Colleges, 1970), p. 11.

[13]Ibid., p. 77.

[14]Gordon D. Morgan, The Ghetto College Student (Iowa City, Iowa: American College Testing Program, 1970).

> the light of the sociology of economic deprivation of our inner city students. In order to allow the ghetto student a chance to succeed, some toleration of departures from middle class values must be exercised. The ghetto student is a complex, complicated person, admitting his existence forces the college to try to understand not only what the student wants for himself but what the college really wants for him. Colleges can no longer avoid social decisions and social action. In answering the questions, 'Should this college educate ghetto youth?, and if so how?,' the college is making social decisions and taking important social action.[15]

Additional indications that traditional teaching methods are not effective has been given by Irene Tinker. She comments that traditional counseling and remedial programs have not been successful because they are often warmed-up high school courses. She continues that courses geared toward enabling a student to study on his own or to evaluate himself will not help a student who lacks motivation. By the same token, repeating a grammar course from which he learned little in high school will not motivate a student. Among Tinker's suggestions for improving the education of disadvantaged students are: reducing the minimum load requirements, disregarding poor grades during the first year, continuing scholarships when the student is on probation and peer counseling.[16]

The success of any educational program designed to meet the needs of the high-risk student is dependent in the

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[15] Ibid., p. 56.

[16] Irene Tinker, "The Underprepared College Student," American Education (November, 1970).

final analysis, on its bringing to maturity the potential of the educationally disadvantaged students who have not had previous success in academic life and preparing them for success in institutions of higher learning.

One of the more comprehensive studies on disadvantaged students has been completed by Robert Williams. In his report high-risk students were characterized as having lower standardized test scores than regular students. American College Testing Scores (ACT) in the vicinity of 13 or 14 and Scholastic Aptitude Test Scores of 700-800 are cited as norms for disadvantaged students. Several colleges were reported to accept only those students with outstanding academic records and limited finances. Few institutions were reported to have been actively recruiting impoverished ghetto students with major academic weaknesses. Criteria most often employed in the selection of disadvantaged students included: (1) tangible evidence of ability, i.e. high school grades or promising standardized test scores; (2) willingness to accept personal responsibility for success or failures; (3) high self concept; (4) strong motivation; (5) ability to think creatively; (6) ability to set realistic goals; (7) prior success in any activity that required sustained effort. Data upon which selection was made were typically obtained through subjective evaluations accruing from personal interviews and on the recommendations of high school counselors, ministers, teachers, etc.[17]

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[17]Williams, op. cit., p. 276.

Nearly all of the programs in William's study had some provision for financial assistance. The money came from such sources as Educational Opportunity Grants (EOG), National Defense Education Act Loans (NDEA), federal work study programs and local gifts. The Ford and Rockefeller Foundations were reported as major contributors.[18]

The primary academic objective of most programs is the development of communication skills. Many programs include compensatory study in standard English during a bridge program in the summer before beginning as a freshman or on weekends during the regular academic year. An attempt is made to teach standard English in a manner that does not conflict with the student's cultural dialect. The student is taught how his dialect functions as a legitimate language, and standard English is taught as a second language.[19]

Several approaches have been utilized to maximize the academic success of disadvantaged students. Considerable use has been made of individualized instructions. Much use has been made of tutoring in virtually all academic areas. Tutors include instructors, graduate students, undergraduate students, and junior and senior level disadvantaged students.

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[18] Ibid.

[19] Leslie Berger, College Now For Ghetto Youth (City University of New York: 1968), p. 8.

While many of the tutors are work study students, several serve on a volunteer basis.

Programmed instruction is another type of individualized instruction currently being used to supplement classroom instruction. Goodrich sees a great future in programmed learning and criticizes the heavy use of remedial courses. He writes that the use of programmed learning may turn out to be a major part of the answer to corrective education in institutions of higher learning.[20] Moore,[21] Johnson,[22] and others also see great value in programmed texts and feel that they have unusual potential for helping low achievers. Programmed texts are used in teaching freshmen communications courses at Palm Beach Junior College, Florida. At Bakersfield College, California, a teaching machine is used to provide for immediate feedback. In an attempt to evaluate programmed teaching, three plans were used in various sections of the course. One section was taught by the machine, Auto Tutor Mark II; another section was taught by the conventional lecture; and the third by a combination of the machine and the lecture. Achievement

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[20]Andrew L. Goodrich, Community Services For The 'New Student' At Inner City Community Colleges (Michigan State, Kellogg Community Services Leadership Program, 1970), p. 12.

[21]Moore, op. cit.

[22]Lamar B. Johnson, Islands of Innovation Expanding: Changes In The Community College (Beverly Hills, California: Glencoe Press, 1969), pp. 73-87.

test results indicated that the students taught by the combination method scored almost one standard deviation above the other two groups. There was no significant difference in achievement between the groups taught by the other two methods. The conclusion was that programmed instruction was as effective as traditional learning.[23]

Much use has also been made of programmed learning centers. Forest Park Community College, St. Louis; Macomb County Community College, Michigan; and Oakland Community College, Michigan are notable examples. At Forest Park all students who score low on the placement test are required to enroll in the General Curriculum. There they are assigned to the learning laboratory for six hours per week. The student's work in the laboratory is planned with the assistance of a counselor. At the end of each unit of study the student is required to pass a test before he can proceed to the next unit.[24] The Programmed Learning Center at Macomb County Community College is similar to the Learning Resource Center at Oakland Community College. At both colleges the students take diagnostic achievement test to aid in selecting appropriate learning programs. These examinations, followed by test, after the completion of the program are used to evaluate the student's learning. An important feature of the Macomb Center is that the

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[23] Ibid., p. 75

[24] Moore, op. cit., pp. 184-198.

learning center staff studies the course outlines and then provides instructors with lists of programs which may be helpful in teaching a particular course.[25] Johnson cautions against three possible shortcomings in the use of programmed instruction: (1) Programs can be costly and time consuming to develop; (2) Problems in motivating some students through the use of self-paced programs; and (3) The tendency for instructors to use programs in teaching dull and monotonous material.[26]

Other policies currently being used by colleges and universities in their endeavors to serve the disadvantaged student include lighter class loads and liberal probationary policies. A liberal probationary policy often includes allowing the student to repeat courses many times and to take several quarters to raise their grade point average to the acceptable level. Other colleges and universities were reported to use placement examinations to determine whether a student should enroll in a regular course or a remedial course. The remedial course may be credit or non credit.[27] Di Russo and Aven found remedial English to be of little value in their study of fifty-four college freshmen in Missouri. Their study attempted to determine the effect of remedial English on the student's proficiency

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[25] Johnson, op. cit.

[26] Ibid.

[27] Williams, op. cit., p. 278.

in written English. A random sample of fifty-four freshmen were selected from several hundred who had taken the Missouri College English Test and who scored below the 40th percentile. The experimental group took a remedial English course and the control group did not. At the conclusion of the courses both groups took another form of the test. No significant difference was found between the two groups.[28] Taylor, on the other hand, found significantly high results with his study on tutorial service. His study included thirty-one engineering students matched on school and college performance. One group was tutored in English, Math and Physics. The grades of the students involved in the tutorial program were significantly higher than the non-tutored students.[29] The overuse and the ineffectiveness of traditional remedial courses is discussed in detail by Goodrich[30] and Tinker.[31]

Much attention has been given to the affective side of high risk students as to the academic. In efforts to bridge the gap between high school and college many colleges and universities make efforts to soften the

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[28] L. DiRusso and S. D. Aven, "Does Remedial English Provide Help for College Freshmen," California Journal of Educational Research, Vol. 22 (1971), pp. 5-8.

[29] R. G. Taylor, "Tutorial Service and Academic Success," Journal of Educational Research, Vol. 62 (1968), pp. 195-197.

[30] Goodrich, op. cit.

[31] Tinker, op. cit.

transition. Some institutions bring the prospective students to the campus for several days or weeks during the summer months. The visit affords the student an opportunity to develop a more realistic conception of college life.[32]

Personal counseling is often the backbone of many special programs. Several programs insist that the new students have weekly sessions with their counselors. Such arrangements allow problems to be dealt with before they get out of hand. Often the number of counseling sessions are reduced as the student demonstrates adequate personal and academic progress. The role of the counselor is to bridge the gap between students and the academic establishment, to provide a personal orientation to college life, to advise in course selection, to facilitate formulation of career goals, to assist students in overcoming poor study habits, and to aid them in achieving a sense of their own identity. In addition to counseling, special courses such as Negro History, Poverty, Urban Conditions and Civil Liberties have been utilized to assist the students in better understanding themselves and their role in society. Some schools have found that small group discussions on social issues often evoke more candid articulation of student feelings than counseling sessions.[33]

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[32]Williams, op. cit., p. 278.

[33]Ibid., p. 479.

Most of the reporting programs attempt to provide role models for disadvantaged students. A few program staffs include full-time members from disadvantaged backgrounds. Other schools have cooperative work study programs with industry, whereby students alternate between quarters with school and work. Such experience affords the student an opportunity to see members of his own minority group function at respectable positions.[34]

In terms of the effectiveness of the various programs, Williams states that in most instances the drop-out rate for the high-risk students has been no higher than for regular students. In addition, the grades of the disadvantaged students have generally been much higher than predicted grades resulting from high school grades and standardized test scores. In evaluating the programs he mentions that it is extremely difficult to determine exactly what factors are responsible for the success or failure of the students because the programs were not experimentally designed to permit empirical assessment. Consequently, evaluation is based more on the personal testimony of the program staff than on empirical evidence.[35]

Williams concludes his report with several cogent recommendations worth repeating: (1) Living conditions in

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[34] Ibid., p. 279.

[35] Ibid., p. 281.

the ghetto are often adversely related to academic development. In these cases, unless students are physically removed from these socially destructive circumstances, they have little chance of success in college; (2) Special program staff, administrators, and tutors should not expect dramatic success initially, as high risk students frequently get off to slow starts academically; (3) If remedial courses are included in special programs they should carry college credit since, initially, credit may be more important to the student than academic skills in a particular subject. Immediate success tends to enhance later success and a program filled with non-credit remedial classes is not likely to motivate the disadvantaged student; (4) Remedial assistance through the use of programmed instruction machines, which permit the students to move along at their own pace, are often less frustrating and anxiety arousing than the traditional classroom; (5) Teaching relationships with high risk students must be highly personal. The instruction must convey concern for the student as a person; (6) Intensive personal counseling, on a voluntary level, seems to be an important affective feature in disadvantaged programs; (7) Individual tutoring by advanced high risk students can be a major source of academic support for the student receiving the tutoring and can provide affective support for advanced high risk student; (8) Non-disadvantaged students should be encouraged to participate,

along with the disadvantaged, in special courses relating to minority groups; (9) Disadvantaged students should have a role in the development of the special program; (10) To achieve success, any developmental program must have the full support of the top administrators. Administrative practices regarding rigid entrance requirements, financial support, mass instruction, impersonal faculty-student relationships must also be modified; (11) Faculty entrenched in middle class values must be retrained to communicate with non-middle class, disadvantaged students. Frequently, instructors contend that high risk students are academically irredeemable and that academic standards are threatened by the presence of disadvantaged students. As a result, without the full support of administrators who make the decisions regarding money, staff, and facilities a program for disadvantaged students can be doomed before it has had a chance to ripen.[36]

Thus far, the review has been directed toward the interest in developmental education with a summary of the nature and kinds of services available to disadvantaged students. The next part will be concerned with a review of some of the services dealing with academic achievement. The third part of this review will be directed toward a description of some of the existing developmental programs at the community college level.

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[36]Ibid., pp. 280-285.

Studies Relating to Academic Achievement

Much has been written in the recent years about the importance of standardized test scores and their value in predicting academic success. Most colleges and universities have formulas to assist them in deciding which applicants will be accepted. Nearly all of these formulas take into account Scholastic Aptitude Test (SAT) or American College Testing Service (ACT), high school rank and high school grades. Fortunately, many colleges and universities have began to take a second look at this form of admission criteria when reviewing disadvantaged applicants. The purpose of this section of the review is to present some of the most recent findings about the use of standardized tests as a major element in admission criteria.

As recent as 1970, Stanley advocated the undiscriminate use of standardized test. He concludes from his review of the literature that aptitude test scores and high school grades predict college grades of disadvantaged students about as well as they do for other students. He suggests, therefore, that admission to selective colleges should be based substantially on test scores and high school grades regardless of ethnic or socio-economic background.[37] What Stanley apparently overlooks in this conclusion is the importance of motivation and that with the

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[37]Julian C. Stanley, "Predicting College Success of Educationally Disadvantaged Students" (John Hopkins University, September, 1970).

possible exception of the Achiever Personality Scale[38] there is no objective instrument upon which to measure the aptitude of the disadvantaged student. Stanley also fails to note the impact of what Jacobson, Rosenthal[39] and Brookover[40] refer to as the influence of the significant other. Arthur Cherdack reached different conclusions from his study of 200 disadvantaged, minority freshmen enrolled at the University of California. Cherdack found that high school grades was the best predictor for both white and minority freshmen and that the SAT verbal score was a more consistent positive predictor for white freshmen than minority freshmen.[41]

In a sample of 477 males and 827 females from predominantly black and predominantly white colleges, Borgen found striking results. All of the subjects took the National Merit Scholarship Qualifying Test (NMSQT).

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[38]Doris M. Miller and Patricia O'Connor, "Achiever Personality and Academic Success Among Disadvantaged College Students," Journal of Social Issues, Vol. 25, No. 3 (1967), p. 105.

