AN EVALUATION OF VARIOUS ADMISSIONS PROCEDURES AND THE 1970 FORD FOUNDATION PROGRAM IN RELATION TO THE MEXICAN AMERICAN AND THE AMERICAN INDIAN STUDENT AT THE UNIVERSITY OF UTAH

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ABSTRACT

A crisis for colleges and universities in America today is that of meeting the educational needs of various ethnic minorities. The University of Utah has recognized the need to implement educational programs and to reassess admissions procedures in regard to minority students. In the summer of 1970, the University of Utah, through the support of the Ford Foundation, sponsored a special eight week summer program designed to prepare 40 Mexican American and 20 American Indian students for successful endeavors at the University. This study attempted to (1) evaluate the effects of the 1970 Ford Foundation Program; and, (2) Test the predictive validity of various admissions procedures in relation to the Mexican American and the American Indian student at the University of Utah.

Ss involved in this study were broken down into an experimental and a control group. The experimental group consisted of those Mexican American and American Indian students who participated in the 1970 summer quarter Ford Foundation program as first quarter freshmen and who returned to the University of Utah during the academic school year following the experimental program. Control Ss consisted of those Mexican American and American Indian students who entered the University of Utah during the fall quarter which preceded the summer program without any special treatment as first quarter freshmen.

An analysis of covariance design implementing AGPA as the dependent variable and repeated measures t-tests using intellective and non-intellective measures related to academic success were implemented in

an attempt to evaluate the experimental program. Results suggested that the control groups performed significantly better than the experimental groups while the Mexican American groups performed significantly better than the American Indian groups. No significant interaction effects were obtained. Results of the repeated measures t-tests suggested that those experimental Ss who participated in the treatment program and pre-post testing had shown positive differences on intellective measures while displaying negative differences on non-intellective measures.

Intercorrelation and stepwise multiple regression equations were implemented to test the predictive validity of various admissions procedures in relation to the Mexican American and the American Indian student. These procedures were conducted separately for each ethnic group and separately for control and experimental groups. Results of these procedures question the predictive validity of the ACT, HSGPA and PGPA in relation to the Mexican American student. Further investigation in the use of non-intellective variables in attempting to predict academic success for this ethnic group was suggested. Results of these procedures for the American Indian experimental group suggest further investigation of the predictive validity of the ACT, PGPA and SCAT in that significant correlations were found between these predictors and the criterion. Results further suggest the need to evaluate and implement educational programs for the American Indian student at the pre-college and college level.

CHAPTER I

INTRODUCTION

In recent years it has been recognized that members of the Mexican American and American Indian ethnic minority groups have not experienced the same degree of success in the American academic system as have those members of our society who do not belong to these groups.

Gershensen (1964) of the California State Department of Industrial relations found that in 1960, 10.2 percent of the total male population and 6.5 percent of the total female population had completed four or more years of college. In looking at the whole non-white population, 5.5 percent of the males and 4.2 percent of the females had completed four or more years of college. A report for the Arizona State Superintendent of Public Instruction (1969), indicates that less than one percent of the Mexican American children entering the first grade go on th receive a college degree. Only 6 percent of the Mexican-American population had completed at least one year of college, compared with 22 percent of the Anglo-Saxon population, and 12 percent of the Black population. Of those Mexican-Americans who had graduated from college, most had majored in education with an emphasis in teaching Spanish at the secondary levels.

A report by the U. S. Office of Education (1967) indicates that 73 percent of young adults (25 to 29 years of age) were high school graduates, and approximately 15 percent had completed four or more years of college.

In looking at the education situation of the American Indian somewhat similar data are found. Studies by Coombs (1958) and Smith (1968)

both indicate that Indian students at an elementary level display a slight lag behind non-Indian students, and that this lag increases significantly and progressively through junior and senior high school. In a review of literature on the education of American Indians, Berry (1968) points out the findings of Bryde indicating that Sioux pupils were found to show satisfactory achievement, especially from grades 4 through 6. However, these students began to show a steady decline at grades 7 and 8 which continued to grade 12. This phenomena was also accompanied by a high dropout rate. Studies by Coombs (1958) and Townsend (1963) both found that, by the time Indian students go to high school, they were as much as five years behind white students in various educational skills. Smith (1968), reports that 32 percent of the Indians in colleges and universities in the south-western states during the period of 1958-1962 were on academic probation, compared to 2 percent of the non-Indian students.

In looking at the population figures for the State of Utah, it was found that there were approximately 7,500 American Indians, 10,000 Blacks, and 47,000 Mexican-American (Utah Department of Employment Security, 1969). During the 1968-69 academic school year, there were 5 American Indians, 13 Blacks, and 12 Mexican-Americans enrolled at the University of Utah. There were 6 American Indians, 19 in-state (and 37 out of state) Blacks, and 35 Mexican-Americans enrolled at the University during the 1969-70 academic school year. The total in-state student population for these two academic school years was approximately 15,000. If the same percentages that are in the Utah state population were present in the University of Utah population, there would have been 150

Indians rather than 5 ot 6, 150 in-state Blacks rather than 15 or 19, and 750 Mexican-Americans rather than 12 Or 35 (Monson, 1969).

These data confirms that a major crisis for colleges and universities in America today is that of meeting the educational needs of the culturally disadvantaged.

Educational Programs for the Disadvantaged

The University of Alaska found that 50 percent of Alaskan natives entering the University drop out at the end of the first year, and that only two percent of those that remained were likely to receive degrees at the end of four years. In an attempt to deal with this problem, an educational experiment was initiated by the University. It is a special six week summer program focusing on language development and cultural awareness. This program is offered on a voluntary basis to all native Alaskan high school seniors that meet the University's entrance requirements (High School Grade Point Average (HSGPA) of 2.0 or better). The program offers selected courses on western cultures, informal seminars and discussions, field trips and living accommodations in western homes. The program also provides counseling to help these students resolve traditional problems and develop confidence and competence. The academic survival rate for those students who participated in the program from 1965 to 1967 was 51 percent compared to 38 percent for native students who did not participate in the program. Since the initiation of the program, there has also been an increase in the academic survival rate for those native students who do not participate in the program (Salisbury, 1968). This suggests that a change in the attitudinal milieu, rather than the treatment effects, may have been responsible for improved performance.

In the fall of 1963, the University of Michigan admitted 22 disadvantaged high school graduate with the potential for academic success. These students were provided with financial aid, remedial courses, tutoring and individual counseling. Nine of the twenty two students (41 percent) graduated at the end of four years. This percentage is equivalent to the national average (40.3 percent graduate in four years). In the fall of 1967, 70 high risk disadvantaged students were admitted to the University of Michigan from inner city high schools. Sixty six of these 70 students were black. Of these 66 students, twenty seven returned in the fall of 1968 with the acceptable retention pattern. These students were given extra counseling, advising, tutoring, low credit loads and improvement courses (Abromson & Schwartz, 1968).

A report of a special preporatory studies program at Spartanburg Junior College suggests that 64 culturally disadvantaged students who participated in the program attained an overall achievement of 1.4 grade levels in their coursework (English grammar and composition, mathematics, reading, and comprehension laboratory and a group dynamics seminar) (Special Preporatory Studies Program, 1968). This report fails to mention the criterion used in determining the overall achievement of the students. It also fails to describe the 64 "culturally deprived" students. Fifty six of the sixty four "culturally deprived" students who participated in the program were admitted to the college at the end of the program. The average first quarter performance was 2.04 (based on a 4.0 scale). However, the report also fails to describe expected performance levels prior to the program for these students.

An evaluation study of the same program (Couch, 1968), found that the 51 students who returned to the college in the fall surpassed the academic performance of a group of fifty regularly admitted students whose work load was limited to four classes, though not to a significant degree. This evaluation did not discuss expected performance levels as assessed by scholastic prediction tests or any other means for either group.

Tenth grade minority youth from small rural areas of the Southeastern and Southwestern United States, who were considered high risk students, but were ranked high according to the norms of their communities, were given a structured curriculum under the Summer Study Skills Program. The basic curriculum of this program included mathematics, communications and readings courses designed to prepare these students for success in high school and college. Of the 400 students who have participated in this program, 85 percent are accounted for and are performing well in college (Echols, 1967).

The data above indicates that program for the culturally disadvantaged can be successfully implemented. However, it also stresses the need for more precise documentation and effective evaluation of these special programs in order to meet the needs of the culturally disadvantaged. Recognizing the consequences of the "halo" effect, precise evaluation is critical (Watson, 1939).

Academic Predictors

Nelson (1960), states that along with the help of special programs, colleges need to reasses admissions procedures in regard to the minority student. Froe (1964) states that one of the processes involved in

planning to meet the needs of the disadvantaged college youth is the study of the characteristics of the learner which are related to academic success. Some of the more common admissions instruments used by various colleges for minority and non-minority students (McKean, 1970) are discussed below.

