

PREDICTION OF ACADEMIC SUCCESS
IN A UNIVERSITY HONORS PROGRAM

A Thesis
Presented to
the Faculty of the Department of Psychology
University of Houston

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts

by
Claudia Imwalle Gish
August, 1968

ACKNOWLEDGEMENT

The data for this study was obtained with the assistance of Dr. Philip J. Snider, Director of the Honors Program, and with the aid of the staff of the Counseling and Testing Service; I would like to express my appreciation to them. I would like to thank my committee: particularly Dr. Frank L. Stovall, chairman; Dr. Joseph P. Schnitzen, Director of Counseling and Testing; Dr. John L. Cox; and Dr. Laurie Zwicky. For guidance in the statistical and technical problems I am indebted to Dr. John Cox whose cooperation was invaluable.

PREDICTION OF ACADEMIC SUCCESS
IN A UNIVERSITY HONORS PROGRAM

An Abstract of a Thesis
Presented to
the Faculty of the Department of Psychology
University of Houston

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts

by
Claudia Imwalle Gish
August, 1968

AN ABSTRACT

The purpose of this study was to assess the predictive validity of scores made on aptitude, achievement, and personality tests, as well as the high school achievement records which were used in the selection of students for the Honors Program at the University of Houston. Coefficients of correlation were obtained as measures of relationship between the predictor variables and the criteria.

The criteria of "success" were (1) the first semester grade point average (GPA I); and, (2) the cumulative grade point average (CUM GPA).

The 24 predictor variables were the 3 scores of the Scholastic Aptitude Test, SAT-V, SAT-M, and SAT-T; the Concept Mastery Test; the Cooperative English Test scores on Vocabulary, Level of Comprehension, and Speed; the 16 scales of the Edwards Personal Preference Schedule which include Achievement, Deference, Order, Exhibitionism, Autonomy, Affiliation, Intraception, Succorance, Dominance, Abasement, Nurturance, Change, Endurance, Heterosexuality, Aggression, and Consistency; and, the high school rank (converted to a percentile).

The total sample numbered 111 students of whom 61 were females and 50 were males. At the time of this study they were classified as follows: 49 were freshmen; 33 were sophomores; and, 29 were juniors.

The data for the study were obtained from the permanent record files of the University of Houston Honors Program, the official high school transcripts, the official University of Houston transcripts, and the files and records of the University of Houston Counseling and Testing Service.

In addition to the coefficients of correlation between the predictor variables and the criteria of success, inter-correlations also were obtained between the predictor variables and the criteria. The Pearson

Product Moment coefficient of correlation was used in all instances. The procedures involved the use of the IBM 1230 Optical Scanning Device for the card punching operations and the Sigma 7 Computer for the mathematical computations of means, standard deviations, and correlation coefficients.

The study was limited by the restricted number in the sample, by data unavailable for individual subjects, as well as by the high aptitude and achievement level of the individuals within the sample. A major statistical limitation lay in the restricted range of the scores obtained on the tests, by the high ranks achieved in secondary school, and by the comparatively high level of the "success" criteria, the grade averages earned by the sample group. As an initial study, a pilot research project, the study was an analysis or description of some of the more basic aspects of the Honors Program, namely, selection and performance.

The study did not reveal significant relationships between any of the three SAT scores and GPA I or CUM GPA. Nor were significant coefficients of correlation obtained between the Concept Mastery Test, the three scores on the Cooperative English Test, and the two criteria of success, GPA I and CUM GPA.

The Edwards Personal Preference Schedule, while providing a useful personality profile of the honors group, did not reveal positive correlations with either of the criteria, with the exception of the suc (Succorance) scale which was correlated at .29 to the CUM GPA at the .05 level of significance. The end (Endurance) scale correlated -.42 with CUM GPA, at the .01 level of confidence, a seemingly surprising finding in view of the trait it purports to measure.

The high school achievement record, in terms of high school rank, proved to be the most useful predictor variable with correlations of .34 to .45 with the two criteria, depending on the sample size.

The two "success" criteria, first semester grade point average and cumulative grade point average are very highly correlated, at .94 and .95 (depending on sample size), and indicated that future college achievement tends to be closely related to first semester grade point average.

On the Edwards Personal Preference Schedule a t-test determined the significant differences between the mean scores obtained by the honors sample group and the test standardization norm group. The following differences were noted: the honors sample group scored higher on the scales of Achievement, Intraception, Endurance, and Change; they scored lower on the scales of Order, Heterosexuality, Deference, Affiliation, and Succorance.

TABLE OF CONTENTS

CHAPTER	PAGE
I. THE PROBLEM	1
Introduction	1
Statement of the problem	2
Importance of the study	3
Limitations of the study	4
II. REVIEW OF THE LITERATURE	5
III. SAMPLE GROUP, PREDICTOR VARIABLES, PROCEDURES, AND BASIC DATA	17
The sample group	17
Predictor variables	18
Procedures	23
Presentation of basic data	24
IV. ANALYSIS OF DATA	32
V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	43
Summary	43
Conclusions	45
Recommendations	46
BIBLIOGRAPHY	48

LIST OF TABLES

TABLE	PAGE
I. Basic Data for the Study	26
II. Correlations of Predictor Variables to Criteria:	
Inter-correlations of Predictor Variables	34
III. Correlations of 4 Predictor Variables to GPA I and	
CUM GPA; Inter-correlations of Predictors	36
IV. Scatter Diagram Showing Relationships between SAT-T Scores	
and CUM GPA	38
V. Means and Standard Deviations Obtained for the Variables	
and Criterion: Comparison of Scores Made by the Sample	
Group with Standardization Norms	40

CHAPTER I

THE PROBLEM

Introduction

The origins of the honors movement in the United States lie in the special programs for superior students instituted by the private eastern colleges at the turn of the century. In 1919 Columbia College embarked upon the first specifically "general honors" approach which was later incorporated into the courses or colloquia which were broadly conceptual in nature. (4) A notable contribution to the concept of honors studies was the program at Swarthmore begun by Frank Aydelotte in 1921. The basic model was the Oxford "pass-honors" system for a selected group of upper division students. The emphasis was upon the group experience in the small colloquium and independent study and research for the graduation examinations. (3)

Later the large state universities embarked on honors programs, the most significant of these being at Colorado, Chicago, and Kansas. From 1957 to 1965 the Inter-University Committee on the Superior Student gave guidance and encouragement to honors programs across the country. (5) Currently the National Collegiate Honors Council serves as a unifying force for the approximately 800 honors programs now in existence. (31)

In 1947 at the University of Houston a committee recommended the establishment of nine freshman honors courses (29) which were listed in the 1949-1950 catalog. (27) By 1960 a four year program had been instituted including a core curriculum of honors courses and honors colloquia. (28)

The honors program at the University of Houston exists for the student of demonstrated superior intellectual abilities. The emphasis is upon giving these students the opportunity to gain maximum advantages from their university experience. The lower division core curriculum offers honors classes limited to twenty-five students, and throughout the four year program honors seminars or colloquia emphasize a broad approach to a particular concept or subject area. The senior honors thesis gives depth to the student's major studies through independent study and research. The curriculum is flexible to highly individual needs, and endeavors to provide the stimulating and challenging environment which nurtures self-discovery in both the personal and intellectual realms. Honors students have the opportunity to formulate and exchange their ideas and feelings within their own peer group and with the faculty and counselors who guide and teach in the program. An ultimate goal of honors study is to realize the undergraduate's fullest potentialities toward becoming a truly educated, mature individual who will be launched on a life-time educational experience. Specifically central to the objectives of the program are preparation for graduate study and acceleration of the development of creative and leadership abilities.

Statement of the Problem

The purpose of this study was to assess the predictive validity of scores made by students on aptitude, achievement, and personality tests, as well as the high school rank, which were used in the selection of honors groups at the University of Houston. The criteria of "success" were: (1) the first semester grade point average (GPA I); and, (2) the cumulative grade point average (CUM GPA). Coefficients of correlation were obtained as measures of relationship between the predictor variables and the criteria.

Importance of the Study

The common criterion for academic success in competing for college awards, fellowships, graduate scholarships, and grants is the cumulative grade point average. Without entering into debate on the objective aspects of this procedure, it is a fact that value is placed upon this mark of recognition. At the second annual meeting of the National Collegiate Honors Council in October, 1967, Walter D. Weir, Executive Secretary-Treasurer, cited "the problem of grading" as a number one concern in his discussion "New Trends in Honors". He stated that the pursuit of grades may deter rather than encourage the adventurous spirit in the student who will seek the familiar, avoid the unknown, and gain safe entry into graduate and professional schools. Perhaps there are implications for an honors program in determining policies toward grading or general achievement evaluation which might result from a study of scholastic success in a high aptitude sample.

In evaluating the predictors of selection, the inter-correlations may indicate that some of the highly correlated predictors may be eliminated without losing predictive efficiency. If predictors are only slightly correlated with success they might be dropped and other potential measures substituted.