[39]Robert Rosenthal and Lenore Jacobson, Pygmalion In The Classroom (New York: Rinehart and Winston, Inc., 1968).

[40]Wilbur Brookover and Edsel Erickson, Society, Schools and Learning (Boston: Allyn and Bacon, 1969).

[41]Arthur Cherdack, Predictive Validity of the Scholastic Aptitude Test For Disadvantaged College Students Enrolled in a Special Education Program Final Report (University of California, April, 1971).

An inverse relationship was reported between average college grades and averaged NMSQT scores. In general, the students in the largely black colleges had lower NMSQT scores but higher freshmen grades while the students in the primarily white colleges had higher NMSQT scores and lower freshmen grades.[42]

A study was conducted by Morgan in 1968, to determine what part SAT scores played in the acceptance of a special group of students at Kutztown (Pa.) State College and what predictive value the scores had in forecasting achievement in college. The study points out the pointlessness of relying too heavily on standardized tests scores in attempting to predict academic success. In 1961, fifty high risk freshmen, representing 10 per cent of the incoming freshman class, were admitted to Kutztown State College. The group of high risk students had SAT verbal scores below 400 which was one standard deviation below the mean of 500. The high risk students were selected over other high risk students on the basis of: (1) A sound high school record; (2) A high SAT Math score; or (3) Having impressed the interviewer. A follow-up report showed that 36 of the original students received their B.A. degrees (72 per cent) while only 65 per cent of the non-high risk students were

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[42]Fred H. Borgen, Differential Expectations? Predicting Grades for Black Students in Five Types of Colleges (Evanston, Ill: National Merit Scholarship Corp., 1971).

graduated. Of these 36 high risk graduates, 23 received their degrees on schedule in May, 1965; eight needed an additional semester to meet graduation requirements and five were graduated ahead of schedule. The mean grade point average (GPA) for the high risk graduates was 2.40 and 2.57 for the non-risk graduates. There was no correlation between risk graduate's GPA and SAT Math score and a slight correlation (r - .28) between GPA and high school rank. Morgan concluded from his study that SAT scores can be deceptive as a valid indicator of success or failure. To have rejected those fifty high risk students on the basis of their SAT verbal scores would have been an injustice to at least thirty-six students.[43]

In general, studies relating high school grade point average with college grades reveal correlations between .40 and .60. General scholastic aptitude test such as the ACE make similar predictions.[44]

The value of the Millers Analogies Test, (MAT) which is currently used by several of the universities offering a Ph.D., as a predictor of academic success, has been called into question in the recent years. The MAT is most noted for its low correlation with grade point

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[43]Morgan, op. cit., pp. 203, 207.

[44]Leona Tyler, The Psychology of Human Differences (New York: Appleton-Century-Crafts, 1966).

average, according to Hyman.[45] Fricke defends the low correlation of the MAT on the basis that one should not expect good discriminative efficiency since it is used in the selection process. He points out that the low correlation may only be an indication of successful screening.[46] Previous studies relating MAT score with grades have reported correlations from as low as .16 to as high as .68.[47]

The inference to be drawn from a study conducted by Cleary of black and white college students in three integrated colleges is that the SAT is not biased against black students. In other words, college grades for blacks were not underestimated when the verbal of Math SAT scores were used as predictors.[48]

While Cleary's study is probably the best controlled research of its kind to date, the evidence concerning test bias is not conclusive. The implications of her results

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[45]S. R. Hyman, "The Miller Analogies Test and University of Pittsburgh Ph.D.s in Psychology," American Psychologist, Vol. 12 (1957), pp. 35-36.

[46]B. G. Fricke, "Prediction, Selection, Morality, and Quality Control," College and University, Vol. 32 (1956), pp. 34-52.

[47]E. E. Cureton, Louise W. Cureton and Ruth Bishop, "Prediction of Success in Graduate Study of Psychology at the University of Tennessee," American Psychologist, Vol. 4 (1949), pp. 361-362.

[48]T. A. Cleary, Test Bias: Validity of the SAT for Negro and White Students in Integrated Colleges (Princeton, New Jersey: Educational Testing Service, Research and Development Report 65-66, No. 18, 1966).

are so weighty that additional similar research is required.[49] Clark and Plotkin concluded from their study of over 1500 black students at integrated colleges that SAT scores cannot be used to predict academic success for black students as they can for whites. They found that, while the median score on the SAT is lower for blacks than whites, a higher proportion of blacks than whites who begin college obtain degrees.[50]

If there is disagreement to this extent over the value of standardized testing, is there any reason to believe that these questionable instruments should be used to determine the fate of poor whites, blacks and other minority disadvantaged students?

American educational institutions reflect racial and class distinctions, even though those responsible often claim that they are seeking to eradicate such distinctions. The public schools remain, for the most part, segregated by race, and many of the black schools as well as other minority schools have the poorest facilities, the highest teacher turnover, and the least support.[51] The existence of these distinctions explains the fact that the quality

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[49]Miller and O'Connor, op. cit., p. 104.

[50]K. B. Clark and L. Plotkin, The Negro Student at Integrated Colleges (New York: National Scholarship Service and Fund for Negro Students, 1963).

[51]Howe, Clark, Allen, et al. Racism and American Education: A Dialogue and Agenda For Action (New York: Harper & Row, 1970).

of education provided for American children differs according to their racial, economic, and social class status. Therefore, they assert, children of lower-class status generally perform academically at a level lower than children of middle-and upper-class status. Such distinctions not only include flagrant damage to black children as well as other minority youth but also insidious and subtle damage to the white youth.[52] These inequalities must be removed from our educational system, and the causes of these inadequalities can only be removed if the old traditional rules are changed.

Furthermore, there is little question in anyone's mind that the average disadvantaged black high school student compares unfavorably with the average middle class white student on test of academic ability. Consequently, the blind application of criteria in college admissions will result, naturally, in proportionately fewer blacks than whites being admitted to the more selective institutions.

A point frequently overlooked in the use of high school grades and aptitude tests for predicting achievement in college is that students from different environments score differently, that disadvantaged students score differently, and that motivation has a pronounced effect on the results obtained.

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[52] Ibid., p. 152.

Prediction studies have generally neglected the nature of the sample--the characteristics of the institution and the characteristics of the student. Research literature suggests[53] several factors that might be related to predictability, including range of talent and personality characteristics. In a preliminary study of institutional factors that influence predictability,[54] the following variables were found to account for 42 per cent of the variation in predictability: (1) Range of talent; (2) Size of new freshmen class; (3) Ability level of freshmen student body; (4) Socio-economic background and motivation; and (5) Motivation.

Another commonly overlooked point in the use of high school grades and aptitude test scores for prediction of achievement in college is that such predictions are subject to a considerable amount of error. Not all of the most promising students succeed; neither do all of the least promising ones fail.

Ernest Lake states candidly his position on the use of standardized test.

> The multivarious requirements for testing students continue to compound the clerical and administrative duties of our counseling departments. These

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[53]Leo A. Munday, "Factors Influencing the Prediction of College Grades," Paper presented at Annual Meeting of National Council on Measurement in Education, Chicago, Illinois, February 10, 1968.

[54]Warren W. Willingham, Free-Access Higher Education (New York: College Entrance Exam Board, 1970).

> requirements have become more odious than the essay contests sponsored by prestige seeking organizations. We're establishing an elite, selected by not too reliable testing practices comparable to the '400' of society. . . . This is the time of year when school administrators and high school counselors compare notes on their record of wins and losses in the admissions race.[55]

Numerous studies have shown that test involving self-concept of academic ability are often more important in predicting success than are intelligence tests themselves, and aptitude tests are frequently not valid predictions of academic success because they depend too much on an abundant environment and on whether a student has had enough experience to be test-proficient rather than test-blind.[56]

One of the most encouraging studies relative to the use of criteria other than standardized test to predict academic success has been conducted by Miller and O'Connor. They argue that whether or not findings prove the SAT to be a valid and unbiased predictor of academic performance for blacks there is another very important consideration. It is the fact that scores obtained on the SAT typically account for less than twenty-five per cent of the variation in college grades.[57]

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[55]Ernest G. Lake, "The Case Against External Standardized Tests: They Create an Elite," The Nation's Schools, 70 (August, 1962), p. 51.

[56]Robert L. Green, "The Black Quest for Higher Education: An Admission Dilemma," The Personnel and Guidance Journal, 47 (May 1969), pp. 906-908.

[57]Miller and O'Connor, op. cit., p. 105.

In an attempt to explore the possible value of motivation as a predictor they examined the Achiever Personality scale, constructed by Benno G. Fricke, as one of the scales comprising the Opinion Attitude Interest Survey (OAIS). The OAIS is described in the test handbook by Fricke as follows:

> This scale measures personality attributes associated with the traditional criterion of academic success, grades. Students who score high on the Achiever Personality scale tend to realize their potential ability and/or achieve high grade point averages in college. It predicts college grades about as well as the typical academic ability test. Furthermore, and this is important, scores from the Achiever Personality scale do not correlate with scores from the ability test; that is, this scale measures something important in academic success not measured by the ability test. In short, the Achiever Personality scale is a good indicator of academic motivation and conscientiousness.[58]

The results of two studies concerning the use of Achiever Personality scale are reported. Subjects in the initial longitudinal study are the Opportunity Award Program students who entered the University of Michigan as freshmen in 1964 and 1965. All of the subjects were considered disadvantaged. Data are reported for 70 women and 59 men. Academic success was determined by the subjects' ability to obtain a 2.00 grade point average (GPA) at the end of the sophomore year. The other measure of success was the actual continuation as juniors for the 1965 entrants

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[58]B. G. Fricke, Opinion Attitude and Interest Survey Handbook (Ann Arbor, Michigan: Michigan Oais Testing Program, 1965).

or seniors for 1964 entrants. The second study attempted to replicate the finds of the original study. The subjects consisted of 46 women and 43 males. The single measure of success was a 2.00 GPA in the freshman year.

In both studies the independent variables were: (1) SAT scores; (2) High school precentile rank (HSPR); (3) Scores on the Achiever Personality scale (Ach P); and (4) An index of high school quality. The chi-square test was the method of analysis for both studies. All tests were two-tailed with one degree of freedom and the Fisher Exact Probability Test was used when the expected frequency in any cell was less than .10.

The results of the first study showed that high school rank was not associated with grades for males or females. The correlation between high school rank and high school quality was -.29 for females and -.36 for males, both significant at $P<.05$.

For the men in the first study no significant relationship was found between high school quality and grades. SAT scores were found to be an ineffective predictor of success. Of those men with high SAT score 57 per cent achieved passing grades, but so did fifty-five per cent of those with low SAT scores. For the men with low SAT scores, a high score on the AchP scale was significantly related to academic success ($P = .04$). AchP was not related to academic success for men with high SAT

scores. For men with low SAT scores AchP was significantly related, to continuation as junior and seniors P = .05.

For the women in the first study no significant relationship was found between high school quality, SAT scores and grades. A significant relationship was found for women between AchP and grades, P<.001. The relationship between AchP and the eligibility of the females to continue as upper-classmen was reported as significant at P<.001.

The results from the second study showed that for neither males nor females was the SAT score, high school quality or AchP significantly related to freshmen grades. Thus, the second study failed to replicate the findings of the first. The possible explanation for this failure may have been related to the change in counseling practice over the two studies according to Miller and O'Connor.[59]

It seems that the study reported above may have a great deal of potential as researchers continue in their efforts to perfect a tool to use in place of the culturally biased standardized test. Further research is certainly warranted in this area.

The final part of this review will be directed toward a description of some of the developmental programs currently in operation at institutions of higher learning.

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[59]Miller and O'Connor, op. cit.

The programs described will be limited to four which seem to show promise in developmental education.

Developmental Programs Currently in Existence

One of the most recent and detailed reviews of developmental programs at the community college level has been conducted by the Southern Regional Education Board. Through its Institute for Higher Educational Opportunity it is currently engaged in a three-year project to increase opportunity for black students through the community college. The reviews which follow have been taken from the 1970 Project Report.[60]

In 1969, Gulf Coast Junior College designed the "Self Concept Institute." The program is based upon the assumption that disadvantaged students who are exposed to experiences which help them understand themselves and the forces which contribute to their success or failure will develop behavior patterns conducive to their academic success.

Disadvantaged students are selected through interview with the Institute's staff. The students participate in a two-week Self-Concept Institute on the college campus. The students are racially mixed and are given $15.00 per week for room and board. Each student is assigned a room on or near campus and a roommate.

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[60] The Black Community and the Community College--A Project Report (Atlanta, Georgia: Southern Regional Education Board, 1970).

Activities for the two-week period include classroom exercises, group guidance, social activities, field trips and guest lecturers. Evaluation of the Institute is based on evaluations submitted by the instructors and students regarding the value of the experiences. In addition, the Tennessee Self Concept Scale (counseling form) is administered to the students on the first day of the institute and again on the final day. Changes in the self-concept profiles of the students are considered indicative of change in self-esteem.[61] At this writing data were not available on the outcome of the education.

Spartanburg Junior College's program is based on the following assumptions:

1. The key to academic success is in the discovery and concentration on individual strength.
2. No two students are academically alike, therefore, the gap of academic deficiency must take into account individualism.
3. Testing and guidance should complement academic work undertaken.
4. Individual adjustment and maturity can indicate academic success.
5. Personalized instruction, using the latest technology, is the key to an intensified learning experience.

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[61] Ibid., p. 17.