Non Minorities

High School Grade Point Average (HSGPA). Travers (1949) showed that high school grades are in general, the best predictors of college performance and that subject matter tests are the second best predictor of college grades. Lavin (1965) indicates that HSGPA is the best predictor of college performance and that multiple correlations with intellective variables (test batteries) yielded the best prediction of overall grade point average in his review of research. Nichols (1966) found that HSGPA is the best predictor of college grades with non-intellective factors such as personality, attitude, interest and behavior ranking third. In a study of nineteen marginal applicants (ethnic background was not mentioned) participating in a specially designed trial program at Hope College, Beach (1968) found that HSGPA was useful in predicting how well students performed in the program. Grades earned in the summer program were highly predictive of the first year grade point average (GPA), although HSGPA did not predict first year grades.

In a study of predictors of student accomplishment in college, Richards, Holland and Lutz (1967) found the most consistently high predictors to be high school grades and/or some combination of high school grades and college aptitude scores.

American College Testing Program Examination (ACT)[1] Normal admissions procedures at the University of Utah involve the use of ACT scores and high school grade point average in computing a predicted first quarter grade point average of applicants. Jex (1966) found that the correlation between HSGPA and first year GPA to be .47. A multiple regression using HSGPA and ACT test scores showed a correlation of .635 with first year GPA. A study of 59,164 students at 122 colleges participating in ACT research indicates a median correlation of .497 between ACT composite scores and freshman year overall GPA. In a study of 286,121 students at 590 colleges, a median correlation of .644 was found in using a multiple regression equation of ACT composite and HSGPA in predicting first year success in college (ACT, 1965).

School and College Ability Test (SCAT)[2] In a study of 367 students at Los Angeles State College, Kennedy (1958) found SCAT scores to be significant at the .01 level in predicting first quarter GPA. In an attempt to determine the validity of the SCAT in predicting first semester grades at Alma College, Klugh and Bierley (1959) found correlations ranging from .51 to .67 over a four-year period. In a discussion of the predictive validity of the SCAT, Linden and Linden (1968) state that prediction of freshman GPA ranges from about .40 to .60.

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[1] This test was developed to predict academic success at the college level (Act, 1965). It is generally used as a part of regular admissions procedures at the University of Utah.

[2] This test was designed to predict academic success at the college level (Linden & Linden, 1958). It has recently been incorporated as a part of admissions procedures for minority students at the University of Utah.

California Psychological Inventory (CPI)[1] Gough (1957), claims that the Achievement via Conformance (Ac), Responsibility (Re), and the Intellectual Efficiency (Ie) scales of the CPI correlate significantly with grades at the high school level, while the Ai is significant (.45) at the college level. A study by Holland (1959) found that the So (Socialization), Re, Ac (Achievement via Conformance) and Fe (Femininity) scales of the CPI have useful predictive validity in predicting college students. Fink (1962) found that the Wb (Well Being), Re, So and Ac scales discriminated between high and low achieving boys at the .01 level. The Re and So scales did so for girls. For combined groups the Wb, Re, So, Cm (Communality), Ac and Ie scales did so. In a study of 170 freshmen at a women's liberal arts college, Griffin and Flaherty (1964) found that the Do (Dominance), Ca (Capacity for Status), Sy (Sociability), Sa (Self Acceptance) Re, Ac, Ai, Ie and Fe scales were found to correlate significantly with first year performance in college.

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[1] This inventory attempts to provide a comprehensive, multidimensional personality description of normal persons in a variety of non-clinical settings (Gough, 1957). The Following scales are of relevance to this study:

(a) Re-Responsibility: Attempts to identify persons of conscientious, responsible and dependable dispositions and temperment.

(b) So-Socialization: Attempts to indicate the degree of social maturity that a person has attained.

(c) Wb-Sense of well being: Attempts to identify people who are relatively free from self-doubt and disillusionment.

(d) Ac-Achievement via Conformance: Attempts to identify those factors of interest and motivation which facilitate achievement in any setting where conformance is a positive behavior.

(e) Ai-Achievement via Independence: Attempts to identify those factors of interest and motivation which facilitate achievement in any setting where autonomy and independence are positive behaviors.

Academic Achievement Scale (AACH Scale)[1] Of recent interest in the area of non-intellective variables and their relationship to academic achievement is a study by Leigh and Pappas (unpublished). In a study of 1.994 freshmen at the University of Utah, they found that the AACH scale of the Strong Vocational Interest Blank form T 399 showed a correlation of .32 with first quarter GPA. Further findings in this study support earlier findings by Campbell and Johanssen (1966), in that academic performance varies directly with interests in scientific-intellectual occupational scales of the SVIB (psychiatrist, psychologist, biologist, mathemetician, physicist and librarian), and indirectly with interests in the skilled trades business and sales (real estate salesman, mortician, carpenter). In a validation study at the University of Minnesota, scores on the AACH scale were correlated with high school rank, grade point average and the Minnesota Scholastic Aptitude test scores for 462 freshmen. The AACH scale was found to be the best single predictor of GPA (.52) within the validation sample. However, a cross-validation on a sample of 250 students held out from the same class only resulted in a correlation of .36 and the high school rand became the best predictor (.55). A comparison of mean AACH scores for a 25 year follow-up sample found the following results (Campbell, 1966):

> Sixteen persons who had received Ph.D.'s obtained a mean AACH score of 58. Twenty seven persons who had obtained Masters degrees obtained a mean AACH score of 52. One hundred and one persons who had obtained bachelors degrees obtained a mean AACH score of 47. Eighty five persons who had not received college degrees obtained a mean AACH score of 42 (pp. 20).

(f) Ie-Intellectual Efficiency: Attempts to indicate the degree of personal and intellectual efficiency which the individual has attained.

[1]The Academic Achievement scale of the Strong Vocational Interest Blank is an attempt to identify patterns of interest associated with good scholarship (Campbell, 1966).

Another sample consisting of a ten-year follow-up group of students who graduated from Minnesota high schools in 1953 or 1954 resulted in the following results (Campbell, 1966):

> Seven persons who had received Ph.D.'s obtained a mean AACH score of 62. Eighteen persons who had received Masters degrees obtained a mean AACH score of 45. Sixty nine persons who had received bachelors degrees obtained a mean AACH score of 39. Seventy five persons who had received no degrees obtained a mean AACH score of 29 (pp. 20).

I-E Scale[1] The I-E scale is an attempt to measure the extent to which a person feels that he has control over those environmental factors which control the person (I - internal), and/or the extent to which the person feels that the environment may control him (E - external). A study by Cellura (1966) found that the parents of children who tend to have external scores have significantly lower educational levels. However, Ladwig (1964) found that the I-E scale is very lowly related to intelligence.

A study by Jeffrey (1968) at Wayne State College found that internal students study more than external students. Rotter and Mulry (1965) found that internals are more involved under skill conditions than chance ones.

Survey of Study Habits and Attitudes (SSHA)[2] The Survey of Study Habits and Attitudes is a psychological measurement designed to measure

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[1]The I-E scale attempts to measure the extent to which a person feels that he has control over those environmental factors which control the person (I-Internal), and/or the extent to which a person feels that the environment may control him (E-External) (Rotter & Mulry, 1965).

[2]The Brown Holtzman Survey of Study Habits and Study Skills attempts to measure study methods, motivation for studying, and certain attitudes toward scholastic activities that are important in the classroom (Brown & Holtzman, 1967).

study methods, motivation for studying and certain attitudes toward scholastic activities that are important in the classroom (Brown & Holtzman, 1967). This scale has been found to be useful as a predictor of academic success. Although the SSHA is not intended to be used primarily as a selection tool, its low correlation with different scholastic aptitude measures is low enough to indicate that its predictive power rests on its measurement of traits largely untouched by these instruments (Brown & Holtzman, 1967). Holtzman and Brown (1953) found correlation of .63 and .73 for groups of 149 women and 140 men respectively. He concluded that the SSHA can contribute appreciably to the prediction of academic success and the guidance of college students. Brown and Holtzman (1954), found correlations between the SSHA and first semester GPA to be .50 for men and .44 for women in a study of 62 women and 81 men at the University of Texas. Brown (1959) found that factors significantly influencing initial scholastic achievement were previous scholastic accomplishment and current scholastic motivation. Brown and Dubois (1964) found that all SSHA scales were significant at the .01 level in predicting performance for a sample of 190 students enrolled in the college of engineering at Iowa State University with GPA's above 2.75.

The following scales of the SSHA are relevant to this study:

(DA) Delay Avoidance: attempts to measure promptness in completing academic assignments and freedom from wasteful delay and distraction.

(WM) Work Methods: attempts to measure use of effective study procedures or how to study skills.