After almost twenty years of growth and change it would seem useful to study the honors group in order to furnish the Director and the Faculty Council with empirical data which might prove helpful in formulating future policies.

Limitations of the Study

Although the Director and his working team devote considerable time to continual on-going evaluation of the honors program (26), this study is the first formal statistical analysis of data and as such it must be limited by the very nature of its being only a beginning. The starting point was an analysis or description of some of the more basic aspects of the program, namely, selection and performance. There are numerous significantly complex concerns which will hopefully be eventually explored; this study was only a beginning which may prove to have been a useful initial exploration.

A major statistical limitation exists in the nature of the sample. The honors program selects students who score in the higher ranges of the Verbal and Mathematical parts of the Scholastic Aptitude Test; these tests have means of 500 and standard deviations of 100. The usual cut-off score for an honors student is a composite score of 1200. For the entire entering freshman class at the University of Houston in Fall 1967, the composite mean was 1,010, the composite standard deviation 144. (21) The sample group of honors students form a distribution on certain aptitude and achievement tests which is restricted in range and in variability.

CHAPTER II

REVIEW OF THE LITERATURE

With some exceptions there have been few empirical studies of a statistical nature concerning honors programs. In the past, subjective evaluations, course grades, and cumulative grade point averages have often served both as predictors of performance and criterion of achievement. (16)

In 1963 R. P. Cuzzort surveyed by questionnaire current work undertaken and reported that of 167 schools with four year honors programs, 117 responded with the following information: 61% did assign the task of evaluating; 47% had conducted or begun work which would result in a written report, and 20% had written reports which were available. His conclusions were that formal studies were vitally essential to the whole evaluation and assessment procedure and that extensive work was urgently needed. (6)

Fricke, in 1964, reported on the variables used in the selection of honors students at the University of Michigan. A list of "seriously recommended" freshmen is prepared by the Evaluation and Examinations Division for the Director of the Honors Council. This group represents the top 10% of the entering freshman class as measured by: the SAT composite score; the Achievement Tests of the College Board; the Achiever Personality and the Creative Personality scales of the Opinion, Attitude and Interest Survey (OAIS); and the high school record. (12)

Astin reported that studies conducted by the National Merit Scholarship Corporation were initially concerned with talent as measured in terms of grade point average. Their findings showed that while the best measures of potential for academic achievement were aptitude tests

and previous school records, these measures tended to be unrelated to or to have low relationships with other types of achievement, such as leadership ability or creativity. Studies were being conducted on achievement scales based on an extensive list of the student's hobbies, interests, and daily activities. It was hypothesized that these predictors would, when added to the aptitude and achievement measures, improve the selection process. (2)

Gillmore and Sprinkle at North Dakota stated that while immediate success can be measured by numbers of students competing for graduate scholarships and fellowships, only the long range evaluation which involves assessment of broad personal contributions as scholars, professional persons, and as distinguished contributors to society, has ultimate validity. North Dakota selects honors students on the following basis: high school record; faculty recommendations; ACT or SAT scores, psychological inventories; an extemporaneous essay, and a personal interview. The personality test batteries are: the Strong Vocational Interest Blank (SVIB); the Allport-Vernon-Lindzey Study of Values (A-V-L); the Minnesota Multiphasic Personality Inventory (MMPI); and, the Edwards Personal Preference Schedule (EPPS). These batteries are interpreted with special emphasis on characteristics similar to persons in professional and aesthetic occupations; on the MMPI they are high "femininity" (M-F) scores for males; on the AVL they are high theoretical, low economic and high aesthetic values; on the EPPS they are high scores on Autonomy, Achievement, and Intraception. (14)

Fricke (1965) severely criticized the selection procedures of the National Merit Scholarship Corporation on the grounds that they relied too heavily on their own aptitude test, the National Merit Scholarship

Qualifying Test (NMSQT), and the SAT and that they had too many college failures in view of the quality of talent from which they could draw in awarding their scholarships. He suggested that research indicates giving weight to the following predictor variables: high school grade record, tested academic ability, tested academic motivation, and tested creative potential. Fricke recommended the Michigan procedure of selection of honors students: ranked at the 85th percentile or higher on the composite SAT and on 2 of the following 3 variables: (a) high school rank; (b) achiever personality; (c) creative personality. The latter two measures are obtained from the Opinion, Attitude, and Interest Survey (OAIS). (Further discussion of this instrument will follow.) It was stated that the above four measures do not correlate highly with each other and that most colleges would identify as superior less than 5% of the freshman class. The same procedure is recommended using the 70th percentile to identify students for "serious consideration". (11)

The OAIS was developed by Fricke in response to what he saw as the basic inadequacy of predicting academic success from purely intellectual measures, and the need for an instrument to measure non-intellectual factors central to academic achievement. In a survey conducted of existing tests for measurement of academic motivation-maturity he listed the following negative findings:

- "(1) the items in the test were transparent and the best answer was obvious to all but the most naive test taker;
- (2) armchair speculation rather than empirical data determined how student responses were scored;
- (3) little or no attempt was made to control irrelevant sources of variance in the test scores;
- (4) the content of the questions was often highly personal and objectionable; and
- (5) the number of students tested in the course of test construction and evaluation was small (usually less than five hundred)."

Fricke commented on the OAIS with regard to the above criticisms: the test has little face validity; it does not ask the student to reveal personal or intimate information; and, the test questions have demonstrated empirical validity. Typical statements to which the test-taker responds are:

"True or False

'Too much fuss is made over famous people.'

'I'd rather talk than listen in a conversation.'

'Most people have a very good imagination.'"

The OAIS provides scores on 11 variables, 5 of which are educational-vocational interest scales: (1) Business and Commerce; (2) Humanities and the Arts; (3) Social and Behavioral Sciences; (4) Physical Sciences, Engineering, and Mathematics; (5) Biological and Health Sciences. The 3 psychological adjustment scales are: (1) Social Adjustment; (2) Emotional Adjustment; (3) Masculine Orientation. The 3 scales most pertinent to honors prediction processes are:

- (1) Achiever Personality
- (2) Intellectual Quality
- (3) Creative Personality

Fricke reports interesting data from six samples at the Universities of Michigan and Minnesota shown below:

	OAIS			SAT		H.S.Gr.	Coll.Gr.
	AP	IQ	CP	V	M		
Achiever Personality	.04	-.09		.09	.08	.22	.34
Intellectual Quality	.04		.28	.48	.29	.16	.26
Creative Personality	-.09	.28		.22	.01	-.06	.03
SAT-V	.09	.48	.22		.38	.22	.41
SAT-M	.08	.29	.01	.38		.22	.36
H.S.Gr.	.22	.16	-.06	.22	.22		.38
Coll.Gr.	.34	.26	.03	.41	.36	.38	

(Fricke, 1965, p.47)

The personality scales of the OAIIS shown here, called "academic promise scales", show evidence that the AP (Achiever Personality) scale correlates to College Grades at about the same level as High School Grades. However, it is noted in the SAT columns V and M, that this AP measure does not correlate highly with this conventional scholastic aptitude measure, nor does it produce a high correlation (.22) with High School Grades. However, the IQ (Intellectual Quality) variable does show a high relationship to SAT-V (.48), but a lower correlation to H.S.Gr. (.16) and Coll.Gr. (.26). It might be assumed that the AP is producing a measure of future performance which incorporates the factors involved in the high correlations noted between high school records and college academic achievement. The highest prediction of college grades on this table is the SAT-V variable; and second in order of predictive power is H.S.Gr.; and, following closely are the SAT-M and AP variables. The CP (Creative Personality) measure shows low order correlations to the aptitude and achievement variables and supports the hypothesis that creativity is a separate trait, one not usually tapped in conventional indicators of academic success.

Fricke suggests combining the AP (Achiever Personality) score with the SAT and the high school record for improved predictive efficiency over using only the latter two measures. An earlier discussion here of the Michigan Honors Program selection process involved the use of the CP (Creative Personality) score, which predicts grades at $-.06$ and $.03$. Evidence for validity of the CP scale is that it does correlate with ratings of creativity made by high school and college teachers. The CP scores correlate negatively with high school records, $-.06$ which is

cited as evidence that many top high school graduates are "conventional thinkers and grade grinders". (13)

Holland emphasized the necessity of defining specific goals of honors programs and then specifically selecting or designing evaluating procedures pertinent to the defined goals. He negatively evaluates purely academic recruiting of honors program students on the grounds that studies on the ACT (unpublished) indicate:

"...at high levels of scholastic aptitude, aptitude and achievement measures have little relationship to originality, leadership, and vocational achievement. In a recent unpublished study, the relationship between measures of academic achievement (ACT scores or high school grades) and non-academic accomplishment ranged only from $-.09$ to $.24$ with a median of $.04$. In other words, academic and non-academic accomplishments are independent dimensions of human endeavor. To rely on academic potential as the chief method of selection is in fact then an ineffective method for the selection or encouragement of a variety of student talents. Although the world needs a diversity of talents, current educational practice is simply not conducive to diversity." (18)

Spaeth comments on the disparity of the grading and teaching procedures at different high schools, suggesting that honors programs evaluate institutional quality in their overall assessment procedure. In attempting to measure what he refers to as "intellectual spark" the suggestion is made that honors candidates be given a discussion topic in advance and then brought together, under the observation of a faculty evaluation team, to discuss this specific assignment. This method does directly relate to the future honors experience. The author states that while this particular idea might not be practical, it could serve as a model of thinking toward other evaluative procedures. (22)

Damrin reported on her research on selection procedures for the honors program at the University of Illinois. Selection is made of entering freshmen, freshmen after completion of two semesters of work, and transfer students. The first group is admitted through a screening procedure involving assigned weights to past records, tests and recommendations, while the second two groups are admitted on the basis of having achieved a college grade point average of 4.5 on a 5 point scale.