A program built on those assumptions was conducted for eight weeks during the Summer of 1968, for 64 students. In addition to cultural, reading groups, independent study each student was involved in 320 hours of classroom study. The classroom study included 110 hours of English, 80 hours of Math, 80 hours of Reading Lab, and 50 hours of Group Dynamics seminar.

The overall achievement progress for each student was of 1.4 grades. Fifty-six of the 46 students were accepted at the college the following September and 6 returned to high school level work.[62]

An important factor in the success of the program is the absence of any stigma being placed on the students who participated in the program. The freedom from stigma contrast with situations of embarrassment noted by many students enrolled in similar programs during the regular term.[63]

The Basic Studies Program at Tarrant County Junior College has some very promising innovations. The one year program consists of six areas of study in a unit called "Who am I." The areas of study are natural science, humanities, communications, reading improvement, social science and personality foundation. In Natural Science

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[62] Ibid.

[63] Ibid., p. 19.

the student studies his physical and biological self. In Humanities he studies religious and philosophical beliefs as they relate to his values and attitudes. Communications centers around improving methods of communications with others. In Reading Improvement the student analyzes and improves basic reading habits. Social Science deals with the socialization process and the student's relationship to others. The student's own personality development is studied in Personality Foundations.[64]

The program operates in an integrated teaching approach in which a team of six instructors provide general education for 100 students. Approximately twenty students are placed in each section and attend their classes as a unit. Five sections are assigned to a team of six instructors. Each instructor covers one of the six areas of the program. The teams meet weekly to plan curriculum and to discuss individual learning problems of their students. This approach affords the students an opportunity to establish strong peer relationships and provides the faculty a chance to get to know the students on a personal basis. Upon the termination of the one year Basic Studies Program the student is placed in one of the following areas:

1. University Parallel Transfer Program
2. Technical or Occupational Associate Degree Program

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[64] Success Breeds Success, Basic Studies, 1970-71 Report (Fort Worth, Texas: Tarrant County Junior College District, 1971), p. 5.

3. Non-degree Vocational Program

4. On-the-Job Training Program.[65]

The key to the success of the Basic Studies Program is the faculty. In general, the faculty members are people who:

1. See themselves and function as counselors as well as teachers

2. Who are more interested in individual progress than with predetermined content that must be covered in a course

3. Who can communicate with students, who have a sense of humor and can poke fun at students and themselves

4. Who can become human development facilitators--people who are open to experience, democratic, understanding, caring, non-judgmental, self-actualizing

5. Teachers who will establish behavioral objectives for their courses, who will communicate these objectives to their students and be overjoyed to find that they have all 'A's' in a class rather than the normal curve

6. Finally, teachers who realize that each student is a gifted person and that student motivation comes about as a result of success and will let success build upon success.[66]

The thrust of the program is toward a more humanistic approach to higher learning. One primary goal is to help the students progress toward a realistic and positive self-image. The results of a recent study show that of the 274 students who were enrolled during the 1970-1971 academic year, 81 per

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[65] Ibid., p. 9.

[66] Ibid., p. 10.

cent were in good academic standing at the end of the Spring semester. The average grade point average of the unit was 2.43 and only 22 per cent received averages of 1.99 and below.[67]

Gains in the student's self-concept are measured by the Tennessee Self-Concept Test. The test has eight sub-scores including general identity, physical self, personal self, family self and an overall self analysis composite score. The composite score was used to measure any change in self concept. From a sample of 132 students who received pre, middle and post test a 17 percentile gain was reported, which is statistically significant.[68] It should be noted that while no control group was used in this study, the results seem very promising. The most important factors related to the apparent overall success of the program seem to be related to the generalized humanistic approach to education.

Miami-Dade Junior College has developed a compensatory educational program at its North campus. The students are enrolled in special courses designed to meet the needs of the disadvantaged. The students receive full credit for the courses as the objectives for special courses in English, Social Science and Natural Science are the same

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[67] Ibid., pp. 27-28.

[68] Ibid., pp. 35-36.

as the objectives for the standard college-level courses. The courses are not watered-down preparatory courses. Remedial learning takes place through additional hours in classrooms and laboratories, through individualized instruction and tutoring and through diagnostic testing. The team approach is utilized in that each group is assigned to a team consisting of a reading specialist, a counselor and instructors of English, Social Science and Natural Science. Preliminary results indicate that the drop-out rate for these students is lower than for students in other kinds of remedial programs. In addition, the concentration counseling approach has resulted in a higher and more realistic level of aspiration for the special program students.[69]

The preceeding selection of developmental programs is by no means intended to be a complete representation of practices. It was intended only as a brief overview of what appears to be successful at four selected community colleges. For a detailed discussion of compensatory programs, the reader is directed to Gordon,[70] Trent,[71]

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[69] The Black Community and the Community College, op. cit., p. 25.

[70] Gordon and Wilkerson, op. cit.

[71] Trent, op. cit.

Southern Regional Education Boards 1970 Project Report,[72] Goodrich,[73] Johnson,[74] and Moore.[75]

Summary

The review of related research has been presented in three sections: Interest in Developmental Education; Studies Relating to Academic Achievement and the presentation of Currently Existing Programs.

The disadvantaged student has been defined as the financially poor student whose low prognosis for success is conteracted by a sincere desire to learn.

For the most part a great deal of emphasis has been placed upon the importance of expanding the opportunity for disadvantaged students to obtain an education. Community colleges appear to have taken the lead in addressing themselves to meeting the higher learning needs of disadvantaged students. Most writers agree that traditional teaching methods are ineffective with disadvantaged students and much emphasis has been placed upon program learning, tutoring and special counseling.

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[72] The Black Community and the Community College, op. cit.

[73] Goodrich, op. cit.

[74] Johnson, op. cit.

[75] Moore, op. cit.

While the evidence on the value of standardized test is conflicting, most of the writers seem to agree that self-concept of academic ability is often more important in predicting success than standardized test. Aptitude test are frequently not valid predictors of academic success because they depend too much on environmental factors. While the evidence is inconclusive, one of the most promising measures of academic success appears to be the Achiever Personality scale developed by Frick. The results of the use of this test has been presented.

Four seemingly promising programs were presented in the last section of the review. The components of a high risk program may be summarized as having, in varying degrees, flexible admission criteria, special recruitment procedures, innovative teaching approaches, provisions for financial aid, provision of a pre-college experience, and personal and academic counseling.

CHAPTER III

DESIGN OF THE STUDY

Definition of the Population

Institutions of higher learning vary in size, location and curriculum offerings. Consequently, no institution may be considered as a typical university. For this reason it is necessary to describe Western Michigan University and its student body as this is the population from which the samples for this study were drawn.

Western Michigan University is a four year institution located in central Kalamazoo, Michigan. Among Michigan's institutions of higher education, Western ranks fourth in number of students, diversity, complexity and level of programs. Western was created in 1904, with 117 students and three faculty members, for the purpose of educating teachers. Enrollment in the Fall of 1971, was 21,846, and the faculty totaled 1,173.

The original concept of the school has been expanded and Western is now considered a multi-purpose university. The first bachelor's degrees were authorized in 1819. Graduate work was offered in 1939, and doctoral programs have been offered since 1966. There are forty-three

departments in the colleges of Arts and Science. Bachelor's degrees are offered in Arts, Business Administration, Music, Science and Industrial Engineering. There are 55 programs leading to a master's degree. Advanced graduate degrees are Specialist in Arts; Specialist in Education; Doctor of Philosophy in Chemistry, Mathematics, Science, Education and Sociology.

The present enrollment of Western is more than triple the 6,857 enrollment of 1957, the year Western was given university status. In the last ten years the enrollment has more than doubled the 1961 enrollment of 9,545. Of the present 21,846 enrollment; 11,389 of the students are from southwestern Michigan; 8,206 are from southeastern Michigan; 531 are from northern lower Michigan; 211 are from the Upper Peninsula; 1,240 are from other states; and 269 are from foreign countries.

Western operates year-round programs with Fall and Winter semesters, Spring and Summer sessions. The two sessions combined equal one semester. Continuous full-time attendance at all semesters and sessions would permit completing a bachelor's degree program in two years and eight months.

In its efforts to recognize students who have been denied an education because of their cultural, economic and education environments, Western has initiated the Martin Luther King Junior Program. The program involves talent

search, recruitment, orientation and support for students of marginal high school academic records. Continuous counseling and tutoring services are provided. In addition, the university is the sponsoring agency for an Upward Bound project, a program designed to motivate certain high school students to continue their education beyond high school.[1]

Admission

Western Michigan University currently, considers a satisfactory high school or transfer record as the most reliable single factor used to predict college success. The college preparatory subjects are given maximum weight in the admission. In 1970, the minimum high school grade point average required for admission was 2.20 for males and 2.50 for females. However, this requirement was changed in 1971, to a 2.00 for all students.

The American College Testing Program (ACT) is required of all new freshmen. Applicants with marginal records are required to submit test results before a final decision is reached relative to their admission status.

General Requirements

(1) Students are required to complete a major with a minimum of 24 hours and a minor with a minimum of 15 hours. (2) Each student must complete 40 hours of work

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[1]Western Michigan University Undergraduate Catalogue, 1969-1970.

in the General Studies Program or in approved alternatives (see Appendix). (3) A minimum grade point average of 2.00 must be attained in any major or minor presented for graduation.

Honor Points

The number of honor points earned in a course is the number of semester hours credit given by the course multiplied by the number of honor points per hour of credit corresponding to the letter grade received, as shown in Table 3.1. For example, a grade of B in a four hour course gives 4 x 3 or 12 honor points.

Grading System

The unit of credit is the semester hour. Grades are indicated by letters, to each of which is assigned a certain value in honor points per hour of credit as shown in Table 3.1.

TABLE 3.1.--Grading system.

Grade	Significance	Honor Points per hour Credit
A	Excellent	4
B	Good	3
C	Fair	2
D	Passing	1
E	Failure	0
I	Incomplete	
CR	Credit	0
NC	No Credit	0

Grade Point Average

A grade point average is obtained by dividing the total number of honor points earned by the total number of semester hours of work for which the student is officially enrolled during any period. For example, a total of 32 honor points earned in a semester by students enrolled for 16 hours of work gives a grade point average of 32/16 or 2.00 for that semester.

Scholarship Standards

A student must earn an overall grade point average of at least 2.00 to satsify degree requirements. The policy operates as follows:

1. Good Standing
   A student is in good standing whenever his overall grade point average is 2.00 or above.
2. Warning
   Whenever the grade point average for any enrollment period is less than 2.00, but the overall grade point average is 2.00 or above, the student is warned.
3. Probation
   The student will be placed on probation whenever his overall grade point average falls below 2.00.
4. Probation Removed
   Whenever the conditions of good standing are restored, probation will be removed.
5. Continued probation
   If the overall grade point average increases, although still below 2.00, the student may be continued on probation for one additional enrollment period.
6. Dismissal
   The student who fails to increase his overall grade point average at the end of an enrollment period of probation, or whose overall grade point

> average fails to reach 2.00 at the end of one enrollment period of continued probation, will be asked to withdraw from the university.[2]

Nature of the Sample for Developmental Group I

From the population described above, three groups of students were selected as the basis for this study. The participants of developmental group I consisted of the entire group of Martin Luther King Jr. students. The students were selected to participate in the program by the program director on the basis of recommendations from non-school related persons, from financial need, and personal interviews. Only those students were selected who demonstrated financial need and academic promise but who had low grades and/or low ACT scores. Twenty nine females and thirty three males were admitted. All of these students had been recruited during the previous Winter and Spring sessions from six high schools: Albion, Battle Creek Central, Benton Harbor, Covert, Kalamazoo Central, and Muskegon Heights. The recruitment procedure involved person-to-person contact with every student who indicated a desire and interest in attending college. These visits were made by the program director, his assistant and selected Western Michigan University students who had previously attended the high schools. Factual

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[2] Ibid.

information about Western Michigan University and admission applications were disseminated to interested students. High school records were also reviewed. Moreover, recruitment procedures involved personal interviews with students, teachers and other non-school related people such as parents, community leaders, ministers and alumni to obtain information about the students that was not readily available via the routine institutional channels. This latter approach provides additional insight and complementary knowledge about the student which assisted the program director in reaching a decision as to whether or not a particular student should be accepted. Interested students were invited to spend a week-end on Western Michigan University's campus. While on campus the students were exposed to such university resources as the library; industrial engineering and technology; music; student center and other curricular programs that would have a motivational appeal.

After the selection process was complete sixty-two students were accepted and financial packages were developed for each student demonstrating need in the amount of approximately $450.00 (see Appendix). All students were housed in the campus dormitory, two to a room, and were served three meals a day. Each of the sixty-two students attended a summer orientation session lasting from June 21, 1969 through August 31, 1969. Each student took a total of

six hours credit; two hours of Adult Reading and four hours of Race and Culture. Adult Reading was provided by the Psycho-Educational Clinic and emphasized instructional and developmental procedures for improving the students' reading skills. Race and Culture was offered by the School of General Studies. The purpose of this course was to introduce the student to the tools necessary for gaining and testing knowledge in the Social Science. The emphasis of the course was on; Race and Culture contacts; social stratification; structure of the minority group community; race and status; history of minority groups; the nature of prejudice; patterns of discrimination and its cause; race relations; and current problems related to race and culture. Both of the above courses met five times a week during the entire summer session.

In addition to the above credit courses the students also took non-credit courses. These courses included: library, Science, Speech, Study Center, and Physical Education.