(TA) Teacher Approval: attempts to measure one's opinions of teachers and their classroom behavior and methods.

(EA) Educational Acceptance: attempts to measure the approval of educational objectives, practices and requirements.

Minorities

HSGPA A perusal of the literature found no validation reports using HSGPA as a predictor of college performance for minority students.

ACT Munday (1965) found that the ACT was able to predict college grades in five predominately Negro colleges participating in ACT research service as well as it predicts grades for typical colleges that participate in the ACT Research Service. The mean ACT composite score for this group was 10.5, while the mean ACT composite score for the total national groups was 19.3.

SCAT Because of the assumed cultural bias present in the ACT tests, the University of Utah as allowed minority applicants to take the SCAT rather than the ACT for admission procedures. However, the University has not attempted any research related to the predictive validity of this test in relation to minority students. A study of disadvantaged junior college students found that freshman grades were best predicted by the SCAT linguistic scores (Clarke, 1968).

CPI In attempting to predict academic achievement among Mexican-Americans, Spuck and Stout (1969) found that:

> "the student having a flexible and experimental approach to problems is the student who receives higher grades than his counterpart, who views himself as dependent and uncomfortable in new situations...Non-intellective variables such as personality variables may be useful as predictors for minority populations and further emphasis in this area of research is needed." (pp.7-9).

SVIB No validation studies implementing the AACH scale have been reported for minority students.

I-E Scale In relation to ethnic groups, one might expect that if a group perceives impediments in the way of goal getting behavior, then

that group would be expected to score more external than groups that do not experience or perceive such experiences. A study by Battle and Rotter (1963) found that lower-class Negroes were significantly more external than lower class whites or middle class Negroes and whites. In a study of Negro students in a southern college, Gore and Rotter (1963) found that those Negro college students who engage in civil rights activities were significantly more internal than those Negro college students who did not engage in civil rights activities. Lefcourt and Ladwig (1965, 1966), found that Negroes have higher external control expectancies than do whites. This supported their argument--"that racial segregation and discrimination means that their own efforts will lead to no reinforcements for Negroes." Lefcourt (1966) made the following conclusion in his review of the I-E scale:

> In all of the reported groups whose social position is one of minimal power either by class or race tend to score higher in the external-control direction. Within the racial groupings, class interacts so that the double handicap of lower-class and "lower caste" seems to produce persons with the highest expectancy of external control. Perhaps the apathy and lack of motivation to achieve may be explained as a result of the disbelief that effort pays off. (pp. 212).

SSHA No validation studies of the SSHA and minority performance in school have been reported.

Statement of the Problem

The present study will be undertaken for two major reasons.

1. It will attempt to evaluate the effects of the 1970 Summer Ford Foundation Program designed to prepare Mexican-American[1] and American

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[1] Mexican-American students: Those students with Spanish surnames who were selected by the University of Utah as being of Mexican American heritage.

Indian[2] students for academic success in the University system. This evaluation will be attempted by the following methods: (a) A test- re-test method implementing certain psychological tests which have been found to measure traits which are related to academic success. (b) By comparing the accumulated grade point averages (AGPA)[2] after two quarters of regular university coursework for those Mexican-American and American Indian students who participated in the summer program, to the accumulated grade point averages for the first two quarters of regular university coursework of Mexican-American and American Indian students who do not participate in the program.

2. It will attempt to test certain hypotheses about various admissions procedures and their ability to predict academic success for Mexican Americans and American Indian students at the University of Utah.

Hypothesis

After reviewing the available literature related to educational program for the disadvantaged, and the predictive validity of admissions procedures in relation to minorities and non-minorities for the following null hypotheses were tested:

(1) There is no significant difference between the accumulated grade point average at the end of two quarters of regular university coursework for the experimental and the control groups. This hypothesis was tested by means of an Analysis of Covariance design (Meyers, 1966).

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[1] American Indian students: Those students who have been identified by the University of Utah as belonging to this cultural group. The American Indian groups were made up of Ute, Piute, Navajo, Hopi, and Shoshone Indians.

[2] AGPA: Accumulated grade point average at the end of two quarters. This is computed by dividing the number of grade points earned by the number of credit hours completed. It is based on an A=4.0 scale.

(2) There is no significant difference between the pre and post test scores for the experimental groups. Repeated Measures t-tests were employed to test this hypothesis (Hayes, 1963).

(3) There will be no significant relationship between the accumulated grade point average at the end of two quarters of regular university coursework and the following items for those students who participate in the summer program: HSGPA, ACT scores, SCAT scores, PGPA, AACH scale, CPI (Wb, Ai, So, Re, Ac and Ie) scales, I-E scale, SSHA (Da, Wm, Ta, Ea) scales, and Summer Program performance. These hypothesis were tested at the .01 and .05 levels of significance.

(4) There will be no significant relationship between the accumulated grade point average at the end of two quarters of regular university coursework for the control Ss and the following items: HSGPA and PGPA. These hypotheses were tested at the .01 and .05 levels of significance.

Definitions and Abreviations

PGPA: Predicted grade point average. A grade point average which a student has been predicted to have acquired during his freshman year. It is calculated from a combination of a student's high school grade point average and his scores obtained on his college entrance examinations (Jex, 1966).

Delimitations

This study was limited to those Mexican American and American Indian students who entered the University of Utah as freshmen during the summer and fall quarters of the 1970 academic school year, and they are not necessarily representative of all students of this ethnic back-

ground. This limitation also placed some restrictions in obtaining comparable control samples because of the limited number of American Indian and Mexican American students entering the University during the summer and fall quarters of 1970. The fact that the experimental Ss were recruited may also have limiting effects.

Lack of reliable data for these scales in relation to minority students may have limiting effects in interpretation of the data.

Justification

The justification of this investigation exists in the fact that very few or no validation studies for these scales have been attempted with Mexican American or American Indian Ss. This study will also aid in evaluating the successes and failures of the special program. It may also serve as a guideline for future studies on program evaluation and validation of psychological measures for both minority and non-minority students.

CHAPTER II

As two separate procedures were developed to test the hypotheses (see pp. 14-15), the methodology will be presented in two sections specifying the unique procedures.

Evaluation Methods

Subjects

Eighty seven Ss were used for this study. Ss were taken from groups of Mexican American and American Indian students entering the University of Utah during the summer and fall quarters of 1970 as first quarter freshmen. All Ss in this study had attained the educational levels required for admissions to the University of Utah (e.g., High school graduate or GED equivalency). Ss were separated into two groups; a control and an experimental group.

The experimental group consisted of 36 Mexican American and 12 American Indian Ss who were recruited to participate in a special eight week summer program designed to prepare students from these two ethnic groups for successful university endeavors.[1]

This recruitment occurred during the spring quarter of the 1969-70 academic school year. The University of Utah sent letters to all high school seniors in the state of Utah whom they had previously identified as being of Mexican American heritage.[2] Names of potential American

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[1] 40 Mexican American and 19 American Indian Ss actually began the experimental program. Ss who did not complete the summer program or did not return to the University of Utah after completion of the summer program were deleted from this procedure.

[2] The University of Utah Minorities Center had previously obtained names and addresses of all Mexican American high school seniors within the state of Utah.

Indian students were obtained either through the Tribal Councils or regular University of Utah recruitment programs and they were also notified by letter. The essence of the letter was:

> The University of Utah will offer a special summer program for forty Mexican American and twenty American Indian students. The program will attempt to prepare these students for a successful University endeavor. The University of Utah will provide free on-campus room and board, books and tuition during the program. Financial support up to $2,000.00 would be provided as needed during the academic school year following the summer program for those students wishing to continue at the University of Utah.

The letters also included return postcards for those students wishing to apply for the program.

Of the 73 Mexican Americans who had applied for the program, a cross section of 40 were arbitrarily chosen. No specific criterion was used in the selection process. Of the 19 Indian Ss who applied, all 19 were accepted.

The control group consisted of 35 Mexican American and five American Indian Ss[1] who enrolled as first quarter freshmen during the fall quarter of 1970. The Mexican American control group was comparable to the Mexican American experimental group in predicted grade point average and attained academic level (See Table 1). The American Indian control group was comparable to the American Indian experimental group on the basis of attained academic level. Financial support was provided for control Ss as needed. It was not promised as was the case for experimental Ss

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[1]Because of the limited number of Mexican American and American Indians that entered the University of Utah through regular enrollment during the 1970-71 school year, it was not possible to obtain groups of comparable Ss.