She stated that the most disturbing findings in the research on the selection processes were those employed to admit entering freshmen to the program. She reported correlations between freshman grades in the honors group and high school rank of around .35 and between freshman grades and tests such as SCAT, ACT, and NMSQT at about .25. A survey test was developed to test "scholarly" habits, attitudes, and values. The "right answer" key was developed empirically using item analysis correlations with freshman year grades. Hope was expressed that this instrument called the Student Record Form (SRF) can eventually be used for predictive purposes.

(7)

Langland found at UCLA that the Concept Mastery Test correlated at about .30 with first year grade point average. It was reported that the SAT, Miller Analogies Test, and the Concept Mastery correlations were quite similar. Tests used in the selection process at UCLA (not all are used every year) are:

(1) Scholastic Aptitude:

American Council on Education Test (ACE); Miller Analogies Test (MAT); Scholastic Aptitude Test (SAT); Terman Concept Mastery Test.

(2) Skills:

Cooperative Reading Test; Watson-Glaser Critical Thinking Appraisal.

(3) Achievement:

College Qualification Test (Information sections); Graduate Record Examination (Area tests).

(4) Interests and Values:

Strong Vocational Interest Blank (Male Form); Allport-Vernon-Lindzey Study of Values

(5) Personality:

Minnesota Multiphasic Personality Inventory (MMPI); Edwards Personal Preference Schedule (EPPS); Rotter Level of Aspiration Inventory; a version of Osgood's Semantic Differential; the Myers-Briggs Type Indicator. (19)

At Brooklyn College Heil used the Manifold Interest Schedule in combination with the high school average and the composite SAT score for acceptance in the Brooklyn Scholar's Program. The Manifold Interest Schedule (MIS) yields 18 scores on personality variables divided into: (1) Human Relations: Authority, Opposite Sex, Leadership, Family, Same Sex, Identification with Others, Solitary; (2) Fantasy Life: Magic, Mystery, Humor, Dramatics, Fantasy, Life-Death-Universe; and, (3) Organization of Drives and Impulses: Preoccupation with Cleanliness, Self-Severity, Methodical, Acceptance of Impulses, Aggression.

Heil concluded that personality variables significant to the honors selection process were (1) High Self-Sufficiency and Inner Strength, indicated on the MIS as high mean scores in Authority, Solitary, and Self-Severity and significantly low mean scores in Magic, Fantasy, and Methodical. (2) Relatively High Power Needs and Drive as indicated by high mean scores on Authority, Leadership, Dramatics, and Self-Severity associated with a low mean score in Fantasy. (3) Relatively High Orientation Toward Inquiry as indicated by high mean scores on Mystery and Life-Death-Universe. (15)

Adams and Blood referred to the current concern over the grade orientation of honors programs and expressed the hope that although the students at Western Washington State College honors program were primarily selected on the traditional ability-aptitude basis they were attracting to the program students who were, in fact, more creative than their non-honors counterparts who also had extremely high aptitude scores. The instrument used to test this hypothesis was the Allport-Vernon-Lindzey Scale of Values, with expected significantly higher scores on the theoretical and aesthetic scale and lower scores on the economic scale. Their results reveal the expected differences on the scales indicated above with support for the hypothesis that honors program students are different from their high aptitude non-honors counterparts, and if the AVL does measure creativity as it was intended in this study, the honors group is more creative. (1)

Demos and Weijola at California State College at Long Beach worked with the California Psychological Inventory (CPI) to test the hypothesis that certain personality variables differentiate honors from non-honors students of similarly high achievement and aptitude. They administered the CPI to all honors applicants and then compared the scores of those who accepted the invitation to join the program with those who rejected the invitation to join. The total CPI profile is listed below:

RE (Responsibility)
SO (Socialization)
GI (Good Impression)
AC (Achievement via Conformance)
AI (Achievement via Independence)
IE (Intellectual Efficiency)

The "Frosh Honors Group" were found to have significantly higher mean scores on: RE, AC, AI, and IE while the "Frosh Honors Refused" group

obtained a significantly higher mean score on SO. A second consideration of the study proved valid: high school records do yield higher predictive correlations than the ACT aptitude test, and adding the CPI profile improves total predictive efficiency. (8)

Warren and Heist used the Omnibus Personality Inventory (OPI) in a study of gifted subjects designed to compare one group called Merit Scholars (winners and finalists for the National Merit Scholarships) with an unselected group comprised of samples from two campuses of the University of California. The scales of the OPI are:

TI (Thinking Introversion)	IE (Impulse Expression)
CO (Complexity)	SI (Social Introversion)
O (Originality)	Hy (Hysteria)
R (Responsibility)	Pd (Psychopathic Deviate)
Es (Ego Strength)	Sc (Schizophrenia)
SM (Social Maturity)	Ma (Hypomania)
F (Authoritarian)	

The scale differentiated between the gifted and unselected groups particularly on the TI and R scales. Significantly higher mean scores were also obtained on the CO, Es, SM, F, IE, and SI scales.

In the same report, Warren and Heist found results quite similar to Adams and Blood using the Allport-Vernon-Lindzey Study of Values. From a sample of National Merit Scholars and unselected groups from Michigan State University and the University of California they concluded that for both sexes the profiles differ most sharply on the Theoretical, Aesthetic, and Economic scales with the gifted group being higher on the first two scales and unselected group higher on the latter. (30)

Taylor and Ellison in recent work (1967) with NASA scientists support the views of Astin that the biographical approach will differentiate high ability persons with regard to predicting success. Using an instrument called the Biographical Inventory (BI) they were primarily

concerned with the criteria of scientific performance and creativity in adults. However, a long-term goal of this research was "to develop an instrument that was both appropriate and valid for younger age groups". They reported work done with students participating in the National Science Foundation Summer Science Program for high school and college students. They reported that the BI did predict creativity in this age group but cited no empirical data to support this claim. Evidence collected with adult samples, however, did support their hypothesis and it would appear that the biographical approach to predict future performance is an area needing further study for honors programs. (23)

Lewis and Schumacher conducted four studies at Iowa State University to improve selection procedures for honors programs in the Colleges of Engineering, and Sciences and Humanities. However, since students are not admitted to the ISU honors program until the beginning of the sophomore year and the predictor variable is a cumulative grade point average of 3.40, this program has a different approach from those in which high school grades and testing procedures are used to predict honors program success.

Correlations were obtained between the predictor variables and two-quarter freshman GPA in the College of Sciences and Humanities. The sample was divided by sex and by major and utilized a multiple regression table. Predictor variables included: high school rank, ACT, ISU Math Placement Test, Cooperative English Placement Test, and the Minnesota Scholarship Ability Test. Correlation coefficients were singly reported and then the multiple R's were combined. In the various categories the multiple R coefficients ranged from .51 to .69 and were generally higher than the zero order r's.

A correlation table of the predictor variables and two-quarter freshman GPA in the ISU College of Engineering revealed a similar ascending order of coefficients with the highest obtained multiple R utilizing 5 predictor variables. Obtained R coefficients ranged from .40 to .75. Results indicated that more homogeneous grouping produced better prediction and that the multiple regression technique added greatly to the predictive power. (20) An earlier study of Holland's (1958) supports this hypothesis. (17)

A review of the literature indicates a wide variety of techniques and approaches are being used and many new testing instruments are being developed for future use. In few instances were purely academic measures indicated to be of significant predictive validity. Most research indicates that if a full range of human talent is to be measured, a purely academic aptitude-achievement battery will prove insufficient. Evidence previously cited would indicate that personality inventories involving trait measurement or biographical orientation should be added to aptitude and achievement tests to obtain a student profile for an honors program which attempts to predict potential for leadership and creativity as well as potential for obtaining a high grade point average.