Library Science

This course acquainted the students with the library. The course met for two hours one day per week throughout the summer orientation. The students were given special instructions on the physical arrangements of the library and assignments geared toward learning basic reference tools and improving library skills.

Speech

This course met two nights each week for two hours each night. The course was geared toward discussion groups and an introduction to radio and television media. The activities included: involvement in the campus radio studio, films; discussion groups; art, music, and other creative student projects; field trips and role playing to emphasize self-exploration.

Study Center

The primary purpose of the Study Center is to provide social and academic support for the developmental program students. The center was located in the library and remedial and tutorial assistance was provided by Senior Student Aides. During the Summer, the students attended the study daily for two and one half hours each day and during the Fall and Winter semester the students attended two days per week for two and one half hours each day.

Physical Education and Recreation

All of the Developmental Group members participated in Physical Education for two hours each day, five days per week during the Summer orientation. The purpose of the course is to provide physical fitness and recreational activities to meet the mental, social and leisure needs of the students. Instruction and supervision was provided in

swimming, gymnastics, tennis, golf, dancing, softball, and basketball.

In addition to the educational programs described above, cultural enrichment programs were provided by means of weekend trips, speakers, and entertainment. An all-day Saturday trip to Chicago included visits to the University of Chicago, Operation Breadbasket, and the Museum of National History. A similar trip was made to Detroit and included a visit to the Oakland University Campus. Speakers were obtained from Western Michigan University's Religion Department, Admissions Office and Student Services.

During the Fall and Winter semesters the students received counseling and guidance in the selection of their courses. Tutorial programs were provided for those students who had difficulty with their academic assignments. In addition, all of the students spent a minimum of two days per week, two hours each of the two days, in the Study Center under the supervision of a student counselor aide. The academic progress of each student was closely scrutinized by student-aid counselors who were assigned to groups of eight students. Problematic situations which included financial, academic, social and personal problems, were discussed with the student counselor aides.

Students in need of financial assistance were provided with financial packages of approximately $1,800 (see Appendix).

Nature of the Sample for Control Group II

The sample for Control Group II was selected by using a table of random numbers. Twenty nine females were selected from a population of ninety-eight females and thirty-three males were selected from a population of seventy-nine males. The mean high school grade point average (GPA_{hs}) of the group from which the females were selected ranged from 1.86 to 2.49 with a mean of 2.30. The GPA_{hs} of the group from which the males were selected ranged from 1.72 to 2.19 with a mean of 2.03. The population from which the sample was selected were admitted as beginning freshmen during the Fall semester 1970, without benefit of any special program or counseling.

Nature of the Sample for Control Group III

The population from which the membership of Control Group III was selected consisted of fifty-two females having GPA_{hs} of exactly 2.50 and fifteen males having a GPA_{hs} of exactly 2.20. Twenty-nine females were selected, using a table of random numbers, from the group of fifty-two females and the entire population of fifteen males with GPA_{hs} of exactly 2.20 were selected. The population from which Control Group III was selected were admitted as beginning freshmen during the Fall semester 1970, without benefit of any special program or counseling.

TABLE 3.2.--Summary of the Characteristics of the Population: GPA_{hs} and Sex.

Group	N Females	GPA_{hs} Range	GPA_{hs} Mean	N Males	GPA_{hs} Range	GPA_{hs} Mean	N Total
Dev. I	29	1.41-1.63	2.03	33	1.38-2.35	1.93	62
Cont. II	98	1.84-2.49	2.27	79	1.32-2.19	2.03	177
Cont.III	52		2.50	15		2.20	67

Table 3.3 shows the high school grade point averages of all beginning freshmen at Western Michigan University in 1970. Foreign, guest and unclassified students are not included in this table since these groups present records not typical of other freshmen entering the University. The mean high school grade point average for the group of females was 2.98 and the mean high school grade point average for the group of males was 2.65. The mean high school grade point average for all students who were beginning freshmen in 1970 was 2.83.

TABLE 3.3.--Summary of High School Grade Point Averages of All Beginning Students Entering the University in 1970.[a]

GPA_{hs}	Number Male	Number Female	Total	Per Cent In Each Interval
3.50-4.00	68	278	346	10.4%
3.00-3.49	235	586	821	24.6%
2.50-2.99	612	854	1466	43.9%
2.00-2.49	532	122	654	19.6%
0.00-1.99	36	15	51	1.5%
No G.P.A.	16	76	92	
TOTAL	1499	1931	3430	
Mean GPA_{hs}	2.65	2.98	2.83	

[a]Gabier, Russell, "Freshmen-Transfer Profile 1970," Office of Admissions, Western Michigan University, p. 8.

The high school grade point averages of the sample by group and by sex is illustrated in Table 3.4. The mean GPA_{hs} of the females in Developmental Group I is 2.03 and the range is 1.41 to 2.63. The mean GPA_{hs} of the group of 62 Developmental students is 1.98.

The 29 females in Control Group II have a mean GPA_{hs} of 2.30 and a range of 1.86 to 2.49. The 33 males in Control Group II have a range of 1.72 to 2.19 and a mean of 2.05. The mean GPA_{hs} of the 62 Control Group II members is 2.17.

The 29 females in Control Group III have a mean GPA_{hs} of 2.50. Since all the females have the same GPA_{hs}, there is no range. The mean GPA_{hs} for the males is 2.20, with no range as all members have the same GPA_{hs}. The mean GPA_{hs} of the 44 members in Control Group III is 2.39.

Measures

Data Collected

The data listed in Table 3.5 was collected, when available, on each student in each group.

The Summer GPA was collected for Developmental Group I only, since Control Group II and Control Group III did not enroll until the following Fall. For statistical analysis, the Summer GPA and Summer hours passed was not used in computing the cumulative GPA or the cumulative

TABLE 3.4.--Summary of the Characteristics of the Sample: GPA_{hs} and Sex.

Group	N Females	GPA_{hs} Range	GPA_{hs} Mean	N Males	GPA_{hs} Range	GPA_{hs} Mean	Group Mean	N Total
Dev. I	29	1.41-2.63	2.03	33	1.38-2.35	1.93	1.98	62
Cont. II	29	1.86-2.49	2.30	33	1.72-2.19	2.05	2.17	62
Cont.III	29		2.50	15		2.20	2.39	44

TABLE 3.5.--Data Collected.

Data Collected
Sex
Month-Year of Birth
ACT Scores: English, Math, Social Science, Natural Science Comp. Score
Hours Passed in Summer
Grade Point Average in Summer
Hours Attempted in Fall
Hours Passed in Fall
Grade Point Average in Fall
Hours Attempted in Winter
Hours Passed in Winter
Grade Point Average in Winter
Total Hours Attempted Fall + Winter
Total Hours Passed Fall + Winter
Cumulative Grade Point Average Fall + Winter (GPA_c)
High School Grade Point Average (GPA_{hs})
Predicted GPA
Enrollment status as of Fall, 1971 (Drop-out Rate)

hours earned because of the possible influence of group interaction. With this exception, the cumulative grade point average up to and including the final semester of each students attendance was used for all three groups.

All data were collected from the individual student's records at the Office of Admissions and Records at Western Michigan University. American College Testing Program scores and predicted GPA was not available for nineteen students in Developmental Group I and for seven students in Control

Group II. Complete data were available for all of the members of Control Group III.

American College Testing Program (ACT)

Two types of measures are used: "measures of academic potential and measures of college achievement. Several measures of academic potential termed 'standard ACT predictors' are used for all colleges."[3] They included four ACT test standard scores and recent high school grades in English, Mathematics, Social Studies and Natural Science. The ACT Battery consist of four test: English, Mathematics, Social Studies and Natural Science. Each test has a possible standard score of from 1 to 36. "The statistical technique of multiple regression analysis considers the correlations of each test score with college GPA and with each other; it produces an optimum set of weights to be applied to each test score."[4] The multiple correlation of the four test are then correlated with the high school grades in English, Mathematics, Social Studies and Natural Science to produce a predicted college grade point average.

The predicted grade point average GPA'_p was compared with the actual GPA_c at the end of two semesters to determine if there was any descrepancy on this measure. The

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[3]Donald P. Hout and Leo A. Munday, Interpretive Guide to ACT Research Service for Higher Education (Iowa City, Iowa: The American College Testing Program, 1969), p. 11.

[4]Ibid., p. 40.

multiple correlation of the four test and high school grades with college GPA_C is .523. The standard error of estimate for five variable prediction is .517. The standard deviation for predicted GPA_p is .622.[5]

The means for each of the ACT test subparts, by sex, are shown in Table 3.6.

TABLE 3.6.--ACT Standard Scores for All 1970 Beginning Freshmen at WMU Test Subparts[a] Means ($\bar{X}$).

	N	English $\bar{X}$	Math $\bar{X}$	Soc.Sci. $\bar{X}$	Nat.Sci. $\bar{X}$	Comp. $\bar{X}$
M	1374	19.0	23.6	22.5	23.5	22.3
F	1759	20.6	20.7	20.8	21.4	21.0
Total	3133	19.9	22.0	21.6	22.3	21.6

[a]Gabier, Russell, "Freshmen-Transfer Profile 1970," Office of Admissions, Western Michigan University, p. 10.

The ACT test was administered by the testing department at Western Michigan University to Developmental Group I in June, 1969 and to Control Groups II and III in September, 1970. The results of these test are shown in Chapter IV.

Cumulative GPA_C and Enrollment Status

The cumulative GPA_C was used to compare the GPA_C of Development Group I with the GPA_C of Control Group II

[5]"Summary Analysis, 1969 Standard Research Service of the American College Testing Program" (Iowa City, Iowa: The American College Testing Program, 1969).

and the GPA_c of Control Group III. The effectiveness of Developmental Program was determined, in part, by this measure.

The enrollment status is a measure used to determine the number of drop-outs in each group. Any student in any of the three groups who was not enrolled at the beginning of the Fall Semester, 1971, is considered a drop-out. The rate of persistence is determined by comparing the percentages of drop-outs in Developmental Group I with the percentages of Drop-outs in Control Group II and Control Group III.

Testable Hypotheses

The three major hypotheses stated in Chapter I are restated below in testable form. Each of the following hypotheses were tested using three repeated measures: (1) Grade point average; (2) Drop-out rate; and (3) The discrepency between the actual GPA_c and predicted GPA'_p.

1.0.0 Null Hypothesis: There is no significant difference between groups on GPA_c drop-out rate, and the discrepancy between actual and predicted GPA.

1.1.0: There is no significant difference between groups on GPA_c.

1.2.0: There is no significant difference between groups on drop-out rate.

1.3.0: There is no significant difference between groups on the discrepancy between actual and predicted GPA.

2.0.0 Null Hypothesis: There is no significant difference between genders on GPA_C, drop-out rate, and the discrepancy between actual and predicted GPA.

2.1.0: There is no significant difference between genders on GPA_C.

2.2.0: There is no significant difference between genders on drop-out rate.

2.3.0: There is no significant difference between genders on the discrepancy between the actual and predicted GPA.

3.0.0 Null Hypothesis: There is no significant interaction between groups and genders on GPA_C, drop-out rate and the discrepancy between the actual and predicted GPA.

3.1.0: There is no significant interaction between groups and genders on GPA_C.

3.2.0: There is no significant interaction between groups and genders on drop-out rate.

3.3.0: There is no significant interaction between groups and genders on the discrepancy between actual and predicted GPA.

Two designs were used in this study: the first design, Figure 3.1, excluded all subjects with missing data and attempted to answer three basic questions: (1) Is there any significant difference between Developmental Group I, Control Group II and Control Group III on the college GPA_C; on the drop-out rate; and on the discrepancy between the attained college GPA_C and the ACT predicted college GPA ; (2) Is there any significant difference between the genders on college GPA_C; on the drop-out rate; and on the discrepancy between the attained college GPA_C and the ACT predicted college GPA ; (3) Is there any