Materials

Materials consisted of the following items: The School and College Ability Test (SCAT Form 1A) (Cooperative Test Division, 1963) and the ACT test (ACT, 1965). The Academic Achievement Scale of the Strong Vocational Interest Blank (SVIB Form T 399) (Campbell, 1966) was used as well as the California Psychological Inventory, (CPI) (Gough, 1957); Brown Holtzman Survey of Study Habits and Attitudes (SSHA) (Brown & Holtzman, 1967) and the I-E Scale (Rotter & Mulry, 1967). High school grade point averages as well as predicted grade point averages were also obtained. The above materials are previously described on pp. 7-11 in the footnotes of Chapter I in this study.

Procedures

The experimental Ss responded to the test battery in group settings during a two day period prior to the commencement of the summer program and again at the completion of the summer program. The control group did not participate in the testing. However, high school grade point average and predicted grade point average were obtained as a function of normal University of Utah admissions procedures.

Treatment

The experimental group participated in a special eight week summer program. All experimental Ss were housed in the University of Utah dormitories during the program. Courses offered during the program consisted of a study skills class, cultural history, English as a second language and a Physical Education class consisting of swimming and judo. All classes were graded on a pass/fail basis and University course credit

was given for the satisfactory completion of the class requirements.[1] The Study Skills, Cultural History, and English classes were each treated as three hour classes and the Physical Education class was treated as a one hour class.

The Study Skills class was designed to develop skills related to studying by two approaches. One approach consisted of attempting to teach Ss how to manage study time through behavioral contracting (Murdock, 1970). This consisted of a programmed approach in which Ss were taught to obtain all class assignments for the quarter and to develop study schedules that would allow Ss to meet assignment deadlines. The Ss would then contract themselves to meet the assignment deadlines. A ten dollar weekly allowance was made contingent upon the Ss' completion of his contracted weekly tasks. Ss would obtain coupons from their instructors upon their presentation of the required tasks. Ss then gave these coupons to an assigned contract manager at the end of each week in exchange for the alloted amount of money. The class requirements for the program were designed in a manner which allowed Ss to earn ten coupons per week. A one dollar value was assigned to each coupon. The programmed nature of the contracting allowed Ss to make up coupons if they had not earned all ten by the end of the week.

The second approach used in the study habits class consisted of readings and lectures focusing on such topics as "How to prepare for tests," "How to take tests," "How to get the most out of reading," "How

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[1]Because a pass/fail grading system was used, rank order performance was obtained from all classes. For research purposes a rank order mean was assigned to each S. This rank order mean was obtained by dividing the sum of each Ss' rank scores by the number of classes taken. Performance in the physical education class was not included in computing this mean.

to register for classes," (Robinson, 1961). A thorough explanation of the general education and graduation requirements for the University of Utah was also included.

The cultural history class was divided into two sections. Mexican American Ss were placed into a section dealing with the cultural history of the Mexican American. American Indian Ss were placed into a section dealing with American Indian history. Readings and lectures for these classes were designed to approach the subject matter from the point of view of the particular ethnic groups, rather than the traditional American history approach.

English as a second language was divided into three sections. The American Indian Ss were placed into one section and the Mexican American Ss were broken down into two groups. Assignments consisted of outlines and composition papers taken from readings assigned in the cultural history class.

Analysis of the Data

In an attempt to test the hypothesis of treatment effects, an analysis of covariance (Meyers, 1966) was implemented using AGPA as the dependent variable. In order to equate for initial differences between groups PGPA and number of credit hours completed at the end of two quarters of regular university course work (total hours) were used as covariates to AGPA. Mexican American and American Indian experimental and control groups were used as the independent variable in this design. This design tested for differences between race, treatment differences and interaction between treatment and race. A Univac 1108 computer was implemented in carrying out this analysis of the data. Experimental Ss

who did not complete the summer program or did not return to the university following the summer program were deleted from this analysis of the data. Repeated measures t-tests (Hayes, 1966) were used to test differences between pre and post test scores. Analysis of pre-post data was only carried out in cases where post test Ns were above fifteen. As a result no analysis of pre-post test data was carried out for the Indian experimental group.[1]

Validation Methods

Subjects

All Ss used in the evaluation methods of this study were also implemented in the validation methodology for the various admissions procedures.

Materials

Materials consisted of the following items: The School and College Ability Test (SCAT Form 1A) (Cooperative Test Division, 1963) and the ACT test (Act, 1965). The Academic Achievement Scale of the Strong Vocational Interest Blank (SVIB Form T 399) (Campbell, 1966) was used as well as the California Psychological Inventory, (CPI) (Gough, 1957); Brown Holtzman Survey of Study Habits and Attitudes (SSHA) (Brown & Holtzman, 1967) and the I-E Scale (Rotter & Mulry, 1967). High school grade point averages as well as predicted grade point averages were also obtained. The above materials are previously described on pp. 7-11 of Chapter I in this study.

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[1]Due to conditions beyond E's control, all experimental Ss did not participate in post-testing. This resulted in a self-selection factor which could affect results of this analysis. See Table 3 for pre-post N's.

Procedures

The experimental Ss responded to the test battery in a group setting during a two day period prior to the commencement of the summer program. The control group did not participate in the testing. However, high school grade point average and predicted grade point average were obtained as a function of normal University of Utah admissions procedures.

Analysis of the Data

To answer the questions concerning the predictive validity of the various admissions instruments used in this study intercorrelations implementing all predictor and criterion variables were implemented (Dixon & Massey, 1969). This procedure was carried out for the experimental Ss with the use of the data collected at the beginning of the summer program. A stepwise multiple regression analysis including the results of the summer program performance and total hours as covariates in the results of winter quarter was then implemented (Dixon & Massey, 1969). Pearson product moment correlations implementing PGPA, HSGPA and Total Hours as the independent variable were carried out with AGPA as the dependent variable were carried out for the control group (Garrett, 1968). All data for the above procedures were key punched onto computer cards and a Univac 1108 computer was used to carry out these analyses of the data. Ss who dropped out of the summer program and/or did not enroll in the University of Utah after the program were deleted from all analysis of the data.

CHAPTER III

RESULTS

Program Evaluation

The means and standard deviations for the PGPA, total number of hours completed at the end of two quarters of regular university coursework, and AGPA are reported for both the control and the experimental groups in Table 1. The mean PGPA for the Mexican American control group is slightly above that for the Mexican American experimental group, whereas the standard deviations are similar for both groups. In comparing PGPA for the American Indian control and experimental groups it is found that the control group is predicted slightly above the experimental group and that the variability for both groups is about the same.

Table 1

Means and Standard Deviations on Predictor and Criterion Variables

	N		PGPA	Tot. Hrs.	AGPA	AGPA-PGPA
Mexican Amer. Exp.	36	M	1.78	21.41	1.88	.10
		SD	.47	8.21	.92	
Mexican Amer. Con.	34	M	1.86	24.88	2.37	.51
		SD	.63	6.50	.70	
Amer. Indian Exp.	12	M	1.46	19.83	.99	-.48
		SD	.62	7.27	.81	
Amer. Indian Con.	5	M	1.79	21.00	1.99	.20
		SD	81.62	8.34	1.07	

Both the Mexican American and the American Indian control groups accumulated more credit hours than did the experimental groups during the two quarters of regular university coursework. The Ss in the Mexican American control group reflected a mean of 24.88 quarter hours with a standard deviation of 6.5 whereas the Ss in the Mexican American experimental group reflected a mean of 21.42 hours with a standard deviation of 8.2. The American Indian control group had accumulated a mean of 21.00 hours with a standard deviation of 8.34 in comparison to 19.8 hours with a standard deviation of 7.27 for the experimental group. Both control groups had also attained higher AGPAs than the experimental groups. The Mexican American control group had acquired a mean AGPA of 2.37 in comparison to a mean AGPA of 1.88 which was acquired by the Mexican American experimental group. The American Indian control group had attained a mean AGPA of 1.99 in comparison to the American Indian experimental group who had acquired a mean AGPA of .98. Variability of AGPA shows only slight differences for the two groups.

In comparing the difference between PGPA and AGPA for each of the groups, the Mexican American experimental group showed a positive difference of .10 in AGPA while the Mexican American control group showed a positive difference of .51. The AGPA for the American Indian experimental group showed a negative difference of -.48 while the American Indian control group showed a positive difference of .20.

An analysis of covariance was implemented to equate for initial differences in PGPA and differences in the number of hours carried during the fall and winter quarters. AGPA was implemented as the dependent variable with PGPA and number of credit hours completed at the

end of two quarters of regular university coursework as covariants of AGPA. Mexican American and American Indian experimental and control groups were the independent variable in this design. The design tested for treatment differences, differences between races and interaction effects. An F ration of 8.346 for treatment effects was significant at the .005 level. The F ratio for differences between races was 7.627 which was significant beyond the .007 level. The F ratio for interaction effects was 1.629 which was not significant at the .05 level of significance. These results are reported in Table 2.