CHAPTER III

SAMPLE GROUP, PREDICTOR VARIABLES, PROCEDURES, AND BASIC DATA

The Sample Group

The sample group consisted of most of the freshman classes selected for the University of Houston Honors Program in the Fall of the years 1965, 1966, and 1967. The total sample group consisted of those then "active" in the program as well as those who withdrew or were ineligible to remain in the program. The total sample numbered 111 students of whom 61 were females and 50 were males.

Of the sample of 111, 49 were classified as freshmen; 33 as sophomores; and 29 as juniors. It should be noted that in order to remain an "active" member of the honors group students were required to maintain a minimum cumulative grade point average of 2.75 in all course work. According to policies in effect at the time this study was made, a student was notified immediately of probationary status when this minimum GPA requirement was not met. He was given a second semester to raise the cumulative grade point average, if this had not been accomplished during the first probationary semester. With each student every effort was made on the part of the Director, the Program Advisor, and the Staff, to counsel and advise the student, and in every possible way to see that appropriate help was obtained in order to remain in the program.

At the time of this study the 111 students in the sample were classified as follows: of the freshman class of 49 selected in 1967, 26 students were classified as "active", 22 were classified as on probation, and 1 transferred (to Mt. Holyoke); of the sophomore class of 33 selected in 1966, 20 were active, 2 were on probationary status, 6 were dropped, and 5 withdrew; of the junior class of 29 selected in 1965, 13 were

active, 1 was on probationary status, 8 were dropped, and 7 withdrew.

Predictor Variables

The predictor variables used in the study were: (1) the Scholastic Aptitude Test (Verbal, Math, and Total scores); (2) the Terman Concept Mastery Test, Form T; (3) the Cooperative English Tests, Form 1C (Vocabulary, Level of Comprehension, and Speed of Comprehension scores); (4) the Edwards Personal Preference Schedule (Achievement, Deference, Order, Exhibition, Autonomy, Affiliation, Intrasection, Dominance, Abasement, Nurturance, Change, Endurance, Heterosexuality, Aggression, and Consistency scores); and, (5) the high school rank converted to a percentile for statistical purposes. The total number of predictor variables was 24.

The Scholastic Aptitude Test (SAT) of the College Entrance Examination Board is a test which is in two parts, Verbal and Mathematical, each yielding separate scores designed to measure

"...the basic verbal and mathematical abilities that a subject has acquired over many years both in and out of school. It tests his ability to reason rather than to remember facts, and it does not require special preparation. Its verbal sections emphasize the ability to read with understanding and to reason with verbal material. Its mathematical sections, which contain various kinds of problems to be solved, stress reasoning ability rather than knowledge of specific courses in secondary school mathematics." (College Board Score Reports, 1966-67, p. 17) (10)

The Cooperative English Tests measure achievements of high school and college students.

"The Vocabulary test has been shown to be the best single index of verbal skill...(in the section on) Reading Comp, the student is asked to look at a word and then choose, from a list of four words or phrases below it the one which has most nearly the same meaning...in the section on Reading Comprehension the passages

are varied in style and content...Each passage is followed by a group of items which range from those requiring him to interpret what he has read. For each item, the student chooses the best of the four answers or completions presented ...The Comp score is primarily a power score representing the number of items the student answers correctly out of the first 30 items. The Speed score is based on the number of answers correct from all 60 items in this section and is heavily dependent on how fast students can read the passages with understanding and answer questions about them." (Cooperative English Tests, 1960, Manual) (9)

The Concept Mastery Test, Form T

"...is a measure of ability to deal with abstract ideas at a high level...The test consists of two parts: I, the identification of synonyms and antonyms, and II, the completion of analogies. The items have been so selected as to draw on concepts from a wide variety of subject matter fields, such as physical and biological sciences, mathematics, history, geography, literature, music, and so forth. There is no time limit for the Concept Mastery Test." (Concept Mastery Test, 1956, Manual) (24)

The Edwards Personal Preference Schedule

"...was designed primarily as an instrument for research and counseling purposes, to provide quick and convenient measures of a number of relatively independent normal personality variables. The statements in the EPPS and the variables that these statements purport to measure have their origin in a list of manifest needs presented by H. A. Murray and others. The names that have been assigned are those used by Murray. In the EPPS an attempt is made to minimize the influence of social desirability in responses to statements. Assume that we have two statements representing different personality traits. Assume also that these two statements are equal with respect to their social desirability scale values. If one is now asked to choose that statement of the pair that is more characteristic of himself, it may be argued that the factor of social desirability will be of much less importance in determining the response than in the case of

a 'Yes-No' type of inventory. That, at least is a brief and incomplete statement of the theory underlying the development of the form of the items in the EPPS." (Edwards Personal Preference Schedule, 1959, Manual pp. 5-6)

"The manifest needs associated with each of the EPPS variables are:

1. ach Achievement: To do one's best, to be successful, to accomplish tasks requiring skill and effort, to be a recognized authority, to accomplish something of great significance, to do a difficult job well, to solve difficult problems and puzzles, to be able to do things better than others, to write a great novel or play.
2. def Deference: To get suggestions from others, to find out what others think, to follow instructions and do what is expected, to praise others, to tell others that they have done a good job, to accept the leadership of others, to read about great men, to conform to custom and avoid the unconventional, to let others make decisions.
3. ord Order: To have written work neat and organized, to make plans before starting on a difficult task, to have things organized, to keep things neat and orderly, to make advance plans when taking a trip, to organize details or work, to keep letters and files according to some system, to have meals organized and a definite time for eating, to have things arranged so that they run smoothly without change.
4. exh Exhibition: To say witty and clever things, to tell amusing jokes and stories, to talk about personal adventures and experiences, to have others notice and comment upon one's appearance, to say things just to see what effect it will have on others, to talk about personal achievements, to be the center of attention, to use words that others do not know the meaning of, to ask questions others cannot answer.

5. aut Autonomy: To be able to come and go as desired, to say what one thinks about things, to be independent of others in making decisions, to feel free to do what one wants, to do things that are unconventional, to avoid situations where one is expected to conform, to do things without regard to what others may think, to criticize those in positions of authority, to avoid responsibilities and obligations.

6. aff Affiliation: To be loyal to friends, to participate in friendly groups, to do things for friends, to form new friendships, to make as many friends as possible, to share things with friends, to do things with friends rather than alone, to form strong attachments, to write letters to friends.

7. int Intraception: To analyze one's motives and feelings, to observe others, to understand how others feel about problems, to put one's self in another's place, to judge people by why they do things rather than by what they do, to analyze the behavior of others, to analyze the motives of others, to predict how others will act.

8. suc Succorance: To have others provide help when in trouble, to seek encouragement from others, to have others be kindly, to have others be sympathetic and understanding about personal problems, to receive a great deal of affection from others, to have others do favors cheerfully, to be helped by others when depressed, to have others feel sorry when one is sick, to have a fuss made over one when hurt.

9. dom Dominance: To argue for one's point of view, to be a leader in groups to which one belongs, to be regarded by others as a leader, to be elected or appointed chairman of committees, to make group decisions, to settle arguments and disputes between others, to persuade and influence

others to do what one wants, to supervise and direct the actions of others, to tell others how to do their jobs.

10. aba Abasement: To feel guilty when one does something wrong, to accept blame when things do not go right, to feel that personal pain and misery suffered does more good than harm, to feel the need for punishment for wrong doing, to feel better when giving in and avoiding a fight than when having one's own way, to feel the need for confession of errors, to feel depressed by inability to handle situations, to feel timid in the presence of superiors, to feel inferior to others in most respects.

11. nur Nurturance: To help friends when they are in trouble, to assist others less fortunate, to treat others with kindness and sympathy, to forgive others, to do small favors for others, to be generous with others who are hurt or sick, to show a great deal of affection toward others, to have others confide in one about personal problems.

12. chg Change: To do new and different things, to travel, to meet new people, to experience novelty and change in daily routine, to experiment and try new things, to eat in new and different places, to try new and different jobs, to move about the country and live in different places, to participate in new fads and fashions.

13. end Endurance: To keep at a job until it is finished, to complete any job undertaken, to work hard at a task, to keep at a puzzle or problem until it is solved, to work at a single job before taking on others, to stay up late working in order to get a job done, to put in long hours of work without distraction, to stick at a problem even though it may seem as if no progress is being made, to avoid being interrupted at work.

14. het Heterosexuality: To go out with members of the opposite sex, to engage in social activities with the opposite sex, to be in love with someone of the opposite sex, to kiss those of the opposite sex, to be regarded as physically attractive by those of the opposite sex, to participate in discussions about sex, to read books and plays involving sex, to listen to or tell jokes involving sex, to become sexually excited.

15. agg Aggression: To attack contrary points of view, to tell others what one thinks about them, to criticize others publicly, to make fun of others, to tell others off when disagreeing with them, to get revenge for insults, to become angry, to blame others when things go wrong, to read newspaper accounts of violence.