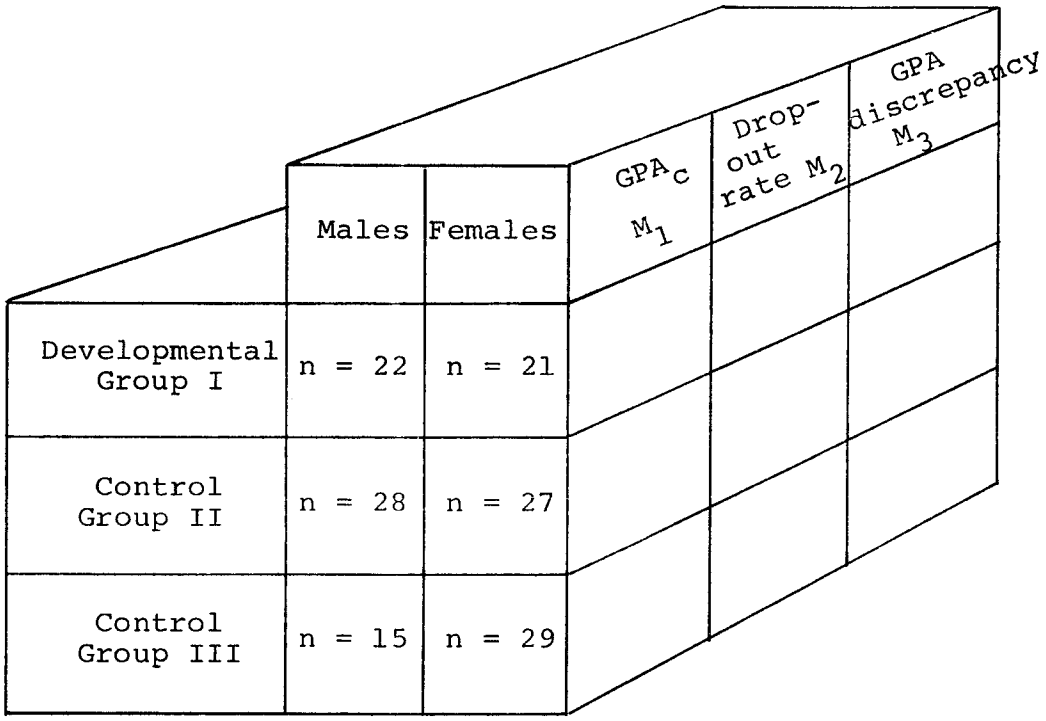
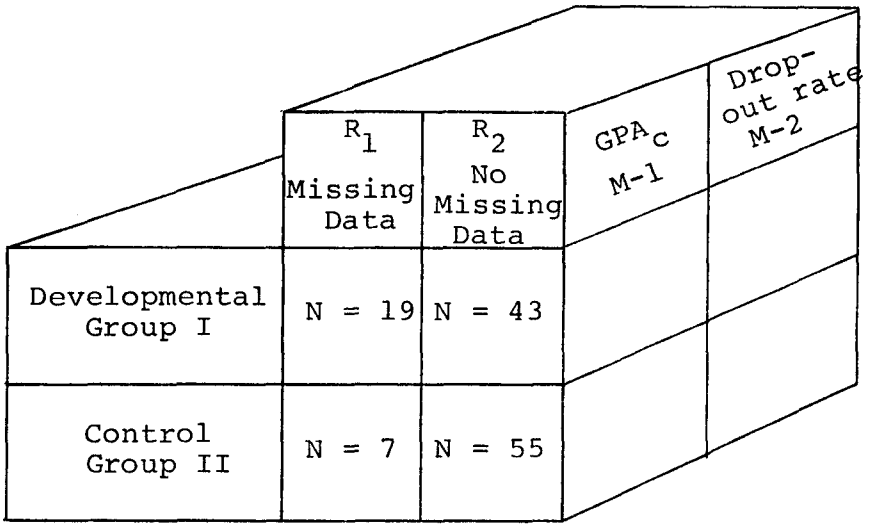


Figure 3.1.--First Design

significant interaction between groups and genders on college GPA_c; on drop-out rate; and on the discrepancy between the attained college GPA and the ACT predicted GPA. The 3 x 2 x 3 block design illustrated in Figure 3.1 was utilized in an attempt to answer these questions.

The diagram in Figure 3.1 illustrated that the subjects are nested with the Group-gender interaction. In this design the three groups (Development Group I, Control Group II and Control Group III) are measured by two genders (male and female), by groups and gender interaction by three repeated measures.

The second design, Figure 3.2, was developed to determine whether the results were biased by the lack of



R_1 = Response Group 1

R_2 = Response Group 2

Figure 3.2.--Second Design.

predicted GPA's on the 19 subjects in Developmental Group I and on 7 subjects in Control Group II. Since none of the subjects in Control Group III had missing data, Group III was not included in this design.

Three basic questions were explored in the second design. (1) Is there any significant difference between Developmental Group I and Control Group II on GPA_c and Drop-out rate? (2) Is there any significant difference between Response Group I (missing data group) and Response Group II (no missing data group) on GPA_c and drop-out rate? (3) Is there any significant interaction between treatment groups and response groups on GPA_c and drop-out rate?

The following hypothesis were tested to answer the above questions:

4.0.0 Null Hypothesis: There is no significant difference between treatment groups on GPA_C and drop-out rate.

4.1.0: There is no significant difference between treatment groups on GPA_C.

4.2.0: There is no significant difference between treatment groups on drop-out rate.

5.0.0 Null Hypothesis: There is no significant difference between response groups on GPA_C and drop-out rate.

5.1.0: There is no significant difference between response groups on GPA_C.

5.2.0: There is no significant difference between response groups on drop-out rate.

6.0.0 Null Hypothesis: There is no significant interaction between treatment groups and response groups on GPA_C and drop-out rate.

6.1.0: There is no significant interaction between treatment groups and response groups on GPA_C.

6.2.0: There is no significant interaction between treatment groups and response groups on drop-out rate.

Methodology

Hypotheses 1.1.0, 2.0.0 and 3.0.0 were tested through the use of the 3 x 2 block design illustrated in Figure 3.1. The dependent variables in this analysis are drop-out rate, college GPA_C, and the discrepancy between actual GPA and predicted GPA. The independent variables are sex and group membership.

Hypotheses 4.0.0, 5.0.0 and 6.0.0 were tested through the use of the 2 x 2 block design shown in Figure 3.2. Since

this design was used to determine if the results were biased by the lack of predicted GPA_p on some of the subjects, the discrepant GPA_{c-p} variable was eliminated. The two remaining dependent variables for the second design are drop-out rate and college GPAc. The independent variables are treatment groups and response groups.

The design of this study is descriptive in nature and consists of the two block designs described above. The proposed analysis will consist of the Multivariate Analysis of Covariance (MANOCVA) using high school GPA_{hs} as covariables. If, through exploration, high school GPA_{hs} is discovered not to be correlated with the dependent variables, the analysis will consist of the Multivariate Analysis of Variance (MANOVA).

Summary

Three groups of students were selected as the basis for this study. The subjects of Developmental Group I consisted of the entire group of Martin Luther King Jr. students. The subjects were selected to participate in the program in June, 1969, by the Program Director on the basis of recommendations from non-school related persons. Only those students were selected who appeared motivated to succeed, had low grades and were in need of financial assistance. Twenty-nine females and thirty-three males were admitted and became the basis of this study. The mean high school grade point average of this group was 1.98.

The group participated in a six-week Summer Orientation Program where counseling and special developmental services were available. During the Fall of 1970, they were enrolled as a full-time student. Follow-up counseling and financial assistance was provided during the Fall and Winter semesters.

The population from which the sample was selected for Control Group II consisted of ninety-eight females and seventy-nine males who were admitted as beginning freshmen during the Fall, 1970 semester, without benefit of any special program or counseling. From this population twenty-nine females and thirty-three males were randomly selected. The mean high school grade point average for Control Group II was 2.17.

The population from which the subjects of Control Group III was selected consisted of fifty-two females and fifteen males. Twenty-nine females were selected who had high school grade point averages of exactly 2.50. Fifteen males were selected with high school grade point averages of exactly 2.20. All of the subjects in Control Group III were admitted as beginning freshmen during the Fall semester of 1970, without benefit of any special program or counseling.

Two designs were used in this study. The first design attempted to measure the difference between the three groups on three dependent variables; college GPA_c, drop-out rate and the discrepancy between actual and

predicted GPA. The second design was used to test for bias in the first design.

The proposed analysis for this study will consist of a multivariate analysis of covariance (MANOCVA) using high school GPA_{hs} as covariables. If, through exploration, high school GPA_{hs} is found not to be correlated with the dependent variables, the analysis will consist of a multivariate analysis of variance (MANOVA).

CHAPTER IV

ANALYSIS OF DATA

In this chapter an analysis of the data is presented along with the testable hypotheses. The chapter is divided into four main sections: testable hypotheses, exploratory analysis, first design, second design. In the first design all subjects with missing data have excluded from the three groups. The second design was utilized to determine whether the results in the first design were biased by the absence of the missing data subjects and includes all of the subjects in Groups I and II. Group III was not included in the second since none of its subjects had missing data.

Throughout this chapter several grade point averages (GPA) are referred to and are designated as follows: High school GPA (GPA_{hs}), Actual College GPA (GPA_c), ACT predicted GPA (GPA'_p) and the discrepancy between the actual college GPA and the ACT predicted GPA (GPA_{c-p}). The discrepancy (GPA_{c-p}) is determined by substracting the actual college GPA from the ACT predicted GPA.

Hypotheses for First Design

1.0.0 Null Hypothesis: There is no significant difference between groups on GPA_c drop-out rate, and the discrepancy between actual and predicted GPA.

1.1.0: There is no significant difference between groups on GPA_C.

1.2.0: There is no significant difference between groups on drop-out rate.

2.3.0: There is no significant difference between groups on the discrepancy between actual and predicted GPA.

2.0.0 Null Hypothesis: There is no significant difference between genders on GPA_C, drop-out rate, and the discrepancy between actual and predicted GPA.

2.1.0: There is no significant difference between genders on GPA_C.

2.2.0: There is no significant difference between genders on drop-out rate.

2.3.0: There is no significant difference between genders on the discrepancy between the actual and predicted GPA.

3.0.0 Null Hypothesis: There is no significant interaction between groups and genders on GPA_C, drop-out rate and the discrepancy between the actual and predicted GPA.

3.1.0: There is no significant interaction between groups and genders on GPA_C.

3.2.0: There is no significant interaction between groups and genders on drop-out rate.

3.3.0: There is no significant interaction between groups and genders on the discrepancy between actual and predicted GPA.

Hypotheses for Second Design

4.0.0 Null Hypothesis: There is no significant difference between treatment groups on GPA_C and drop-out rate.

4.1.0: There is no significant difference between treatment groups on GPA_C.

4.2.0: There is no significant difference between treatment groups on drop-out rate.

5.0.0 Null Hypothesis: There is no significant difference between response groups on GPA_c and drop-out rate.

5.1.0: There is no significant difference between response groups on GPA_c.

5.2.0: There is no significant difference between response groups on drop-out rate.

6.0.0 Null Hypothesis: There is no significant interaction between treatment groups and response groups on GPA_c and drop-out rate.

6.1.0: There is no significant interaction between treatment groups and response groups on GPA_c.

6.2.0: There is no significant interaction between treatment groups and response groups on drop-out rate.

Exploratory Analysis

Before testing the hypotheses, an exploratory analysis was made to determine the strength of high school GPA as covariables. The pooled within cell correlations of each of the dependent variables are shown in Table 4.1. A correlation of .17 was found between actual college GPA and high school GPA; a correlation of -.03 was found between drop-out rate and high school grades; and a correlation of .12 was found between the discrepancy between actual and predicted college GPA and high school grades. The .92 correlation between college GPA_c and the discrepant GPA_{c-p} would naturally be high because GPA_c is a part of the formula.

TABLE 4.1.--Correlation Matrix with Covariable Included.

Variable	sd	College GPA_c	Drop-out Rate	Discrepant GPA_{c-p}	High School GPA_{hs}
College GPA_c	.59		.29	.92	.17
Drop-out Rate	.42	.29		.28	-.03
Discrepant GPA_{c-p}	.57	.92	.28		.12
High School GPA_{hs}		.17	-.03	.12	

TABLE 4.2.--Correlation Matrix with Covariable Eliminated.

Variable	sd	College GPA_c	Drop-out Rate	Descrepant GPA_{c-p}
College GPA_c	.58		.30	.92
Drop-out Rate	.58	.30		.29
Discrepant GPA_{c-p}	.43	.92	.29	

The correlation matrix with the variance due to the covariable (GPA_{hs}) eliminated is shown in Table 4.2. An examination of the results showed that no significant change had occurred as a result of introducing high school GPA as a covariable. The canonical correlation between GPA_{hs} and the other measures was 0.2124 with high school GPA accounting for 1.50 per cent of the variation in the dependent variables.

Since high school GPA was not found to be a suitable covariable it was not introduced.

First Design

Multivariate analysis of variance was used to test the hypotheses. The three groups were divided into six cells using sex and group membership as cell determinants. The subjects with missing ACT scores, and correspondingly predicted GPAs were dropped from this design. The cell frequencies are presented in Table 4.3.

In order to maintain an appropriate error rate the alpha level for the experiment was partitioned not only principally between two major sections of Design I and Design II, but also within each design to account for post hocs where appropriate. All findings are being reported out at P .10.

TABLE 4.3.--Cell Frequencies for First Design.

Group	Male	Female	Total
Development I	22	21	43
Control II	28	27	55
Control III	15	29	44
Total	65	77	142

The first hypothesis tested is stated below.

1.0.0 Null Hypothesis: There is no significant difference between groups on GPA_C, drop-out rate and the discrepancy between the actual and predicted GPA.

The multivariate analysis of variance of means for the three groups produced an F--ratio of 9.6479 with six degrees of freedom for the hypothesis and 268 for the error term, ($P<.0001$). A significant multivariate F--ratio is interpreted as meaning that the three groups differ on at least one of the dependent variables. The decision was to reject the null and a univariate analysis of variance was subsequently conducted to determine upon which variable or variables the three groups differed. The following hypotheses were tested:

1.1.0: There is no significant difference between groups on GPA_C.

1.2.0: There is no significant difference between groups on drop-out rate.

1.3.0: There is no significant difference between groups on the discrepancy between the actual and predicted GPA.

A summary of the univariate analysis of the hypotheses is presented in Table 4.4. The overall alpha level for the multivariate analysis was set at .05. Since the multivariate analysis was rejected, the .05 alpha was split into equal portions for each univariate. Thus, each univariate was tested at the .0167 level of confidence.

Hypothesis 1.1.0 on the actual college grade point average was not rejected, $P<.0380$. The failure to reject this hypothesis indicates that the three groups did not differ on the actual college grade point average. The failure to reject Hypothesis 1.2.0 on drop-out rate indicates that the three groups did not differ on that variable, $P<.4759$. Hypothesis 1.3.0 rejected $P<.0001$ indicating that at least one of the groups had a higher discrepancy between the predicted and actual GPA.