Table 2

Source Table for Analysis of Covariance

Source	DF	MS	F
Groups (Exp. x Con.)	1	48377.398	8.346**
Race	1	44211.086	7.627*
Interaction	1	9442.297	1.629
Error	81	5796.806	

*p<.007
**p<.005

After correcting for initial differences by means of covariance, control groups showed performance which was significantly better than the experimental groups while the Mexican American groups performed significantly better than the American Indian groups. The implications

procedural check will be considered in more detail during the discussion of the results.

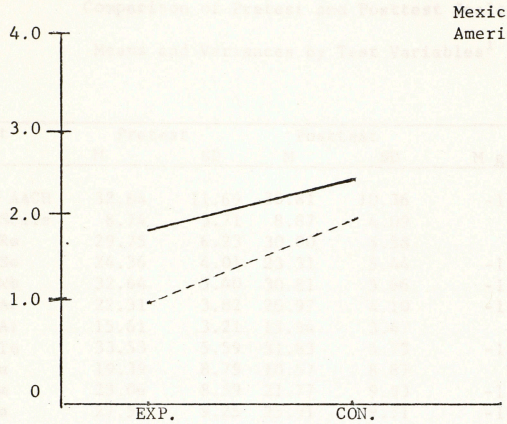

Figure 1. Graph of Analysis of Covariance

Pre-Post Test Results

Table 3 shows pre-post test differences for Ss who completed both pretests and posttests for the various psychological measures which were administered. As indicated in Table 3, the AACH, CPI Wb, and CPI Ac showed negative differences which were significant at the .05 level. The CPI So, CPI Ie, BH Wm, BH Ta, and BH Ea also showed negative differences with t-ratios above 1.19, though not significant. The I-E scale, CPI Re, CPI Ai, and BH Da showed positive differences, though none of the t-ratios were above .60. All intellective measures showed positive differences. The ACT E, ACT NS and ACT C showed positive differences which were significant at the .01 level with t ratios of 4.34, 2.75 and 3.23 respectively. The

Table 3

Comparison of Pretest and Posttest Scale Means and Variances by Test Variables[1]

Test	Pretest		Posttest				
	M	SD	M	SD	M gain	N	t
SVIB AACH	32.64	11.69	30.81	10.36	-1.83	36	-2.08*
I-E Scale	8.74	3.71	8.87	4.09	.13	23	.23
CPI Re	29.75	6.23	30.00	5.58	.25	36	.38
CPI So	24.36	4.01	23.31	5.44	-1.05	36	-1.72*
CPI Wb	32.64	5.40	30.81	5.66	-1.83	36	-2.07*
CPI Ac	22.31	3.82	20.97	4.10	-1.33	36	-2.19
CPI Ai	15.61	3.21	15.94	3.47	.33	36	.57
CPI Ie	33.53	5.59	31.83	5.73	-1.69	36	-1.76
BH Da	19.39	8.79	10.57	8.87	.18	33	.16
BH Wm	23.06	8.59	21.77	9.93	-1.28	33	-1.19
BH Ta	27.51	9.25	25.91	9.31	-1.60	33	-2.02
BH Ea	24.90	7.75	23.90	7.22	-1.00	33	-1.24
SCAT V	51.35	27.96	58.32	24.53	6.96	31	2.70
SCAT Q	45.13	22.76	52.32	20.41	7.19	31	2.55
SCAT T	41.29	25.12	45.13	21.85	3.83	31	1.48
ACT E	12.89	5.84	16.16	4.86	3.26	19	4.34**
ACT M	14.20	7.37	14.58	4.81	.42	19	.33
ACT SS	13.79	7.60	16.42	6.74	2.63	19	1.96
ACT NS	15.95	5.08	18.42	4.27	2.52	19	2.75**
ACT C	14.31	5.60	16.63	4.13	2.31	19	3.23**

*$p < .05$, two tailed test
**$p < .01$ (2.42) two tailed test

[1] Due to conditions beyond E's control, all experimental Ss did not participate in post testing. Analysis of pre-post data was only carried out in cases where post Ns were above fifteen. As a result no analyses of pre-post test data were carried out for the American Indian experimental group.

positive differences for the SCAT V and SCAT Q were significant at the .05 level with t ratios of 2.70 and 2.55 respectively.

Results of Validation Procedures for Mexican American Experimental and Control Ss

Experimental Ss The means and standard deviation for each of the predictor and criterion variables are reported in Table 4 for the Mexican American Experimental Ss.

The intercorrelations among all predictor and criterion variables for the Mexican American experimental Ss are presented in Table 5. The highest correlations between the predictor variables and summer performance for the Mexican American experimental group are represented by the Wm scale of the Brown Holtzman, PGPA, and the Ie scale of the CPI which showed correlations of .483, .474, and .472 respectively. These correlations were significant at the .01 level. Total number of hours accumulated during the fall and winter quarters following the summer program reflected a correlation of .553 with summer performance. This correlation is significant at the .01 level. However, this variable was not treated as a predictor in this experiment. Those variables which correlated most highly with AGPA for the Mexican American experimental group were total number of hours accumulated during fall and winter quarter (.734), and summer program performance (.368). A correlation . A correlation of .734 was significant beyond the .01 level while a correlation of .368 was significant at the .05 level.

The Contribution of Predictor Variables to Prediction of Fall and Winter AGPA for Mexican American Experimental Ss

Table 4

Means and Standard Deviations on Predictor and Criterion Variables for Mexican American Experimental Ss

Variables	Number	Mean	Standard Deviation	N
HSGPA	1	2.46	.54	36
PGPA	2	1.78	.48	36
Tot. Hrs.	3	21.42	8.21	36
AGPA	4	1.89	.92	36
Summer Performance	5			
SCAT V	6	52.69	29.02	36
SCAT Q	7	41.36	24.64	36
SCAT T	8	47.67	25.47	36
ACT E	9	12.14	5.46	36
ACT M	10	13.33	6.40	36
ACT SS	11	13.83	6.60	36
ACT NS	12	16.33	4.19	36
ACT COM	13	14.00	4.61	36
BH Da	14	18.92	8.72	36
BH Wm	15	23.39	8.63	36
BH Ta	16	27.39	9.27	36
BH Ea	17	24.67	7.60	36
I-E Scale	18	8.97	3.77	36
CPI Wb	19	30.17	5.85	36
CPI Re	20	24.11	4.11	36
CPI Sc	21	32.69	5.78	36
CPI Ac	22	22.31	3.55	36
CPI Ai	23	15.39	3.48	36
CPI Ie	24	33.28	5.32	36
SVIB AACH	25	39.89	11.84	36

Table 5

Intercorrelations Among the Predictor and Criterion Variables for Mexican American Experimental Group

	HSGPA	PCPA	Tot. Hrs.	AGPA	Sum Perf	SCAT V	SCAT Q	SCAT T	ACT E	ACT M	ACT SS	ACT NS	ACT C	BH Da	BH Wm	BH Ta	BH Ea	I-E Scale	CPI Wb	CPI Re	CPI Sc	CPI Ae	CPI Ai	CPI Ie	AACH
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	1.000	.748	.89	-.014	.298	.465	.328	.493	.307	.303	.285	.339	.382	.296	.363	.432	.499	-.104	.091	.037	.323	.326	.257	.265	.378
2		1.000	.328	.120	.474	.697	.430	.698	.695	.343	.552	.562	.659	.157	.392	.538	.471	-.080	.274	.575	.328	.312	.403	.404	.258
3			1.000	.734	.553	.165	.364	.295	.318	.022	.152	-.169	.132	.122	.405	.506	.361	-.074	.249	.291	.264	.115	.336	.342	.219
4				1.000	.368	.009	.186	.122	.094	-.252	.013	-.298	-.115	.082	.267	.277	.183	-.083	.305	.019	.038	.039	.265	.127	.051
5					1.000	.284	.296	.336	.258	.286	.278	.141	.330	.314	.483	.413	.393	-.030	.270	.199	.278	.309	.396	.472	.407
6						1.000	.350	.856	.718	.408	.657	.659	.744	-.295	.085	.304	.031	.064	.172	.428	.032	.173	.351	.408	.071
7							1.000	.763	.404	.544	.358	.289	.507	.107	.133	.293	.226	.033	.119	.322	.222	-.086	.131	.167	-.127
8								1.000	.721	.513	.663	.619	.774	-.164	.121	.365	.113	.094	.180	.415	.073	.033	.313	.357	-.046
9									1.000	.282	.689	.602	.784	-.212	.174	.285	.049	.092	-.041	.338	-.095	-.067	.120	.184	.017
10										1.000	.441	.564	.718	.036	.051	.006	.102	.025	.074	.225	.232	.091	.116	.286	.028
11											1.000	.787	.889	-.252	.066	.007	-.142	.117	.095	.251	-.077	-.033	.127	.329	.033
12												1.000	.873	-.151	.090	.028	.032	.095	.082	.220	.010	.039	.057	.269	-.036
13													1.000	-.178	.128	.119	.018	.089	.064	.330	.042	.054	.137	.346	.028
14														1.000	.661	.273	.726	-.276	.217	.222	.377	.357	.017	.053	.287
15															1.000	.532	.744	-.112	.281	.384	.226	.368	.244	.379	.389
16																1.000	.720	-.159	.506	.599	.485	.159	.589	.591	.222
17																	1.000	.247	.438	.542	.598	.397	.260	.379	.344
18																		1.000	-.170	-.306	-.410	-.503	.140	-.184	-.181
19																			1.000	.440	.487	.158	.541	.668	-.049
20																				1.000	.642	.258	.326	.540	.345
21																					1.000	.301	.290	.362	.178
22																						1.000	.228	.377	.342
23																							1.000	.644	.130
24																								1.000	.204
25																									1.000

The multiple correlations between predictor variables as input measures and AGPA as the output measure, is shown in Table 6, derived by use of a stepwise multiple regression procedure (Dixon & Massey, 1969). The predictor variable showing the highest correlation with an output measure was entered first. Given the first predictor input measure, that measure adding most to the multiple correlation was selected for inclusion in the regression equation.