16. con Consistency: Scores on the consistency variable are based upon a comparison of the number of identical choices made in two sets of the same 15 items. "If a subject obtains a low consistency score, say less than 9, his scores on the 15 personality variables may be questioned." (Edwards Personal Preference Schedule, Manual, 1959, pp. 15-16) (25)

Procedures

The data for this study were obtained from the permanent record files of the Honors Program, from the official high school transcripts, from the official University of Houston transcripts, and from the files and records of the Counseling and Testing Service. It was processed through the IBM 1230 optical scanning machine which reproduced the data on IBM cards. The computer program was devised through the office of the Counseling and Testing Service and was run through the Sigma 7 Computer in the University Computing Service.

Within the total sample group of 111 there was a great deal of missing data on the 24 variables. Not all the subjects had taken the SAT (4 had not), many students had not taken the battery of tests at the Counseling and Testing Service (CM, Coop English, EPPS), and not all high schools provide a rank order of their graduates. Each separate computer run required a separate program specifying the particular variables and criterion upon which it was to perform its functions. Each computer run provided means, standard deviations, correlations to criterion, and a complete correlation matrix on the specified variables and criterion. The Pearson Product Moment correlation coefficient was used in all instances.

Presentation of Basic Data

In order that the confidential nature of these data might be maintained, each student in the sample was assigned a code number in Column 1 of the Table. In Columns 2, 3, and 4 of Part A of Table I are listed the Scholastic Aptitude Test (SAT) scores, SAT Verbal (SAT-V), SAT Math (SAT-M), and the SAT Total (SAT-T) scores. A glance at these columns for the 111 students comprising the sample reveals: (a) SAT scores were available on all except 4 students; (b) only 3 students had SAT-T scores below 1000; (c) All SAT-V and SAT-M scores were above 500, except for the three students in (b) above. Definitely, then, this sample group was located in the upper half of the normal population sample.

In Columns 5, 6, 7, and 8 of Part A of Table I are listed the scores on the Concept Mastery Test (CM) and the three scores of the Cooperative English Test, Vocabulary (VOC), Comprehension (COM), and Speed (SPD) respectively.

The "High School Rank" (HSR) in terms of percentiles for each student in the sample group is shown in Column 9. Again, though these students came from numerous different high schools with diverse academic standards, the individuals of the group ranked very high in their respective senior classes. In only seven cases were the ranks below 70.

In Columns 10 and 11 of Part A of Table I are listed the "Grade Point Averages" (GPA I) for grades made in college courses during the first semester of enrollment in the Honors Program at the University of Houston, and, the "Cumulative Grade Point Averages" (CUM GPA) earned in all courses completed for the entire period of enrollment.

In the seventeen columns of Part B of Table I are listed the student code numbers and their scores on the sixteen variables of the Edwards Personal Preference Schedule (EPPS).

TABLE I

Part A

BASIC DATA FOR THE STUDY

1	2	3	4	5	6	7	8	9	10	11
Subj.	SAT-V	SAT-M	SAT-T	CM	VOC	COM	SPD	HSR	GPA I	CUM GPA
1.	580	645	1225					96	2.70	2.70
2.	560	670	1230	63	169	168	169	98	3.47	3.47
3.	690	530	1220	126	170	167	181		3.18	2.75
4.	530	760	1290	51	162	167	162	99	3.30	3.30
5.	620	620	1240	68	173	175	168	96	2.66	2.66
6.	688	698	1386	78	172	174	176	99	3.52	3.26
7.	590	630	1220	58	159	161	167	89	2.28	2.28
8.	560	580	1140	36	158	159	164	98	3.37	3.37
9.	631	565	1196	119	177	164	175	90	3.00	3.13
10.	740	540	1280	122	182	170	167	96	3.52	3.52
11.	664	651	1315	107	174	170	167	96	3.22	3.29
12.	588	631	1219					88	3.62	3.62
13.	440	482	922					92	2.37	2.21
14.	701	620	1321	96	177	172	179	89	3.16	3.02
15.	631	633	1264	109				92	3.58	3.53
16.	400	500	900	60	155	147	139	91	1.58	1.58
17.	628	651	1279	65				96	3.47	3.72
18.	750	766	1516					94	3.60	3.60
19.	602	713	1315						3.43	3.16
20.	700	670	1370					99	3.83	3.93
21.	625	703	1328	57					3.00	3.35
22.	610	640	1250	94	176	170	176	97	3.37	3.00
23.	708	653	1361	101	176	175	182	90	3.43	3.16
24.	660	600	1260	119	173	168	176	97	2.00	2.15
25.	670	600	1270	97	169	172	180	95	3.23	3.23
26.	749	716	1465	162	185	174	182	95	1.87	1.87
27.	665	679	1344	113				81	2.87	2.33
28.	640	670	1310	62	177	174	181		2.64	2.73
29.	650	645	1295	90	171	167	171	92	3.00	3.00
30.	691	704	1395	133				99	3.55	3.78
31.	605	663	1268	95	181	170	179	99	2.25	2.25
32.	705	649	1354	124	177	174	179	57	3.00	2.25
33.	670	620	1290	97	175	172	177	96	3.00	3.00
34.	593	645	1238	71	175	168	176	99	3.77	3.77
35.	694	710	1404	85	175	172	179	98	3.35	3.68
36.	560	640	1200					97	3.11	3.11
37.	471	472	943	42	162	170	173	90	1.73	1.73
38.	600	590	1190	88	173	170	169	98	3.26	3.20
39.	590	620	1210					99	3.53	3.44
40.	700	700	1400	122	183	175	182	94	3.06	3.06
41.	550	660	1210	82	169	175	176	99	2.86	2.86
42.	714	619	1333	120	178	174	181	98	2.87	2.91
43.	598	650	1248	74				93	3.11	3.31
44.	690	510	1200	138	182	160	172	94	2.06	2.06
45.	700	682	1382	104	178	165	175	80	2.41	2.41

TABLE I, Part A - continued

1	2	3	4	5	6	7	8	9	10	11
Subj.	SAT-V	SAT-M	SAT-T	CM	VOC	COM	SPD	HSR	GPA I	CUM GPA
46.				64	163	158	156	90	2.79	2.61
47.	734	640	1374	112	180	172	178	96	2.62	2.62
48.	683	606	1289	130				89	2.66	3.08
49.	713	681	1394	114				99	2.85	3.33
50.				95	176	172	178	99	3.47	3.60
51.	687	599	1286	73				84	2.75	2.81
52.	610	598	1208	82	173	168	173	94	2.60	2.60
53.	793	662	1455	160	179	172	180	75	1.54	1.61
54.	780	571	1351	124	186	174	179	97	2.33	2.33
55.	530	682	1212	43	162	174	169	93	2.81	2.81
56.	580	700	1280	45	162	170	177	91	2.68	2.98
57.	611	633	1244					99	1.86	1.86
58.	649	689	1338	93	178	167	171	70	3.13	2.96
59.	450	650	1100	52	168	158	152	97	2.85	2.85
60.								97	3.15	3.26
61.	579	712	1291					73	2.50	2.33
62.	605	542	1147	84	172	164	159	83	3.17	3.00
63.	510	570	1080	37	166	159	167	89	2.44	2.44
64.	625	606	1231	79				89	2.43	2.61
65.	630	470	1100	77	174	167	175	63	2.00	2.33
66.	710	510	1220	112	178	165	175	96	3.53	3.53
67.	501	545	1046	50				96	2.14	2.80
68.	504	557	1061	68					2.75	2.16
69.	510	750	1260					69	2.25	2.25
70.	716	536	1252	117					2.00	2.51
71.	490	550	1040	63	169	161	161	78	3.35	3.35
72.	660	630	1290	91	177	168	173	75	3.00	3.00
73.	546	668	1214					87	2.16	2.60
74.	660	550	1210	87	176	172	171	99	3.87	3.75
75.	668	545	1213	87				99	3.60	3.41
76.	580	747	1327	35	165	170	172		2.55	2.55
77.	648	650	1298	65				93	2.35	2.67
78.	664	571	1235	86					3.11	2.84
79.	485	559	1044	64				97	3.07	2.85
80.	618	738	1356	89				97	3.11	3.40
81.	630	650	1280	93	176	174	179	99	3.52	3.47
82.	760	750	1510	141	183	175	182	37	1.40	1.40
83.	630	580	1310	105	177	170	179	69	2.12	2.30
84.	677	659	1336	104				74	3.82	3.70
85.	732	737	1469					97	4.00	4.00
86.	650	640	1290	76	172	168	177	94	2.40	2.00
87.	510	536	1046	51	160	161	162	67	1.73	1.73
88.	650	630	1280	103	172	167	163	93	3.43	3.43
89.	630	710	1340	90	174	174	179	93	3.17	3.17
90.	625	721	1346	77				99	3.00	2.98
91.	631	510	1141	61	169	174	179	99	2.05	2.05
92.	635	589	1224	84				88	2.80	2.70