Further study was conducted to determine in what ways the three groups differed on this measure. The following hypothesis was explored:

1.3.1: There is no significant difference between Group I and Group II on the GPA discrepancy.

1.3.2: There is no significant difference between Group I and Group III on the GPA discrepancy.

1.3.4: There is no significant difference between Group I and the average of Groups II and III on the GPA discrepancy.

Scheffe'Post hoc analysis was used to determine which of the three groups differed on the GPA discrepancy

TABLE 4.4.--Summary of Univariate Analysis--Group Effect.

Variable	Degrees of Freedom		Between Mean Squared	Ratio	P	Decision
	Hypothesis	Error				
College GPA_c	2	136	1.1569	3.3503	.0380	Not rejected
Drop-out Rate	2	136	.1344	.7467	.4759	Not rejected
Discrepant GPA_{c-p}	2	136	4.3827	12.9631	.0001	Rejected

variable. The results are shown on Table 4.5. The post hocs were tested at the .01 alpha level, with two degrees of freedom for the hypothesis and 120 for the error, F=4.79.

TABLE 4.5.--Scheffe'Post hoc Comparisons for Differences.

Contrast		$\hat{\Psi}$	Scheffe' Gap	Decision
$\hat{\Psi}$ 1.3.1	$\bar{X}_1 = \bar{X}_2$	547	.366	Rejected
$\hat{\Psi}$ 1.3.2	$\bar{X}_1 = \bar{X}_3$	546	.386	Rejected
$\hat{\Psi}$ 1.3.3	$\bar{X}_2 = \bar{X}_3$	-.001	.364	Not rejected
$\hat{\Psi}$ 1.3.4	$\bar{X}_1 = \frac{\bar{X}_2 + \bar{X}_3}{2}$	.5465	.3295	Rejected

Since the confidence interval for the contrast between the two control groups, Group II and Group III, crossed zero, the Null Hypothesis for this contrast was not rejected.

The rejection of the other post hocs indicates that the ACT predictor under predicted college grades more for Developmental Group I than it did for Control Groups II or III (see Table 4.7c). Since it had been shown that Group I did in fact differ from the other two groups, a subsequent test was to be made to determine whether Group I actually did earn better than a 2.00 grade point average. The analysis was made on the following hypothesis using the one-tailed, one sample t-test.

1.3.5: The mean grade point average of Developmental Group I will be less than or equal to 2.00 at the end of one year's attendance. Ho: $\bar{X} \leq 2.00$

Its alternate was:

1.3.6: The mean grade point average of Developmental Group I will be greater than 2.00 at the end of one year's attendance. Ho: $\bar{X} > 2.00$

The mean GPA of the Group was calculated and measured against 2.00 criterion measure using the one sample t-test. The decision was to reject the Null Hypothesis and accept the alternate since the mean GPA_c was greater than 2.00, t=7.0898 significant at the .005 level. The mean college GPA of each of the three groups are shown in Table 4.7.

The next hypothesis was tested to determine the effect of the sex differences on the three dependent variables.

2.0.0 Null Hypothesis: There is no significant difference between genders on GPA_c, drop-out rate, and the discrepancy between actual and predicted GPA.

The multivariate analysis of variance of means for the two genders produced an F--ratio of 3.2021 with three degrees of freedom for the hypothesis and 134 for the error term, P<.0255. The decision was to reject the null and conduct a univariate analysis on each of the three dependent variables using the following hypothesis.

2.1.0: There is no significant difference between genders on GPA_c.

2.2.0: There is no significant difference between genders on drop-out rate.

2.3.0: There is no significant difference between genders on the discrepancy between actual and predicted GPA.

A summary of the univariate analysis on the three hypotheses is presented in Table 4.6. The decision was to reject the hypothesis if P<.0167. The rejection of Hypothesis 2.1.0 indicates that the females had a significantly higher grade point average than the males (see Table 4.7a). The rejection of Hypothesis 2.3.0 indicates that the ACT predictor under predicted college grades more for the females than it did for the males (see Table 4.7c). The failure to reject Hypothesis 2.2.0 indicates that there was no difference between the males and the females on drop-out rate.

The next hypothesis was analyzed to determine if there was any interaction between the three groups and males and females on the three measures.

3.0.0 Null Hypothesis: There is no significant interaction between groups and genders on GPA_C, drop-out rate and the discrepancy between the actual and predicted GPA.

The multivariate test for interaction produced an F--ratio of 1.0114 with six degrees of freedom for the hypothesis and 268 for the error term, P<.4182. The hypothesis was not rejected since the probability was >.05. The failure to reject this hypothesis indicates that there was no significant interaction between the three groups and the males and females on any of the three measures.

TABLE 4.6.--Summary of Univariate Analysis--Sex Effect.

Variable	Degrees of Freedom		Between Mean Squared	Ratio	P	Decision
	Hypothesis	Error				
College GPA_c	1	136	2.9503	8.5472	.0041	Rejected
Drop-out Rate	1	136	.0009	.0048	.9448	Not rejected
Discrepant GPA_{c-p}	1	136	2.8155	8.3277	.0046	Rejected

Summary of First Design

In this design all of the subjects with missing data were excluded. An exploratory analysis was made to determine the strength of high school grade point average as covariables. Since GPA_{hs} accounted for only 1.50 per cent of the variation in the dependent variables it was not introduced. Instead, the hypotheses were tested using multivariate analysis of variance.

No significant difference was found between the three groups on the actual college grade point average (GAP_c) or on the drop-out rate. A significant difference between the groups was found on the discrepancy factor (GPA_{c-p}) and the Scheffe Post hoc analysis was used to determine in what ways the groups differed. The results of the Scheffe analysis showed that the ACT predictor under predicted more for Developmental Group I than for the other two groups. Having determined that Developmental Group I did have a significantly higher GPA discrepancy, a test was made to see if the actual college grade point average of the group exceeded 2.00. The results of the one sample t-test showed the actual college grade point average of Developmental Group I to be greater than 2.00, P .005.

The results of the test for sex differences on the three measures showed that the females earned a significantly higher grade point average than the males. No significant

difference was found between the males and females on drop-out rate. A significant difference was found on the GPA_{c-p} discrepancy variable. The results indicated that the ACT predictor under predicted more for the females than for the males.

The multivariate test for interaction produced no significant differences between the groups and genders on any of the three measures.

A summary of the means of the three groups on six measures is presented in Table 4.7. Table 4.7b is computed on percentages. Eighty-two per cent of the males in Developmental Group I and seventy-nine per cent of the males in Control Group II were enrolled in school at the end of one year.

Second Design

This design was used to determine if the results of the first design were biased by the exclusion of the missing data subjects.

As in the first design, the analysis for this design consisted of the multivariate analysis of variance. All findings are reported tested at the .10 alpha level. The subjects in this design were divided into four cells using treatment group membership and response group membership as cell determinants. The two treatment groups were Developmental Group I and Control Group II. Control

TABLE 4.7.--Summary of First Design Group Means.

Treatment Group	Male	Female	Total	Male	Female	Total	Male	Female	Total
	(a) College GPA_C			(b) Persistency (%)			(c) GPA Discrepancy		
Dev. I	2.37 (22)[a]	2.76 (21)	2.56 (43)	.82 (22)	.86 (21)	.84 (43)	+.35 (22)	+.76 (21)	.550[b] (43)
Control II	2.18 (28)	2.33 (27)	2.25 (55)	.79 (28)	.74 (27)	.77 (55)	-.09 (28)	+.10 (27)	.003 (55)
Control III	2.14 (15)	2.48 (29)	2.36 (44)	.73 (15)	.72 (29)	.72 (44)	-.16 (15)	+.09 (29)	.004 (44)
Total	2.23 (65)	2.50[b] (77)	2.37 (142)	.79 (65)	.77 (77)	.78 (142)	.042 (65)	.276[b] (77)	.169 (142)
	(d) ACT Predicted GPA			(e) Composite ACT Score			(f) Cumulative Hours Passed		
Dev. I	2.02 (22)	1.99 (21)	2.00 (43)	14 (22)	13 (21)	13 (43)	22 (22)	23 (21)	22 (43)
Control II	2.27 (28)	2.23 (27)	2.29 (55)	20 (28)	16 (27)	18 (55)	24 (28)	23 (27)	23 (55)
Control III	2.30 (15)	2.39 (29)	2.35 (44)	18 (15)	18 (29)	18 (44)	27 (15)	24 (29)	25 (44)
Total	2.19 (65)	2.25 (77)	2.22 (142)	17 (65)	16 (77)	16 (142)	24 (65)	23 (77)	23 (142)

[a]The number in the parentheses represent the number of subjects in each cell.

[b]Significant at $p < .05$.

Group III was eliminated from this analysis because none of its members had missing ACT scores. The two response groups were R_1 = missing data group and R_2 = no missing data group. The two dependent variables are actual college grade point average (GPA_c) and drop-out rate. The cell frequencies are shown in Table 4.8.

TABLE 4.8.--Cell Frequencies for Second Design.

Treatment Group	Missing Data R_1	No Missing Data R_2	Total
Developmental I	19	43	62
Control II	7	55	62
Total	26	98	124

4.0.0 Null Hypothesis: There is no significant difference between treatment groups on GPA_c and drop-out rate.

The multivariate analysis of variance of means for the two groups produced an F--ratio of 4.5538 with two degrees of freedom for the hypothesis and 119 for the error term, $P<.0125$. The decision was to reject the null and proceed with the univariate analysis on the following hypotheses.

4.1.0: There is no significant difference between treatment groups on GPA_c.

4.2.0: There is no significant difference between treatment groups on drop-out rate.

The hypotheses were tested at the .025 alpha level. A summary of the univariate analysis for the treatment group effect is shown in Table 4.9. The rejection of Hypothesis 4.1.0 on GPA_C indicates that Developmental Group I had a significantly higher actual college grade point average than Control Group II. The failure to reject Hypothesis 4.2.0 on drop-out rate indicates no significant difference between the Developmental Group I and Control Group II.

The next hypothesis tested the difference between the missing data group and the no missing data group on actual college grade point average (GPA_C) and drop-out rate.

5.0.0 Null Hypothesis: There is no significant difference between response groups on GPA_C and drop-out rate.

The multivariate analysis for this hypothesis produced an F--ratio of 9.6401 with two degrees of freedom for the hypothesis and 119 for the error term, $P<.0002$. The decision was to reject the null since $P<.05$ and the univariate analysis was conducted using the following hypotheses.

5.1.0: There is no significant difference between response groups on GPA_C.

5.2.0: There is no significant difference between response groups on drop-out rate.

The hypotheses were tested at the .025 alpha level. A summary of the univariate analysis for the response group effect is shown in Table 4.10.

TABLE 4.9.--Summary of Univariate Analysis Treatment Group Effect.

Variable	Degrees of Freedom		Between Mean Squared	Ratio	P	Decision
	Hypothesis	Error				
College GPA_C	1	20	3.2362	9.080	.0032	Rejected
Drop-out Rate	1	20	.889	.4936	.4836	Not rejected

TABLE 4.10.--Summary of Univariate Analysis Response Group Effect.

Variable	Degrees of Freedom		Between Mean Squared	Ratio	P	Decision
	Hypothesis	Error				
College GPA_C	1	120	6.4713	18.4713	.0001	Rejected
Drop-out Rate	1	120	1.0054	5.5837	.0198	Rejected

The rejection of Hypothesis 5.1.0 indicates that the no missing data group (Response Group II) earned a significantly higher grade point average than the missing data group (Response Group I), see Table 4.11a for mean comparison.

The rejection of Hypothesis 5.2.0 shows that the missing data group (Response Group I) had a significantly higher drop-out rate than the no missing data group (Response Group II), see Table 4.11b.

The final hypothesis tested for interaction between Developmental Group I and Control Group II and the missing data/no missing data groups on the measures of GPA_c and drop-out rate.

6.0.0 Null Hypothesis: There is no significant interaction between treatment groups and response groups on GPA_c and drop-out rate.

The multivariate analysis for this hypothesis had a F--ratio of .6131 with two degrees of freedom for the hypothesis and 119 for the error term, $P<.5434$. The hypothesis was not rejected since the probability was greater than the .05 alpha level. The failure to reject this hypothesis indicates that there is no significant interaction between Group I, Group II and the missing data/no missing data group.

Summary of Second Design

The second design was used to test for bias in the first design. The analysis consisted of multivariate

TABLE 4.11.--Summary of Second Design Group Means.

Treatment Group	Missing Data R_1	Complete Data R_2	Total	Missing Data R_1	Complete Data R_2	Total	Missing Data R_1	Complete Data R_2	Total
	(a) College GPA_C			(b) Persistency (%)			(c) GPA Discrepancy		
Dev. I	2.28 (19)[a]	2.56 (43)	2.47[b] (62)	.68 (19)	.83 (43)	.78 (62)		.56 (43)	.56 (43)
Control II	1.28 (7)	2.25 (55)	2.14 (62)	.42 (7)	.76 (55)	.72 (62)		.04 (55)	.04 (43)
Total	2.01 (26)	2.38[b] (98)	2.30 (124)	.61 (26)	.79[b] (98)	.75 (124)		.26 (98)	.26 (98)

	(d) ACT Predicted GPA		(e) Composite ACT Score		(f) Cumulative Hrs. Passed		
Dev. I	2.01 (43)	2.01 (43)	13 (43)	13 (43)	23 (19)	22 (43)	22 (62)
Control II	2.25 (55)	2.25 (43)	18 (55)	18 (55)	14 (7)	24 (55)	22 (62)
Total	2.14 (98)	2.14 (98)	16 (98)	16 (98)	20 (26)	23 (98)	22 (124)

[a]The number in parentheses represent the number of subjects in each cell.