Table 6

Stepwise Multiple Regression Summary for Predictor Variables on AGPA for the Mexican American Experimental Ss

Step No.	Variable Entered	Multiple R	R^2	Increase in R^2
1	Tot. Hrs.	.734	.539	.5391
2	ACT M	.782	.611	.0719
3	CPI Re	.795	.632	.0213
4	CPI Wb	.825	.681	.0483

The Total Hours and ACT M, steps one and two, showed multiple correlations of .734 and .782. CPI Re, the third step, showed an increase in R^2 of .021 while CPI Wb showed an increase in R^2 of .048 suggesting that together they are more powerful than each one alone. Approximately 68% of the variance was explained by these four variables.

Control Ss Means and standard deviation for each of the predictor and criterion variables for the Mexican American control group are reported below in Table 7.

Table 7

Means and Standard Deviations on Predictor and Criterion Variables for Mexican American Control Ss

Variables	Number	Mean	Standard Deviation	N
HSGPA	1	2.51	.79	34
PGPA	2	1.86	.63	34
Tot. Hrs.	3	24.88	6.50	34
AGPA	4	2.37	.70	34

The intercorrelations among all variables for the Mexican American control Ss are presented in Table 8. The highest correlation between the predictor variable and AGPA was represented by HSGPA which showed a correlation of .342. However, this was not significant at the .05 level.

Table 8

Intercorrelations Among the Predictor and Criterion Variables for the Mexican American Control Group

Variable	Number	1	2	3	4
HSGPA	1	1.000	.843	.164	.342
PGPA	2		1.000	.044	.280
Total Hours	3			1.000	.107
AGPA	4				1.000

Results of Validation Procedures for American Indian Experimental Ss

The means and standard deviations for each of the predictor and criterion variables are reported in Table 9 for the American Indian control Ss.

Table 9

Mean and Standard Deviations on Predictor and Criterion Variables for American Indian Experimental Ss

Variables	Number	Mean	Standard Deviation	N
HSGPA	1	2.33	.72	12
PGPA	2	1.46	.62	12
Tot. Hrs.	3	19.83	7.27	12
AGPA	4	.99	.80	12
Summer Performance	5			12
SCAT V	6	34.67	25.61	12
SCAT Q	7	19.00	18.28	12
SCAT T	8	21.83	17.49	12
ACT E	9	9.33	4.98	12
ACT M	10	8.17	4.55	12
ACT SS	11	12.42	5.28	12
ACT NS	12	13.00	4.79	12
ACT COM	13	10.92	2.84	12
BH Da	14	19.50	9.06	12
BH Wm	15	19.92	9.76	12
BH Ta	16	25.75	9.84	12
BH Ea	17	23.58	7.34	12
I-E	18	8.25	2.14	12
CPI Wb	19	28.00	8.49	12
CPI Re	20	22.67	2.81	12
CPI Sc	21	30.83	6.31	12
CPI Ac	22	21.25	3.55	12
CPI Ai	23	11.58	3.58	12
CPI Ie	24	28.33	5.03	12
SVIB AACH	25	31.42	8.80	12

Table 10

Interrecorrelations Among the Predictor and Criterion Variables for American Indian Experimental Group

	HSGPA	FGPA	Tot. Hrs.	AGPA	Sum	SCAT V	SCAT Q	SCAT T	ACT E	ACT M	ACT SS	ACT NS	ACT C	BH Da	BH Wm	BH Ta	BH Ea	I-E	CPI Wb	CPI Re	CPI Sc	CPI Ac	CPI Ai	CPI Ie	AACH
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	1.000	.971	.209	.700	.547	.369	.681	.718	.761	.121	.543	-.028	.587	-.132	-.299	.223	.222	.214	-.127	-.229	-.070	.154	-.007	-.025	.029
2		1.000	.098	.717	.606	.494	.635	.760	.857	-.012	.497	.011	.566	-.139	-.365	.200	.163	.161	-.248	.348	-.187	.030	-.013	-.045	.068
3			1.000	.434	.299	-.148	.278	.174	-.104	.463	.108	-.418	.008	.120	.159	.238	.184	-.126	.050	.077	.059	.499	.420	.178	-.002
4				1.000	.402	.355	.197	.399	.528	.093	.412	-.210	.327	-.455	-.471	.047	-.112	.242	-.416	-.472	-.263	-.137	-.177	-.222	-.026
5					1.000	.489	.652	.762	.402	.115	.049	.018	.245	-.048	-.330	.265	.012	-.448	-.339	-.031	-.331	.049	.146	-.069	.267
6						1.000	.244	.706	.446	.048	.127	.212	.370	.248	.007	.497	.269	-.327	.079	-.512	-.351	-.379	.047	.425	-.095
7							1.000	.836	.518	.203	-.060	-.303	.128	.139	-.094	.462	.320	-.233	-.060	.158	-.134	.425	.513	.094	.158
8								1.000	.660	.197	.056	-.131	.316	.192	-.103	.577	.356	-.351	-.043	-.273	-.307	.125	.400	.260	.049
9									1.000	-.264	.374	-.042	.432	-.195	-.331	.069	.036	.239	-.306	-.414	-.221	-.058	.172	.117	-.043
10										1.000	.001	.071	.317	-.084	.015	.192	.065	-.145	.450	-.138	.331	.161	.021	.335	-.204
11											1.000	.485	.820	-.117	.098	.056	.178	.497	.284	-.174	.261	.042	-.303	.145	-.317
12												1.000	.688	-.034	.035	-.172	-.116	.258	.318	-.101	.307	-.418	-.425	.280	-.084
13													1.000	-.143	-.020	.035	.107	.378	.366	-.323	.303	-.133	-.236	.320	-.286
14														1.000	.773	.795	.879	-.556	.521	.054	-.011	.474	.355	.586	.176
15															1.000	.647	.783	.226	.779	.195	.300	.455	.481	.795	-.086
16																1.000	.875	-.598	.508	-.030	.095	.380	.503	.694	.260
17																	1.000	-.335	.585	-.043	.085	.616	.449	.676	.089
18																		1.000	-.050	-.045	.152	-.201	-.258	-.161	-.409
19																			1.000	.126	.583	.212	.162	.813	-.297
20																				1.000	.356	.210	.084	-.094	.257
21																					1.000	-.010	-.177	.199	.255
22																						1.000	.525	.158	.028
23																							1.000	.483	-.072
24																								1.000	-.274
25																									1.000

The intercorrelations among all predictor and criterion variables for the American Indian experimental Ss are presented in Table 10. The highest correlations between the predictor variables and summer performance for the American Indian experimental group were represented by PGPA, SCAT-Q, and SCAT-T. The correlations were .606 and .652 for PGPA and SCAT-Q were significant at the .05 level while the coefficient of .762 for the SCAT-T was significant at the .01 level. Only one variable correlated significantly with AGPA for the American Indian experimental Ss. The coefficient of .717 for PGPA was significant at the .01 level.

The Contribution of Predictor Variables to the Prediction of Fall and Winter AGPA for American Indian Experimental Ss

The multiple correlations between predictor variables as input measures and AGPA as the output measure is shown in Table 11, derived by use of a stepwise multiple regression procedure. The predictor variable showing the highest correlation with an output measure was entered first. Given the first predictor input measure, that measure adding most to the multiple correlation was selected for inclusion in the regression equation.