TABLE I, Part A - continued

1	2	3	4	5	6	7	8	9	10	11
Subj.	SAT-V	SAT-M	SAT-T	CM	VOC	COM	SPD	HSR	GPA I	CUM GPA
93.	502	506	1008	60	170	168	170	60	3.05	3.21
94.	660	800	1460	102				97	3.07	3.43
95.	680	600	1280	75	174	174	172	93	3.29	3.29
96.	683	492	1175					94	3.25	3.25
97.	649	527	1176	81	172	170	178	89	2.52	2.81
98.	621	659	1280					96	.81	.81
99.	606	651	1257	65				80	2.61	2.38
100.	621	701	1322	73	172	174	168	91	3.23	3.23
101.	529	532	1061	90	173	158	164	99	3.66	3.56
102.	640	601	1241	72	172	167	171	99	3.57	3.57
103.	650	630	1280	94	174	174	179	87	2.00	2.00
104.	650	480	1130	51	173	170	178	99	3.27	3.27
105.	605	624	1229	61				92	3.13	3.07
106.	618	606	1224	100	179	174	173	98	2.76	3.27
107.				134	178	175	179	92	3.21	3.33
108.	586	577	1163	61	172	167	163	91	2.60	2.60
109.	709	704	1413					90	3.50	3.41
110.	709	730	1439	142	182	175	182	99	2.89	3.31
111.	590	720	1310	58	171	162	173	99	3.76	3.70

TABLE I

Part B

BASIC DATA FOR THE STUDY

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Subj.	ach	def	ord	exh	aut	aff	int	suc	dom	aba	nur	chg	end	het	agg	con
1.																
2.	18	11	11	8	10	18	26	3	18	17	18	14	20	13	5	12
3.	13	12	9	17	10	20	19	10	9	22	22	14	13	15	4	13
4.	19	11	15	13	9	4	14	10	20	18	13	17	22	12	11	14
5.	20	7	8	14	15	14	26	6	12	16	17	16	17	8	13	14
6.	16	12	8	13	11	15	18	13	14	11	19	17	15	13	17	11
7.	19	10	6	18	17	13	21	11	16	18	13	8	14	10	16	10
8.	9	16	4	17	17	15	14	8	21	11	21	21	13	11	11	10
9.	14	13	6	10	8	14	17	12	13	22	15	13	20	18	14	8
10.	19	8	6	9	13	15	19	13	13	18	21	12	19	10	14	9
11.	12	15	6	12	15	20	17	15	16	13	12	24	11	13	8	11
12.																
13.																
14.	10	9	7	18	15	22	19	10	18	14	7	19	8	20	14	14
15.	14	8	7	12	16	18	24	16	11	18	18	13	4	11	19	11
16.	14	12	13	15	10	13	17	7	16	14	18	15	25	11	9	12
17.	10	15	8	14	10	23	25	7	19	19	17	18	13	7	4	14
18.																
19.																
20.																
21.	18	21	5	11	10	14	18	17	15	16	15	21	7	7	14	14
22.	15	13	2	14	14	13	26	5	11	14	20	22	16	12	11	12
23.	22	9	12	17	20	12	9	8	23	5	10	17	7	17	20	13
24.	10	10	10	5	8	17	17	12	8	16	17	22	17	24	16	9
25.	7	10	7	12	11	18	8	17	15	11	21	21	15	24	12	9
26.	18	10	5	11	20	17	27	6	12	8	7	20	17	21	9	11
27.	11	6	5	15	18	14	22	11	17	10	22	22	8	13	15	15
28.	16	7	9	19	15	9	22	7	19	7	14	13	16	18	18	15
29.	15	13	12	13	8	9	25	14	19	15	16	11	18	8	12	13
30.	16	7	6	13	19	12	13	16	26	12	20	17	4	10	18	11
31.	18	5	10	14	16	15	10	21	21	1	13	17	5	24	20	11
32.	27	10	4	19	19	8	18	8	23	6	4	21	15	12	15	14
33.	20	6	5	14	10	16	23	9	13	15	17	15	17	22	7	11
34.	10	6	3	17	13	21	13	17	11	12	20	23	12	25	5	13
35.	15	9	10	11	10	15	25	15	12	10	23	20	9	17	8	12
36.																
37.	14	15	11	15	10	18	18	9	20	16	14	16	7	16	10	13
38.	22	13	12	12	8	15	16	11	7	14	8	27	14	18	3	14
39.																
40.	21	13	9	16	8	19	25	12	8	12	18	16	17	11	4	13
41.	19	12	12	10	14	9	19	5	13	21	20	19	16	10	11	12
42.	17	7	14	12	16	12	23	11	10	13	17	8	15	7	12	10
43.	21	12	4	11	13	16	13	10	12	13	19	23	24	6	11	12
44.	18	14	10	17	10	12	27	4	12	18	10	18	18	11	10	13
45.	19	11	15	13	12	13	22	5	17	13	18	14	24	3	12	13

TABLE I, Part B - continued

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Subj.	ach	def	ord	exh	aut	aff	int	suc	dom	aba	nur	chg	end	het	agg	con
46.	21	8	15	12	20	9	11	10	24	6	0	19	21	12	19	14
47.	22	7	2	14	16	18	21	16	3	14	17	26	9	15	9	14
48.	14	13	8	8	16	20	20	8	17	8	17	24	20	11	4	10
49.	14	13	8	8	16	20	24	8	14	15	16	14	9	11	12	10
50.	17	16	5	17	17	14	22	12	9	23	16	17	6	20	10	13
51.																
52.	21	7	10	22	20	16	11	16	13	12	16	17	12	11	5	12
53.	16	8	5	16	24	11	20	6	8	16	9	26	8	17	18	11
54.	14	13	19	14	12	13	23	13	16	12	8	7	27	6	13	12
55.	15	8	10	14	18	16	16	8	22	15	16	14	12	11	15	9
56.	18	13	5	21	17	10	17	11	17	10	11	15	18	10	16	13
57.																
58.	14	14	11	13	18	17	25	2	18	16	18	16	14	6	8	14
59.	10	12	8	9	9	21	11	10	14	23	21	10	24	13	14	10
60.																
61.																
62.	15	12	10	10	12	16	17	6	21	19	17	24	10	12	8	12
63.	11	16	10	20	13	13	16	9	15	22	16	15	11	14	8	13
64.	15	14	7	15	11	17	21	14	13	9	12	25	10	14	11	10
65.	19	11	3	12	20	13	16	12	17	16	21	17	8	13	11	12
66.	10	7	15	19	13	20	20	10	12	13	14	20	7	23	7	12
67.	12	10	15	15	8	23	20	7	16	24	5	19	14	11	11	14
68.	14	20	12	13	13	17	15	16	9	11	14	22	11	17	7	10
69.																
70.	11	6	11	14	14	11	22	10	17	10	14	17	20	13	18	11
71.	17	13	6	17	13	12	21	10	17	11	17	17	10	19	9	12
72.	18	14	8	14	15	18	23	10	21	5	7	19	15	16	6	15
73.																
74.	20	11	9	12	5	18	18	13	11	19	9	19	6	20	20	11
75.																
76.	20	17	9	15	11	18	6	20	14	19	14	11	11	15	9	11
77.	20	9	6	18	14	12	14	19	13	9	8	23	9	15	20	13
78.	25	12	8	19	11	13	14	11	18	10	7	12	20	16	13	13
79.	18	12	6	9	20	19	19	6	9	13	19	24	19	14	3	11
80.	17	4	6	19	8	21	8	15	18	13	21	12	8	17	22	13
81.	24	14	7	14	16	14	17	5	19	5	7	23	13	17	12	12
82.	15	6	3	12	16	17	17	9	16	10	21	19	12	27	9	12
83.	18	9	9	13	15	10	14	10	19	17	7	20	20	16	12	14
84.	23	13	6	8	15	18	24	11	20	2	17	19	14	10	9	14
85.																
86.	11	10	6	10	11	17	22	7	17	18	10	17	16	21	15	
87.	17	13	12	19	11	16	26	6	14	7	16	26	11	5	10	11
88.	14	13	7	14	10	14	21	8	9	25	10	18	21	8	18	13
89.	13	9	10	12	8	19	16	8	19	6	21	17	22	18	12	13
90.	21	18	10	10	13	11	16	13	16	15	13	14	17	13	9	12
91.	14	13	11	15	17	12	23	4	19	18	11	14	23	5	10	12
92.	25	5	16	16	18	9	17	6	23	3	11	19	18	12	11	12