[b]Significant at $p < .05$

analysis of variance. Developmental Group I had a significantly higher college grade point average than Control II. No significant difference was found between the two groups on drop-out rate. The no missing data group (R_2) earned a significantly higher GPA_c than the missing data group (R_1). The no missing data group also had a significantly lower drop-out rate than the missing data group (R_1). No significant interaction was found between the two treatment groups and the two response groups.

The findings of the Second Design are consistent with the findings of the First Design on drop-out rate when the groups are compared. However, the findings are inconsistent with the findings of the First Design on actual college grade point average (GPA_c) when the groups are compared.

Summary

In this chapter data from Developmental Group I, Control Group II and Control Group III were presented and analyzed relative to the major hypothesis and post hocs.

A multivariate analysis of variance, a one sample t-test, and the Scheffe'post hoc comparisons were the statistical techniques applied. The exploratory analysis indicated that high school grade point average was not a suitable covariable. High school grades accounted for

1.50 per cent of the variation in the dependent variables. A correlation of .17 was found between college grades and high school grades; a correlation of -.03 was found between drop-out rate and high school grades; and a correlation of .12 was found between high school grades and the predictor discrepancy.

The mean grade point average of Developmental Group I was calculated and measured against the 2.00 criterion measure using the one sample t-test. Developmental Group I was found to have done significantly better than 2.00, t=7.0898, significant at the .005 level. The ACT predictor under predicted college grades more for Developmental Group I than it did for either of the other two groups. No significant difference was determined between the three groups on the attained college grade point average or on the drop-out rate in the first design.

In the first design, the females had a significantly higher college grade point average than the males. The ACT predictor significantly under predicted college grades more for the females than it did for the males. Both of these findings were significant at the .05 level. There was no significant difference between the males and females on drop-out rate. No significant interaction was found between the groups and genders on the dependent variables.

In the second design, Developmental Group I had a significantly higher grade point average than Control Group II, which was significant at $P<.0032$. No significant difference was found between Developmental Group I and Control Group II on drop-out rate. The group with no missing data earned a higher grade point average than the missing data group, $P<.0001$. The missing data group had a significantly higher drop-out rate than the no missing data group, $P<.0198$. No significant interaction was determined between the treatment groups and response groups on the two dependent variables of college grade point average and drop-out rate.

The findings of the Second Design were inconsistent with the findings of the First Design on actual college grade point average (GPA_c). Possible bias is indicated since Developmental Group I earned a significantly higher GPA_c than Control Group II in the Second Design, but not in the First.

In the next chapter conclusions will be drawn along with a discussion and implications for future research.

CHAPTER V

SUMMARY AND CONCLUSIONS

This final chapter is divided into the following four sections: Summary, discussion of the findings, conclusions and implications for future research. The discussion of the problem, the design and the methodology of the study is presented in the first part. In the second part the major findings are presented along with a discussion of each. Conclusions are drawn in the third part and the implications for future research are stated in the fourth part.

Summary

Four year colleges, universities and community colleges have become more and more concerned with the large number of high-risk students who are currently seeking admission into their respective schools. Such institutions are faced with the problem of developing and implementing innovative courses and curriculums to meet the special needs of these disadvantaged high school graduates.

Several colleges and universities are attempting to meet these special needs through the use of one or all

of the following: reduced admission, criteria, special recruitment efforts, innovative teaching approaches, provisions for financial aid, provision of a summer bridge program and personal and academic counseling. The Martin Luther King Program at Western Michigan University has all of the above components. In this study, an attempt was made to analyze and appraise the Martin Luther King Developmental Program relative to its purpose of helping high-risk students perform successfully at Western Michigan University.

Three groups of students were selected as the basis for this study. The sample for the Developmental Group (Group I) consisted of the entire group of sixty-two Martin Luther King students. The subjects were selected to participate in the program in June, 1969, by the Program Director. The mean high school grade point average of the group was 1.98 and the mean ACT score was 13. Twenty-nine females and thirty-three males were admitted and became the basis of this study. The group participated in a six-week resident Summer Orientation Program where developmental courses, counseling and financial assistance was provided. This group was enrolled as full-time students in the Fall of 1970, and were given additional counseling, tutoring and financial assistance.

The sample for the control group (Control Group II) consisted of twenty-nine females and thirty-three males.

The subjects were randomly selected from 177 students who were admitted as freshmen at the beginning of the Fall, 1970 semester. All of the students of the control group were admitted as regular students without benefit of a special program. The mean high school grade point average of this control group was 2.17 and the mean ACT score was 18.

The sample for the control group (Control Group III) consisted of twenty-nine randomly selected females with high school grade point averages of exactly 2.50 and fifteen males with high school grade point averages of exactly 2.20. The mean high school grade point average for the group was 2.39 and the average ACT score was 18. All of the students in this control group were admitted as beginning freshmen at the beginning of the Fall semester, 1970, without benefit of any special program.

The dependent variables in this study were actual college grade point average (GPA_c), drop-out rate and the discrepancy between the actual and the ACT predicted grade point average (GPA_{c-p}). The independent variables were group membership and sex.

Two designs were used in this study. The first design attempted to measure the difference between the three groups on the dependent variables with the missing data subjects excluded. The second design was utilized to

determine whether the results in the first design were biased by the exclusion of the missing data subjects.

An exploratory analysis was made to determine the strength of high school grade point averages as a covariable. High school grade point average was not introduced as a covariable since it accounted for only 1.50 per cent of the variation in the dependent variables. Since high school grades was not a suitable covariable the hypotheses were tested using multivariate analysis of variance.

The effectiveness of the Martin Luther King Program was measured through the use of the following hypothesis.

First Design

1.0.0 Null Hypothesis: There is no significant difference between groups on GPA_C, drop-out rate, and the discrepancy between actual and predicted GPA.

1.1.0: There is no significant difference between groups on GPA_C.

1.2.0: There is no significant difference between groups on drop-out rate.

1.3.0: There is no significant difference between groups on the discrepancy between actual and predicted GPA.

2.0.0 Null Hypothesis: There is no significant difference between genders on GPA_C, drop-out rate, and the discrepancy between actual and predicted GPA.

2.1.0: There is no significant difference between genders on GPA_C.

2.2.0: There is no significant difference between genders on drop-out rate.

2.3.0: There is no significant difference between genders on the discrepancy between the actual and predicted GPA.

3.0.0 Null Hypothesis: There is no significant interaction between groups and genders on GPA_C, drop-out rate and the discrepancy between the actual and predicted GPA.

3.1.0: There is no significant interaction between groups and genders on GPA_C.

3.2.0: There is no significant interaction between groups and genders on drop-out rate.

3.3.0: There is no significant interaction between groups and genders on the discrepancy between actual and predicted GPA.

The first hypothesis (1.0.0) was tested using the multivariate analysis of variance to determine if there was any difference between the three groups on the three dependent variables. The rejection of that hypothesis led to the subsequent univariate analysis on Hypotheses 1.1.0, 1.2.0 and 1.3.0 to determine upon which variable or variables the three groups differed. The rejection of Hypothesis 1.3.0 led to the testing for group difference on the discrepant GPA variable. The Scheffe Post hos analysis was used to determine which of the three groups differed on the GPA discrepancy variable. The following hypotheses were tested:

1.3.1: There is no significant difference between Group I and Group II on the GPA discrepancy.

1.3.2: There is no significant difference between Group I and Group III on the GPA discrepancy.

1.3.3: There is no significant difference between Group II and Group III on the GPA discrepancy.

1.3.4: There is no significant difference between Group I and the average of Groups II and III on the GPA discrepancy.

Hypothesis 1.3.3 on the GPA discrepancy was not rejected. Hypotheses 1.3.1, 1.3.2, and 1.3.4 were rejected indicating that the ACT predictor under-predicted more for the Developmental Group than for the two control groups. Having determined that Developmental Group I differed from the other two groups on the GPA discrepancy variable, a subsequent test was made to determine if Developmental Group I actually exceeded the 2.00 minimum GPA_c requirement. An analysis was made of the following hypotheses using the one-tailed, one sample t-test:

$1.3.5_a$: The mean grade point average of Developmental Group I will be less than or equal to 2.00 at the end of one year's attendance. Ho: $\bar{X} \leq 2.00$.

Its alternate was:

$1.3.5_b$: The mean grade point average of Developmental Group I will be greater than 2.00 at the end of one year's attendance. Ho: $\bar{X} > 2.00$.

The Null Hypothesis was rejected indicating that the mean college grade point average of Developmental Group I was significantly above the minimum college grade point average of 2.00.

The second major hypothesis (2.0.0) was tested using the multivariate analysis of variance to determine if there was any difference between the males and females on the three dependent variables. The rejection of the second major hypothesis led to the utilization of the univariate analysis to determine upon which variable or

variables the males and females scored differently. The Hypothesis on GPA_c (2.1.0) was rejected which showed that the females had a significantly higher college grade point average than the males. The failure to reject the hypothesis on drop-out rate (2.2.0) indicated that the males and females did not differ on this variable. The Hypothesis on the discrepant grade point average (2.3.0) was rejected which showed that the ACT predictor under predicted more for the females than the males.

The third major hypothesis was tested using the multivariate analysis of variance to determine if any interaction existed between the three groups and the males and females. This hypothesis was not rejected indicating that no interaction existed.

Second Design

The second design tested for bias in the first design. The two dependent variables in the second design were college GPA (GPA_c) and drop-out rate. The independent variables were treatment group membership and missing data/ no missing data group membership. The following hypotheses were tested.

4.0.0 Null Hypothesis: There is no significant difference between treatment groups on GPA_c and drop-out rate.

4.1.0: There is no significant difference between treatment groups on GPA_c.

4.2.0: There is no significant difference between treatment groups on drop-out rate.

5.0.0 Null Hypothesis: There is no significant difference between response groups on GPA_C and drop-out rate.

5.1.0: There is no significant difference between response groups on GPA_C.

5.2.0: There is no significant difference between response groups on drop-out rate.

6.0.0 Null Hypothesis: There is no significant interaction between treatment groups and response groups on GPA_C and drop-out rate.

6.1.0: There is no significant interaction between treatment groups and response groups on GPA_C.

6.2.0: There is no significant interaction between treatment groups and response groups on drop-out rate.

Hypothesis 4.0.0 was tested using the multivariate analysis of variance to determine if there was any difference between Developmental Group I and Control Group II on actual college grade point average and persistence. The rejection of the hypothesis led to the use of the univariate analysis to determine which of the two groups scored differently on which dependent variable. Hypothesis 4.1.0 on GPA_C was rejected which indicated that Developmental Group I had a significantly higher GPA_C than Control Group II. The Hypothesis on drop-out rate (4.2.0) was not rejected indicating no difference on drop-out rate.

Hypothesis 5.0.0 was tested using the multivariate analysis of variance of means to determine if there was any difference between the missing data group and the no

missing data group on actual college grade point average and persistence. The rejection of the hypothesis led to the use of the univariate analysis to determine whether the missing data group or the no missing data group scored higher on actual college GPA_c and on the drop-out rate. The Hypothesis on GPA_c (5.1.0) was rejected indicating that the group with no missing data had a higher GPA_c than the group with missing data. The rejection of Hypothesis 5.2.0 on drop-out rate showed that the missing data group had a higher drop-out rate than the no missing data group.

Hypothesis 6.0.0 was tested using the multivariate analysis of variance to determine if any interaction existed between Developmental Group I, Control Group II and the missing data/no missing data groups. This Hypothesis was not rejected which revealed that no interaction existed.

Findings and Discussion

The findings relative to the three major hypotheses in the first design are as follows:

1. Students in Developmental Group I, Control Group II, and Control Group III achieved equally well during their first year of enrollment at Western Michigan University.

This finding strongly suggests that the Developmental Program was successful. The students in the Developmental Group had an average high school grade point average of 1.99

and an average ACT score of 13. This group was able to perform academically as well as a second group of students who had a mean high school grade point average of 2.17 and a mean ACT score of 18. Still further, this finding shows that the Developmental Group of students (who would not have been admitted under regular admission criteria) did as well as the control group who met the minimum standards. The mean grade point average for the third group was 2.39 and the average ACT score was 18. The average college grade point average for each of the three groups is shown in Table 5.1.

TABLE 5.1.--Summary of Means Group Effect.

	n	GPA_c	Persistency Rate[a]	GPA Discrepancy
Developmental Group I	43	2.56	.84%	.550[b]
Control Group II	55	2.25	.77%	.003
Control Group III	44	2.36	.72%	.004

[a]Percentage of students enrolled at end of year.

[b]Significant at $P<.05$.

2. Students in Developmental Group I, Control Group II and Control Group III persisted in the university equally well during their first year of enrollment at Western Michigan University.

The second finding also implies that the program was of value to the Developmental Group. This group was able to persist in the university as well as the control group members.

Nineteen per cent of all freshmen drop out at Western Michigan before the end of their first year.[1] Twenty-eight per cent of the students dropped out before the end of the first year in Group III, twenty-three per cent dropped out in Group II and only sixteen per cent dropped out in Group I. While this does not imply that Group I did significantly better than the other two groups, it does suggest that they did as well.

3. There is a significantly greater discrepancy between the predicted and actual college GPA_{C-P} in Group I than in either of the other two groups with the ACT predictor under predicting in all cases but minimal in Group II and Group III.