Table 11

Stepwise Multiple Regression Summary

for Predictor Variables on AGPA

for the American Indian Experimental Ss

Step No.	Variable Entered	Multiple R	Multiple R^2	Increase in R^2
1	PGPA	.717	.514	.514
2	Tot. Hrs.	.804	.647	.133
3	SCAT Q	.924	.854	.207
4	ACT SS	.970	.941	.087

The PGPA and Total Hours, steps one and two, showed multiple correlations of .717 and .804. The third step, SCAT-Q, showed an increase in R^2 of .207. Approximately 85% of the variance was accounted for by these three variables.

CHAPTER IV

DISCUSSION

Program Evaluation

In comparing differences between the PGPA and the AGPA for the experimental and control groups, it is of interest to note that the Mexican American control group showed the greatest positive difference in AGPA while the American Indian control group demonstrated the second greatest positive difference. The Mexican American experimental group demonstrated a slight positive difference while the American Indian experimental group showed a large negative difference. These control Ss did not participate in a summer enrichment program as did the experimental Ss. The analysis of covariance results further support the contention that the control groups of both ethnic background performed significantly better than the Mexican American and American Indian experimental groups after covarying for initial differences in PGPA and the total number of hours accumulated during the fall and winter quarters.

These results could be accounted for by some of the following reasons:

(1) The effect of such extensive structuring in an initial quarter of university work for these groups could have been aversive;

(2) The fact that the recruitment letter informed the experimental Ss that financial aid would be provided during the academic school year following the experimental program for those students who chose to participate. Thus, this money was made contingent upon the participation in the experimental program and performance was not taken into account.

As a result, the behavior of the experimental Ss may have been affected by knowing that financial support would not be contingent upon performance.

(3) The fact that the selection and treatment procedures did not attempt to control for heterogeneity. This is represented by the fact that no specific criterion was used in selecting the Mexican American experimental Ss, and that all nineteen of the American Indian students who had applied for the experimental program had been accepted. The phenomena of heterogeneity is best reflected by the large standard deviations on the SCAT scales for both of the experimental groups.

(4) A self-selection factor could also apply for a portion of the Mexican American control group in that not all of the Mexican American students who had been informed about the program had chosen to apply, although they had intention s of attending the University of Utah during the academic school year following the experimental program. Conversations with the American Indian control Ss suggest that this selection factor did not hold true for them. Also, some of those Mexican American students who had applied for the experimental program and had not been accepted had entered the University of Utah during the fall quarter which followed the experimental program. As the Mexican American control group exhausts the entire population of non-recruited Mexican Americans entering the University during the 1970-71 academic school year as first quarter freshmen, the above mentioned would fall into this group.

(5) A recruitment factor needs to be considered in that the University of Utah actively recruited all experimental Ss. This phenomena is best represented by the discussion of the previous two points.

(6) Results of the pre-post testing indicates that those Ss who had participated in both the pre and the post testing tended to show either negative differences or very minor positive differences on non-intellective measures. In combining the results of the pre-post testing and that of the analysis of covariance for treatment differences one might imply that the experimental program did help in teaching the students intellective skills, but tended to have adverse effects in developing non-intellective traits related to academic performance. This would suggest that program designers should not only take the task of developing cognitive skills into consideration but should also take attitudinal effects into account.

The F test for race differences indicates that the Mexican American experimental and control group had performed significantly better than the American Indian experimental and control groups. Pre-test results indicate that initial differences on the various intellective and non-intellective traits may acccount for these differences.

It is found that the Mexican American control group had attained a slightly higher or at least equivalent AGPA for the fall and winter quarter than that for the freshman class as a whole. The Mexican American control group obtained a mean AGPA of 2.37 in comparison to 2.32 for the entire freshman class (Bluhm, 1971). Mean total hours for the Mexican American control group was 24.88 in comparison to an estimated mean of 28.00 for the entire freshman class (Bluhm, 1971). Mean AGPAs for the Mexican American experimental and the American Indian experimental and control groups were all below that of the Mexican American control group, as were total hours accumulated.

In comparing the AGPA of the Mexican American control group to that of the entire freshman population one must take caution in recognizing the fact that the mean AGPAs for the Mexican American and American Indian groups in this study are contaminated by grades obtained through the Minority and Guided Studies Program of the University of Utah. This program is primarily designed to offer remedial classes to incoming freshmen with PGPAs of 1.8 or less. The program also offers classes related to ethnic studies (See Tables 1, 2, and 3 in the appendix). Grading practices for these classes are reportedly not as stringent as those typical of University of Utah classes, and the proportion of A and B letter grades is substantially higher than the proportion of A and B letter grades for other classes offered at the University.

Based on the above findings, the following recommendations might be made:

(1) There is a need for more stringent program planning and evaluation in working with minorities.

(2) An investigation should be conducted as to the effects of providing the disadvantaged student with financial support and allowing him to structure his own classloads.

(3) An investigation should be conducted of the value of placing contingencies for financial aid on such things as performance, rather than placing contingencies on simple participation in experimental programs.

(4) An evaluation is needed of immediate and long range effects of the Guided Studies and Minority Program classes.

(5) A study is needed of the predictive validity of the PGPA in

relation to the various ethnic minorities and the economically disadvantaged attending the University of Utah.

(6) The academic performance level and the small number of Mexican American and American Indian students at the University of Utah suggests a strong need to implement and evaluate changes at the pre-college level institutions of education.

Discussion of Validation Procedures

Mexican American Students

Experimental Ss Means and standard deviations for all ACT scales are well below national and University of Utah norms, while mean SCAT scores are only slightly below national norms. Standard deviations for the ACT scales are only slightly larger than those for the national and University of Utah norms. Standard deviations for the SCAT scales are substantially larger than those for national norms, suggesting that the Mexican American experimental group was a heterogeneous group as measured by the SCAT scales. The APGA for this group is slightly higher than the PGPA. The low negative correlation between the PGPA and AGPA suggests that PGPA is a poor predictor of academic success for this group. One must be cautioned in recognizing the fact that this is a recruited group of students who have participated in an experimental program during their initial quarter at the University. PGPA did show a significant correlation with performance in the experimental program. Of interest is the fact that total hours showed a significant correlation with summer performance and AGPA. Summer performance also did correlate significantly with AGPA. Significant correlations between summer performance and pre-

dictor criteria included the ACT C, SCAT T BH Wm, BH Ea, BH Ta, CPI Ie, and the AACH. These results suggest that non-intellective variables might be investigated in their ability to predict performance for the Mexican American.

Results of the Stepwise Multiple Regression summary using AGPA as the output measure suggest that 68% of the variance for AGPA was accounted for by a combination of Total Hours, ACT M, CPI Re, and CPI Wb. Of interest is the fact that HSGPA, PGPA and the ACT E, ACT SS, and ACT C did not contribute to the first four steps in the regression. These variables are those which have been used in determining the acceptance of all University of Utah students in the past. Since the experimental population is a recruited group of students who had participated in a treatment program during their initial quarter at the University of Utah, it would be necessary to look at the validation of the available predictor criterion for the control groups prior to the conclusion of this discussion.

Control Ss In computing intercorrelations implementing HSGPA, PGPA and Total Hours as predictors and AGPA as the criterion variable, no significant correlations were found for the Mexican American control group. Of further interest is the fact that the group was predicted to obtain an AGPA of 1.86 and had actually obtained an AGPA of 2.37. One must question the validity of the use of current admissions procedures in relation to the Mexican American student when observing these results. However, one must take caution in realizing that the AGPA for this group is partially affected by grades obtained through the Guided Studies and Minority Program (see Appendix). On the basis of these results the

following additional recommendations might be made:

(1) Further investigation should be conducted into the predictive validity of the ACT, HSGPA, and PGPA in relation to ethnic minorities and the economically disadvantaged. As the predictive validity for the Mexican American differed from that of the University of Utah freshmen, one might be inclined to question its predictive validity for other groups.

(2) Further investigation is needed into the realtionship between Total Hours accumulated and AGPA. If highly significant results should occur, an attempt to specify those characteristics related to Total Hours.

(3) An attempt to investigate non-intellective variables in relation to academic performance.

(4) An investigation is needed of short range and long range effects of the Minority and Guided Studies classes.

American Indians

Experimental Ss Means for both the ACT and the SCAT scales are well below those of the University of Utah and the national norms. Standard deviations for the ACT scales are similar to those of the national and University of Utah norms while those for the SCAT scales are considerably larger than those for the national norms. Differences between the PGPA and AGPA indicate that these students performed well below their predicted performance levels. High correlations between summer performance and the SCAT Q, SCAT T and PGPA suggest their feasibility as predictors of academic success for the American Indian. HSGPA and PGPA correlated highly with AGPA suggesting validity of these criterion in predicting

academic performance for this group. It is of interest to note that PGPA correlated significantly with both summer performance and AGPA.

Of further interest is the fact that PGPA, Total Hours, and the SCAT Q accounted for 85 percent of the variance when used as input variables with AGPA as the output variable in a Stepwise Multiple Regression.