TABLE I, Part B - continued

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Subj.	ach	def	ord	exh	aut	aff	int	suc	dom	aba	nur	chg	end	het	agg	con
93.	21	12	7	16	15	16	17	13	15	6	13	20	12	12	14	14
94.	21	13	4	14	13	13	20	3	22	15	8	19	16	14	14	12
95.	16	11	8	11	15	13	26	13	13	14	10	20	14	13	10	13
96.																
97.	20	5	2	19	15	9	28	4	15	16	12	25	12	13	13	12
98.																
99.	21	11	14	18	19	12	17	5	16	12	5	14	17	15	11	11
100.	18	12	9	18	15	17	5	14	20	5	17	10	14	22	13	12
101.	11	19	6	14	9	17	17	18	16	16	22	14	22	9	8	13
102.	17	12	1	14	10	20	18	13	15	15	22	14	7	10	21	13
103.	17	8	4	22	12	19	10	14	15	15	17	17	5	24	10	8
104.	13	11	11	15	15	22	13	10	11	12	10	17	21	17	12	11
105.	19	6	5	15	17	19	23	11	10	7	13	14	16	21	13	15
106.	19	16	13	8	14	15	20	12	15	5	8	18	14	2	12	12
107.	20	12	8	21	11	10	18	11	17	14	13	13	12	20	10	10
108.	11	12	19	13	10	8	20	10	21	4	14	17	15	21	14	12
109.																
110.	24	12	7	14	15	16	17	14	17	14	6	15	9	19	10	14
111.	8	7	6	12	18	16	13	14	17	17	19	18	10	9	20	11

CHAPTER IV

ANALYSIS OF DATA

One of the most difficult problems in research of this kind involving the prediction of academic success from predictor variables is that of defining satisfactorily the criterion of success. Four other difficulties complicated the present study: (1) There was only a limited number admitted to the Honors Program each September; (2) The individuals included in the study had completed an extremely wide range of semester hours of academic course work in the Honors Program, a range from 12 to 87 semester hours; (3) Unfortunately, those students who applied for the Honors Program and were not accepted in the program could not be included in this sample; (4) On most variables, both predictor and criterion, the scores or averages were concentrated at the upper end of the distribution.

For the purposes of this study it seemed appropriate to use two criteria of success, (1) quality point average for courses taken during the first semester of enrollment in the program (GPA I), and (2) the cumulative grade point average (CUM GPA).

Coefficients of correlation were then computed between these two criteria of success separately and each of the 24 predictive variables. In the process all intercorrelations were also computed. In these computations only 63 of the total sample group could be included. The group included 27 males and 36 females; and 38 freshmen, 22 sophomores, and 3 juniors. All of these coefficients of correlation are given in Table II.

The crucial entries in Table II are in Columns 25 and 26 for the first seven top rows of the table. None of these coefficients were significant at the .05 level of confidence. The restricted nature of the sample, however, may account in part for the low coefficients.

Certainly a glance at the GPA's of all the "Honors" students indicate the difficulty of measuring success in degrees, or levels, for most all academic averages were really satisfactory.

TABLE II
CORRELATIONS OF PREDICTOR VARIABLES TO CRITERIA:
INTER-CORRELATIONS OF PREDICTOR VARIABLES

	SAT-V 1.	SAT-M 2.	SAT-T 3.	C.M. 4.	VOC 5.	COMP 6.	SPD 7.	ach 8.	def 9.	ord 10.	exh 11.	aut 12.	aff 13.	int 14.	suc 15.	dom 16.	aba 17.	nur 18.	chg 19.	end 20.	het 21.	agg 22.	con 23.	HSR 24.	GPA I 25.	CUM GP. 26.
SAT-V	----	.25*	.82*	.79*	.79*	.60*	.71*	.20	-.36*	-.11	-.08	.25*	.06	.23	.07	-.28*	-.14	-.27*	.10	-.25*	.17	.10	.00	-.06	.00	.02
SAT-M		----	.74*	.19	.14	.36*	.27*	.10	-.19	-.12	-.12	.16	-.04	-.09	.05	.11	-.20	.09	-.04	-.20	.10	.08	.06	.06	.17	.18
SAT-T			----	.66*	.64*	.64*	.65*	.22	-.38*	-.13	-.14	.26*	.00	.09	.08	-.13	-.19	-.16	.04	-.27*	.18	.12	.07	-.04	.07	.10
Con M				----	.83*	.38*	.51*	.25*	-.22	-.11	-.21	.13	.02	.22	.03	-.36*	-.07	-.28*	.14	-.15	.22	-.02	-.02	-.15	-.18	-.16
Voc					----	.57*	.62*	.25*	-.25*	-.06	-.21	.11	.17	.19	.15	-.28*	-.18	-.25*	.06	-.21	.21	-.05	.13	-.07	.04	.06
Comp						----	.77*	.39*	-.33*	-.06	-.10	.24	.03	.04	.07	-.06	-.30*	-.28*	.09	-.02	.20	.09	.06	.02	.07	.07
Speed							----	.24	-.36*	-.19	.06	.32*	.08	.06	.11	-.13	-.27*	-.24	.13	-.07	.28*	.07	.03	-.05	-.05	-.03
ach								----	-.12	-.10	.15	.21	-.34*	.17	-.13	-.02	-.22	-.40*	.06	-.11	-.14	-.02	.33*	-.19	-.07	-.07
def									----	.18	-.08	-.28*	-.05	.10	-.13	.17	.08	-.09	-.10	.22	-.40*	-.17	.18	.08	.11	.09
ord										----	-.16	-.28*	-.23	.06	-.13	.18	-.11	-.16	-.30*	.16	-.23	-.10	.09	.19	-.09	-.08
exh											----	.31*	-.07	-.13	.00	.14	-.19	-.19	.04	.04	.04	-.06	.19	-.17	-.13	-.18
aut												----	-.15	-.09	-.14	.19	-.26*	-.26*	.13	-.29*	-.08	.14	.05	-.32*	-.24	-.23
aff													----	-.21	.28*	-.24	-.05	.22	.06	.04	.32*	-.19	-.16	.14	.21	.20
int														----	-.48*	-.28*	.14	-.11	.05	-.03	-.40*	-.24	.23	-.04	-.13	-.12
suc															----	-.13	-.20	.15	-.11	-.11	.31*	.10	-.15	.22	.23	.29*
dom																----	-.33	-.11	-.26	.10	-.06	.16	.12	-.24	.02	-.05
aba																	----	.18	-.17	.20	.24	-.01	-.16	.18	.00	.01
nur																		----	-.18	.04	-.02	-.12	-.31*	.06	.14	.14
chg																			----	-.27*	.27*	-.18	.17	-.18	.00	.01
end																				----	-.06	-.15	-.10	.06	-.32*	-.42*
het																					----	-.06	-.18	-.06	-.00	-.01
agg																						----	-.24	.04	.05	.03
con																							----	.21	.11	.07
HSR																								----	.42*	.45*
GPA I																									----	.95*
CUM GPA																										

N=63
* .25 at .05
** .32 at .01

Table II, Columns 8-23, contain the predictor variables of the EPPS personality test. Of these sixteen measures only one, suc (Succorance or seeking help) is positively correlated with the cumulative grade point average. The correlation coefficient is .29 and is significant at the .05 level of confidence. A negative correlation between the cumulative grade point average and the end (Endurance) measure was obtained (-.42), significant at the .01 level of confidence. This was, at face value, a surprising finding, and one which in view of the trait it purports to measure was quite puzzling.

In Table II the High School Rank (HSR) produced comparatively high correlations with both the first semester grade point average and the cumulative grade point average. The HSR-GPA I coefficient of correlation was .42 at the .01 level of confidence; and, the HSR-CUM GPA coefficient of correlation was .45, significant also at the .01 level of confidence.

The highest coefficient of correlation, at the .01 level of confidence, was between the two criteria, the first semester grade point average and the cumulative grade point average. However, in view of the large proportion of freshmen in this particular sample, the finding was not surprising. The two criteria, GPA I and CUM GPA, were correlated at .95.

Table III contains a larger sample than the previously discussed group in Table II. In order to make use of a larger number of cases, coefficients of correlation were again computed between the two criterion variables and only 4 of the predictive variables: (1) SAT-V; (2) SAT-M; (3) SAT-T; and, (4) HSR.

The total sample group of Table III included 99 cases and of these 55 were females and 44 were males; 47 were freshmen, 29 were sophomores,

TABLE III

CORRELATIONS OF 4 PREDICTOR VARIABLES
TO GPA I AND CUM GPA;
INTERCORRELATIONS OF PREDICTORS

	SAT-V 1.	SAT-M 2.	SAT-T 3.	HSR 4.	GPA I 5.	CUM GPA 6.
SAT-V	_____	.28*	.81*	-.01	.14	.16
SAT-M		_____	.77*	.03	.17	.20*
SAT-T			_____	-.02	.18	.21*
HSR				_____	.34*	.39*
GPA I					_____	.94*
CUM GPA						_____

N=99
* .19 at .05
** .25 at .01

and 23 were juniors. The crucial Columns, 5 and 6, show the same pattern of relationships discussed in the previous table and tend, with the increased number in the sample including a wider representation of freshmen, sophomores, and juniors, to support the previously discussed findings: (1) SAT-V does not reveal a coefficient of correlation which is above the .05 level of confidence; (2) SAT-M shows a .20 relationship to the cumulative grade point average at the .05 level; (3) SAT-T shows a .21 relationship to the cumulative grade point average (.05 level); (4) HSR correlates .34 to GPA I and .39 to the CUM GPA, both significant at the .01 level of confidence; (5) the two criteria, GPA I and CUM GPA again reveal a very high coefficient of correlation at the .01 level of confidence. With the more evenly distributed sample group of 47 freshmen and a total of 52 sophomores and juniors, these findings have more validity than in Table II and tend to support the hypothesis that in this sample group the best single predictor of future college performance, in terms of grade point average, was the past college achievement in terms of grade point average.