This finding is supported by the literature and suggest that the traditional standardized test are poor indicators of success with disadvantaged students. In this study the disadvantaged group achieved over one-half grade higher than the prediction criteria indicated.

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[1]Admissions Office, Western Michigan University, 1970.

4. The cumulative college grade point average of Developmental Group I was significantly higher than the 2.00 minimum academic requirement.

This finding shows that the Developmental Group not only met the 2.00 minimum requirement for good academic standing, moreover, the group significantly exceeded the 2.00 grade point average with a GPA_c of 2.56 (t-7.089 $p<.005$).

TABLE 5.2.--Summary of Means Sex Effect.

	n	GPA_c	Persistency Rate	GPA Discrepancy
Male	65	2.23	.79%	.042
Female	77	2.50[a]	.77%	.276[a]

[a]Significant at $P<.05$.

5. The females in Developmental Group I, Control Group II and Control Group III achieved significantly higher cumulative college grade point averages than the males in Developmental Group I, Control Group II and Control Group III.

The implications of this finding is that females tend to perform somewhat higher than males. This fact is generally supported by the literature. A summary of college grade point averages is shown in Table 5.2.

6. The ACT predictor significantly under predicted more for the females in Developmental Group I, Control Group II and Control Group III than for the males in Developmental Group I, Control Group II and Control Group III.

This finding suggests that the ACT predictor in addition to being a poor indicator of college success for disadvantaged students appears also to be a poor indicator for females at Western Michigan University.

The findings relative to the hypothesis in the second design are as follows:

1. The students in Developmental Group I achieved significantly higher cumulative college grade point averages than the students in Control Group II during their first year of enrollment at Western Michigan University.

The implications of this finding is that absence of the missing data subjects in the first design tended to bias the results in favor of the control groups. The finding of a significant difference in this design seems to be related to the extremely low grade point averages of the seven subjects with missing data in Group II who were included in the second design. The inclusion of this group tended to lower the GPA_c of Group II more than the 19 subjects with missing data lowered the GPA_c of Group I.

However, since this study attempted to examine the <u>entire</u> membership of each of the three groups, the inclusion of <u>all</u> subjects was essential. The findings in this design clearly indicate that Group I earned a significantly higher grade point average than the control group. The mean grade point averages of both groups are shown in Table 5.3.

TABLE 5.3.--Summary of Means--Group Effect.

Group	n	GPA_C	Persistency Rate
Developmental Group I	62	2.47[a]	.78
Control Group II	62	2.14	.72

[a]Significant at $P<.05$.

2. The students in Developmental Group I and Control Group II persisted in the university equally well during their first year of enrollment at Western Michigan University.

This finding is in accordance with the findings of the first design and again shows that Group I did as well as the two control groups in remaining enrolled in the university.

3. The students in Developmental Group I and Control Group II with missing data have lower college grade point averages (GPA_C) and higher drop-out rates than students who did not have missing data.

While the evidence clearly supports this finding there is no available data to explain this phenomenon. One can only speculate that the students who did not take the ACT test also tended to be less sure of themselves and their ability to succeed in college. The data suggest that they may have been less promising academically than their counterparts who took the test. If this is so, it becomes somewhat understandable why they tended to have lower grade point averages and higher drop-out rates.

Conclusions

This study was designed to evaluate the effectiveness of the developmental program at Western Michigan University relative to its purpose of preparing high-risk students to perform successfully in curriculums at Western Michigan University. The results of this study support the contention that such a program can benefit high-risk students in institutions of higher learning.

From the data and subsequent findings of this study the following conclusion regarding the effectiveness of the Martin Luther King Developmental Program is drawn.

> The Martin Luther King Developmental Program is successful in preparing high-risk high school graduates to perform successfully in curriculums at Western Michigan University.

The MLK program was established with the objective of helping disadvantaged students maintain a successful grade point average while attending the university. The data shows that the college grade point average of the Developmental Group was significantly higher than the two control groups and that the developmental students achieved higher grades than were predicted by the ACT program.

The finding in the first design illustrates that the Developmental Group not only met the 2.00 minimum requirement for good academic standing but significantly exceeded the 2.00 with an earned grade point average of 2.56. In addition, the Developmental Group was able to

maintain a level of academic persistence equal to that of the regularly admitted students in Control Groups II and III. Finally, while 19 per cent of all freshmen dropped out of school during their first year, only 16 per cent of the students in the Developmental Group dropped out.

Thus, the evidence clearly points out that when high-risk students at Western Michigan University are given supportive services such as a summer bridge program, financial assistance, tutoring and peer counseling, they have as good a chance of succeeding in college as regularly admitted students. Moreover, as indicated in the second design, high-risk students who participate in developmental programs can actually achieve at a higher rate than students who meet the minimum standards for regular admission.

One of the more significant aspects of this study is that the Developmental program tended to undermine the traditional predictors of success and in a sense the high-risk students actually became "over-achievers" as their grade points exceeded the traditional predictors by an excess of one half of one grade point. In addition, it can be concluded that while the data produced no <u>significant</u> difference between the three groups on persistence, the program had the effect of keeping the high-risk students in school at a rate equal to regularly admitted students. This finding is in keeping with the literature. In most

instances, the academic mortality rate for high-risk students has been no higher than for regular students when developmental assistance is provided.[2] Can it be assumed that this low drop-out rate is a result of the special program? Current evidence from institutions with equivalent control groups provide an affirmative answer: essentially, that the drop-out rate is much higher for the control group than for those in the high-risk programs.[3] Furthermore, the grades of students in high-risk programs have generally been much higher than they would have been predicted from traditional prediction equations.

The Hawthorne Effect has undoubtably played a major role in the success of the program. This tendency for students to achieve higher when they know they are being observed and given special attention should not be viewed negatively, but should be seen as an integral part of Developmental Programs. If one can increase the chances of a student's success in school by merely giving him special attention, then the Hawthorne Effect seems a small price to pay for the potential high pay-off resulting from its conscious use.

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[2]See Leslie Berger, College Now for Ghetto Youth (New York: City University of New York, 1968), p. 15.

[3]See Robert L. Williams, "What Are We Currently Learning From Current Programs for Disadvantaged Students," Journal of Higher Education (April, 1969), p. 280.

Implications for Future Research

1. A follow-up study of students who dropped out of the program before the end of the year was not made. Further research could be designed to study those students who dropped out of similar programs to determine what positive effect the program has on their future academic plans.

2. This study has reported on the results of the freshman year of the Developmental students. Further research could be conducted to determine how many of these students will actually graduate from the university.

3. Further research could be done using the Tennessee Self-Concept Test to determine if programs such as the one in this study has any impact on improving the self-concept of high-risk students.

4. Several studies have emphasized the importance of instructors and special counselors in the effectiveness of developmental programs. Further research is needed in this area.

5. Further research is needed relative to the use of criteria other than standardized test to predict academic success with high-risk students.

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APPENDICES

APPENDIX 1

SUMMARY OF CORRELATIONS

	sd	ACT	CUM HP	GPA'_p	GPA_C	D Ø R	GPA_{C-p}
ACT	4.85		.049	.724	.155	-.005	-.134
CUM HP	6.17	.049		.112	.629	.442	.590
GPA'_p	.23	.724	.112		.224	.013	-.174
GPA_C	.58	.155	.629	.224		.286	.920
D Ø R	.42	-.005	.442	.013	.286		.284
GPA_{C-p}	.58	-.134	.590	-.174	.920	.284	

LEGEND: Comprehensive American Testing Program score (ACT); cumulative hours passed (CUM HP); Predicted GPA (GPA'_p); College GPA (GPA_C); Drop out Rate (D Ø R); discrepancy between predicted and College GPA (GPA_{C-p}); standard deviation (sd).

APPENDIX 2

GENERAL STUDIES PROGRAM*

I. Freshman-Sophomore Level

Both

College Writing 116 . . . . . .4 hrs.
Freshman Reading 140 . . . . . .2 hrs.

Either

Early Western Civilization 100 . . . . . .4 hrs.
(Greeks to 17th Century)
or
Modern Western Civilization 101 . . . . . .4 hrs.
(17th Century to Present)

One course from the following:

Man and Society 202 . . . . . .4 hrs.
Social Bases for Human Behavior 203 . . . .4 hrs.
Comparative Social Institutions 204 . . . .4 hrs.
Race and Culture 205. . . . . .4 hrs.

Two courses from the following:

Physical Geography 105 or Geological Science 112 . . . . . .4 hrs.
Biological Science 107 . . . . . .4 hrs.
Physical Science 108 . . . . . .4 hrs.
Aims and Achievements of Science 110 . . . .4 hrs.

Either

Arts and Ideas 222 . . . . . .4 hrs.
or
Non-Western Arts and Ideas 224 . . . . . .4 hrs.

*This is the General Studies Program required of all Students at Western Michigan University.

APPENDIX 3

ACADEMIC LOAD

SUMMER SESSION

4--- Race & Culture

2--- Adult Reading
6 Academic Hours

FALL SEMESTER

4--- College Writing

4--- Arts & Ideas

3--- Speech

1--- Physical Education

1--- Techniques of learning and adjustment
13 Academic Hours

WINTER SEMESTER

2--- Freshman Reading

4--- Aims & Achievements of Science

3--- History

3--- Introductory (Sociology, Business etc.)

1--- Physical Education
13 Academic Hours

These Hours Represent a typical academic load for the Martin Luther King Student.

APPENDIX 4

MARTIN LUTHER KING SUMMER SESSION ACADEMIC CALENDAR
JUNE 21 - AUGUST 14

6:00	a.m.	Breakfast 6:45-7:15	Breakfast 6:45-7:15	Breakfast 6:45-7:15	Breakfast 6:45-7:15	Breakfast 6:45-7:15
7:00	a.m.	Race&Cult. 7:20-9:00	Race&Cult. 7:20-9:00	Race&Cult. 7:20-9:00	Race&Cult. 7:29-9:00	Race&Cult. 7:20-9:00
9:00	a.m.	Race&Cult. 9:20-11:00	Race&Cult. 9:20-11:00	Race&Cult. 9:20-11:00	Race&Cult. 9:20-11:00	Race&Cult. 9:20-11:00
		Adult Read. 9:20-11:00	Adult Read. 9:20-11:00	Adult Read. 9:20-11:00	Adult Read. 9:20-11:00	Adult Read. 9:20-11:00
12:00	noon	Lunch 12:00-12:20	Lunch 12:00-12:20	Lunch 12:00-12:20	Lunch 12:00-12:20	Lunch 12:00-12:20
1:00	p.m.	Study Cent. 1:00-3:30	Study Cent. 1:00-3:30	Study Cent. 1:00-3:30	Study Cent. 1:00-3:30	Study Cent. 1:00-3:30
		Library Sci. 1:00-3:30	Library Sci. 1:00-3:30	Library Sci. 1:00-3:30	Library Sci. 1:00-3:30	Library Sci. 1:00-3:30
3:00	p.m.	Phys.Ed.&Rec. 1:30-5:30	Phys.Ed.&Rec. 1:30-5:30	Phys.Ed.&Rec. 1:30-5:30	Phys.Ed.&Rec. 1:30-5:30	Phys.Ed.&Rec. 1:30-5:30
5:00	p.m.	Dinner 5:30-6:00	Dinner 5:30-6:00	Dinner 5:30-6:00	Dinner 5:30-6:00	Dinner 5:30-6:00
7:00	p.m.	Special Programs	Special Programs	Special Programs	Special Programs	Special Programs
			Art Broad./T.V.	Music	Art Groad./T.V.	
			Speech		Speech	

APPENDIX 5

MAJOR AND MINOR AREAS OF ENROLLMENT

AREA	1970 MLK STUDENTS
Business Administration/Education etc.	8
Sociology/Social Work	14
Liberal Arts	14
English	0
Engineering Technology	4
Art	0
Chemistry	0
Distributed Education	0
Industrial Arts	3
Occupational Therophyl	0
Speech Pathology	1
Music	2
Pre-Medicine	1
Pre-Nursing	2
Undecided	11
Special Education	2

APPENDIX 6

COST AND RESOURCES

Below is a tabulation of the average expenses for a Martin Luther King Student in Attendance at Western.

Fall/Winter Semester

COSTS			RESOURCES		
TUITION/FEES	430.00	PERSONAL SAVINGS		$ 200.00	
BOOKS/SUPPLIES	100.00	SAVINGS-SUMMER			$ 250.00
ROOM/BOARD	1,100.00	PARENTS		$ 100.00	$ 250.00
PERSONAL EXPENSE	270.00	VET. BENEFITS		$ 300.00	
	$1,800.00				
		W.M.U. SCHOLARSHIP			
		N.D. STUDENT LOAN	$ 900.00	$ 600.00	$1,000.00
		EDU. OPPOR. GRANT	$ 900.00	$ 600.00	
		WORK STUDY			$ 300.00
		TOTAL	$1,800.00	$1,800.00	$1,800.00

Summer Session

COSTS					
TUITION/FEES	100.00	WORK-STUDY			
BOOKS/SUPPLIES	30.00	PERSONAL-SUMMER			$ 100.00
ROOM/BOARD	250.00	SAVINGS-SUMMER			
PERSONAL EXPENSE	70.00	PARENTS		$ 200.00	$ 100.00
		VET. BENEFITS			$ 100.00
		W.M.U. SCHOLARSHIP			
		N.D. STUDENT LOAN	$ 220.00	$ 250.00	$ 150.00
		EDU. OPPOR. GRANT	$ 230.00		
		WORK STUDY			
		TOTAL	$ 450.00	$ 450.00	$ 450.00