Because this is a recruited group of students who participated in an experimental program during their initial quarter at the University, one must be cautious in interpreting these results. Participation in Minority and Guided Study Program classes may also have effect on the interpretation of these results. Based on the above results the following recommendations are in order:

(1) Implementation and precise evaluation of educational programs for American Indian students at the pre-college and college level is indicated.

(2) Further investigation is needed of the predictive validity of the ACT, PGPA and SCAT as predictors of academic success for the American Indian student at the University of Utah.

(3) An evaluation of the immediate and long range outcomes of the Minorities and Guided Studies Program in relation to the American Indian.

CHAPTER V

A crisis for colleges and universities in America today is that of meeting the educational needs of various ethnic minorities. The University of Utah has recognized the need to implement educational program and to reassess admissions procedures in regard to minority students. In the summer of 1970, the University of Utah, through the support of the Ford Foundation, sponsored a special eight week summer program designed to prepare 40 Mexican American and 20 American Indian students for successful endeavors at the University. This study attempted to (1) evaluate the effects of the 1970 Ford Foundation Program; and, (2) Test the predictive validity of various admissions procedures in relation to the Mexican American and the American Indian student at the University of Utah.

Ss involved in this study were broken down into an experimental and a control group. The experimental group consisted of those Mexican American and American Indian students who participated in the 1970 summer quarter Ford Foundation program as first quarter freshmen and who returned to the University of Utah during the academic school year following the experimental program. Control Ss consisted of those Mexican American and American Indian students who entered the University of Utah during the fall quarter which preceded the summer program without any special treatment as first quarter freshmen.

An analysis of covariance design implementing AGPA as the dependent variable and repeated measures t-tests using intellective and non-intellective measures related to academic success were implemented in an attempt to evaluate the experimental program.

Results suggested that the control groups performed significantly better than the experimental groups while the Mexican American groups performed significantly better than the American Indian groups. No significant interaction effects were obtained. Results of the repeated measures t-tests suggested that those experimental Ss who participated in the treatment program and pre-post testing had shown positive differences on intellective measures while displaying negative differences on non- intellective measures.

Intercorrelation and stepwise multiple regression equations were implemented to test the predictive validity of various admissions procedures in relation to the Mexican American and the American Indian student. These procedures were conducted separately for each ethnic group and separately for control and experimental groups. Results of these procedures question the predictive validity of the ACT, HSGPA and PGPA in relation to the Mexican American student. Further investigation in the use of non-intellective variables in attempting to predict academic success for this ethnic group was suggested. Results of these procedures for the American Indian experimental group suggest further investigation of the predictive validity of the ACT, PGPA and SCAT in that significant correlations were found between these predictors and the criterion. Results further suggest the need to evaluate and implement educational programs for the American Indian student at the pre-college level.

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APPENDIX

MINORITY & GUIDED STUDIES PROGRAMS
Schedule of Courses
Autumn Quarter

COURSE INSTRUCTOR	COURSE NO.	HOURS CREDIT	SECTION NO.	INDEX NO.	DAYS	TIME	LOCATION	CAPACITY
ENGLISH	101	(2)	60-61-62-63		T Th	2 Hour Blocks		4 Sect @ 20
Staff			60	5185	T Th	8:50-10:45	Biol N 208	"
Staff			61	5186	T Th	8:50-10:45	KH 110	"
Staff			62	5187	T Th	8:50-10:45	MH 301	"
Staff			63	5188	T Th	11:00-12:55	Geol 105	"
CULT & SELF AMERICA	161 (GE)	(5)	1		M Th	2 Hour Block		100
Palmatier, Larry			1	5183	M Th	2:15-4:10	ML 206 & 207	"
SPEECH	101	(3)	15-16		M W F	Reg. Periods		2 Sect @ 20
Jarvis, Boyer			15	5189	M W F	7:45	OSH 237	"
Alexander, Dennis			16	5190	M W F	9:55	OSH 232	"
(Reg. Sect.)	101		2-9-12(see Class Schedule)					3 Sect @ 5-11
STUDY SYSTEMS	197 (GE)	(3)	1-2-3-4-5-6-7-8-9		1 Day Per Wk.	1½ Hour Blocks	Bldg. 418	9 Sect @ 30
Murdock, Ev			1	5192	M	1:10-2:40	" "	"
			2	5193	M	3:20-4:50	" "	"
			3	5194	T	1:10-2:40	" "	"
			4	5195	T	3:20-4:50	" "	"
			5	5196	W	1:10-2:40	" "	"
			6	5197	W	3:20-4:50	" "	"
			7	5198	Th	1:10-2:40	" "	"
			8	5199	Th	3:20-4:50	" "	"
			9	5200	F	1:10-2:40	" "	"
MEXICAN-AM. STUDIES	322 (GE)	(3)	1		M W F	Reg. Period		15
Salazar, Leonard			1	5191	M W F	7:45	MBH 105	"
MATHEMATICS	167 (GE)	(5)	1		MTWThF	Reg. Period		30
Peck, Donald			1	5211	MTWThF	7:45	MBH 303	"

MINORITY & GUIDED STUDIES PROGRAMS
Schedule of Courses
Spring Quarter

DEPARTMENT INSTRUCTOR	COURSE NO.	HOURS CREDIT	SECTION NO.	INDEX NO.	DAYS	TIME	LOCATION	CAPACITY
EDUCATIONAL PSYCH (Staff)	101	3	6	5287	M W F	12:05-12:55	MBH 311	1 Section 25
ENGLISH (Staff)	101	2	60	5286	T Th	2 Hr. Block 8:50-10:45	Biol N 107	1 Section 35
GENERAL EDUCATION Culture & Self in America (L. Palmatier)	163	5	1	3027	M Th	2:15-4:10	LS 102, 107	1 Section 100
GENERAL EDUCATION Mathematics (D. Peck)	167	5	1	5285	M T W TH F	9:55-10:45	Biol N 210	1 Section 30
GENERAL EDUCATION Study Systems (E. Murdock)	197	3	1-3-4-5-7-8-9		1 Day a Week	1½ Hr. Blocks	Bldg. 418	7 Sections 30
			1	3028	M	1:10-2:35	" "	
			3	3029	T	1:10-2:35	" "	
			4	3030	T	3:20-5:00	" "	
			5	3031	W	1:10-2:35	" "	
			7	3032	Th	1:10-2:35	" "	
			8	3033	Th	3:20-5:00	" "	
			9	3034	F	1:10-2:35	" "	
GENERAL EDUCATION Mexican-American Studies (L. Salazar)	324	3	1	3036	M W F	7:45-8:35	BU 208	1 Section 40
SPEECH (Reg. Sect.) Fund Speak & Listen (Staff)	101	3	8	4953	M W F	11:00-11:50	Bu 210	

MINORITY & GUIDED STUDIES PROGRAMS
Schedule of Courses
Winter Quarter

COURSE INSTRUCTOR	COURSE NO.	HOURS CREDIT	SECTION NO.	INDEX NO.	DAYS	TIME	LOCATION	CAPACITY
ENGLISH	101	(2)	60-61		T Th	2 Hour Blocks		2 Sect 20
Staff			60	5196	T Th	8:50-10:45	Biol S 213	"
Staff			61	5197	T Th	11:00-1:10	HPER W 117	"
CULT & SELF AMERICA	162 (GE)	(5)	1		M Th	2 Hour Block		100
Palmatier, Larry			1	3022	M Th	2:15-4:10	ML 206 & 207	"
SPEECH	101	(3)	30		M W F	Reg. Period		1 Sect 20
Staff			30	5261	M W F	7:45	Bu 211	"
(Reg. Sect.)	101					9:55		
STUDY SYSTEMS	197 (GE)	(3)	1-2-3-4-5-6-7-8-9		1 Day Per Wk.	1½ Hour Blocks	Bldg. 418	9 Sect 30
Murdock, Ev			1	5198	M	1:10-2:40	" "	"
			2	5199	M	3:20-4:50	" "	"
			3	5200	T	1:10-2:40	" "	"
			4	5201	T	3:20-4:50	" "	"
			5	5202	W	1:10-2:40	" "	"
			6	5203	W	3:20-4:50	" "	"
			7	5204	Th	1:10-2:40	" "	"
			8	5205	Th	3:20-4:50	" "	"
			9	5206	F	1:10-2:40	" "	"
MEXICAN-AM. STUDIES	323 (GE)	(3)	1		M W F	Reg. Period		25
Salazar, Leonard			1	5195	M W F	7:45	MBH 106	"
MATHEMATICS	167 (GE)	(5)	1		M T W Th F	Reg. Period		30
Peck, Donald			1	5194	M T W Th F	9:55	MBH 105	"
EDUCATIONAL PSYCH	101		1					