Table IV is a scatter diagram showing the relationship between the composite SAT-T scores and the cumulative grade point averages obtained by the sample group (with the exception of the 4 who did not take the SAT). The graph shows a very wide scatter of the scores and gives some indication as to the reasons why the coefficients of correlation between these two measures were not higher. Below the SAT-T score of 1100, there were three persons who obtained grade point averages above 3.00 and of these, 1 had above 3.50. Below 1200, the usual cut-off score for an honors student, 9 students obtained grade point averages above 3.00 and 13 obtained grade point averages below 3.00.

TABLE IV

SCATTER DIAGRAM SHOWING RELATIONSHIPS BETWEEN
SAT-T SCORES AND CUM GPA

	900- 949	950- 999	1000- 1049	1050- 1099	1100- 1149	1150- 1199	1200- 1249	1250- 1299	1300- 1349	1350- 1399	1400- 1449	1450- 1499	1500- 1549		
4.00- 3.50-				I			III	III	II	II	I	I	I		16
3.49- 3.00-			II		III	III	III	III	I	III	III	I			39
2.99- 2.50-			II		I	II	III	III	III	I					25
2.49- 2.00-	I			II	II		II	III	II	III					19
1.99- 1.50-	II		I				I					II			6
1.49- 1.00-													I		1
.99- .50								I							1
	3	0	5	3	6	5	24	26	15	10	4	4	2	11 =	107

This table graphically represents the wide scatter of the measures obtained from a sample of 107, which represents all those in the honors group for whom SAT-T scores were available.

On Table IV, on the other end of the SAT-T distribution, 6 persons obtained SAT composite scores of above 1450; of these 3 had grade point averages above 3.00, and 3 had grade point averages below 2.00, with 1 person below 1.50. Within this group of 6 at the extreme upper end of the SAT-T distribution, above 1500, 1 person obtained a grade point average of above 3.50 while 1 obtained a grade point average below 1.50.

With this very wide scattering of the scores, especially those at the extreme ends of the distribution, it is difficult to obtain a high coefficient of correlation. A single person, such as the last case cited above, has a profound effect on the total indications of the relationships between the two measures.

In order to focus attention upon other aspects of the study, the data in Table V are presented. This table contains the means and standard deviations for the total of 26 variables and criteria. In each instance the measures obtained from the largest sample group were presented. Entries in Columns 1, 2, and 3 of Table V refer to the Honors Sample: Column 1 shows the N or number of cases in the sample; Column 2 the means; and Column 3 the standard deviations. The entries in Columns 4, 5, and 6 refer to the standardization norms used in constructing the tests and repeat the information given in Columns 1, 2, and 3 for comparison of these scores. Columns 7 and 8 refer back to the differences between the Honors Sample group and the standardization norms.

In discussing the limitations of this study it has been said that one major statistical problem was the restriction in range of the SAT scores. This is seen when one examines the mean of 628 obtained as the Honors Sample mean on the SAT-V and the Honors Sample mean of 629 obtained

TABLE V

MEANS AND STANDARD DEVIATIONS OBTAINED FOR THE VARIABLES AND CRITERION:
COMPARISON OF SCORES MADE BY THE SAMPLE GROUP WITH STANDARDIZATION NORMS

24 Predictors and 2 Criterion	HONORS SAMPLE			STANDARDIZATION NORMS			DIFFERENCES	
	N	Mean	Sigma	N	Mean	Sigma	Mean	Sigma
	1.	2.	3.	4.	5.	6.	7.	8.
SAT-V	99	628	77		500	100	128+	23-
SAT-M	99	629	73		500	100	129+	27-
SAT-T	99	1257	120					
CM	63	88	29	97	78	26	10+	3+
VOC	63	173	7					
COM	63	169	6					
SPD	63	172	8					
ach	83	16.67+	4.20	1509	14.38	4.36	2.29+	t=4.666
def	83	10.98-	3.27	1509	11.80	3.71	.82-	t=1.972
ord	83	8.29-	3.91	1509	10.24	4.34	1.95-	t=4.004
exh	83	14.00	3.45	1509	14.34	3.59	.34-	t=.8415
aut	83	13.89	3.85	1509	13.31	4.53	.58+	t=1.144
aff	83	15.00-	3.88	1509	16.19	4.36	1.19-	t=2.434
int	83	18.64+	5.08	1509	16.72	5.01	1.92+	t=3.439
suc	83	10.35-	4.02	1509	11.63	4.65	1.28-	t=2.457
dom	83	15.49	4.36	1509	15.83	5.02	.34-	t=.604
aba	83	13.05	5.25	1509	13.66	5.14	.51-	t=1.051
nur	83	14.41	5.26	1509	15.22	4.76	.81-	t=1.500
chg	83	17.72+	4.37	1509	16.35	4.88	.37+	t=2.502
end	83	14.99+	6.57	1509	12.65	5.25	2.34+	t=3.895
het	83	13.70-	5.44	1509	16.01	5.68	2.31-	t=3.614
agg	83	11.93	4.41	1509	11.70	4.73	.23+	t=.433
con	83	12.02	1.61	1509	11.64	1.84	.38+	t=5.83
HSR	99	91	11					
GPA I	99	2.88	.63			t=* 1.960	at .05	
CUM GPA	99	2.89	.64			t=* 2.576	at .01	

on the SAT-M with the means of 500 for each of these tests in a normal distribution. As noted in Column 7, this places the Honors Sample 128, and 129 points above the mean for an unselected college group. The standard deviation for the norm group on each test is 100 while for the SAT-V it is 77 and for SAT-M it is 73. This restriction in the variability implies that the scores cluster together closer toward the mean; the spread of the scores is not as great as would be found in an unselected college sample.

The Concept Mastery Test shows a different pattern than the SAT. In the Honors Sample of 63 the mean was 88, while in an unselected group of lower division Stanford students the mean was 78, a gain of 10 points in the mean of the Honors Sample. The variability was larger in the Honors Sample than in the standardization norm group, 3 points higher.

The Cooperative English Test showed the following means and standard deviations; Voc showed a mean of 173, a standard deviation of 7; Com showed a mean of 169, a standard deviation of 6; and, Spd showed a mean of 172, and a standard deviation of 8.

The Edwards Personal Preference Schedule (EPPS) means and standard deviations shown in Table V were used to compute a t-test to determine whether or not the differences shown in Columns 7 and 8 represented statistically significant different profiles than those reported for the standardization sample. In Column 8 are listed the t values obtained, using the standard formula. The following honors group profile on the EPPS was obtained: (1) The honors group is higher on the ach (Achievement), int (Intraception), and end (Endurance) scales at the .01 level of confidence; and higher on the chg (Change) at the .05 level of confidence;

(2) The honors group is lower on the ord (Order), het (Heterosexuality) scales at the .01 level of confidence, and lower also on the def (Deference), aff (Affiliation), and suc (Succorance) scales at the .05 level of confidence. Listed below is a summary of this information.

Higher on scales of: Achievement, Intraception, Endurance,
and Change.

Lower on scales of: Order, Heterosexuality, Deference, Affiliation,
and Succorance.

The High School Rank (HSR) of the honors sample group showed a mean percentile rank of 91 with a standard deviation of 11, which confirms an earlier statement on the high level of achievement in this sample group. There is no comparison made here in Columns 4, 5, 6, 7, and 8 for these statistics were not used in this study.

The mean of the first semester grade point averages obtained by the sample group was 2.88, with a standard deviation of .63. For the cumulative grade point average the mean was 2.89, the standard deviation .64. In view of the fact that this sample group contains all those who were accepted into the program and includes many who have since withdrawn or been dropped from the program, this figure is remarkably high and again substantiates the relatively high order of achievement attained by this group.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The study was designed to assess the predictive validity of scores made on aptitude, achievement, and personality tests, as well as high school rank, which were used in the process of selection of students for the University of Houston Honors Program. The predictor variables numbered 24 and included: (1) SAT-V; (2) SAT-M; (3) SAT-T; (4) Concept Mastery Test (CM); (5) Cooperative English Test scores in three areas including Voc (Vocabulary); (6) Comp (Comprehension); and, Spd (Speed); (8) Edwards Personal Preference Schedule scales of ach (Achievement); (9) def (Deference); (10) ord (Order); (11) exh (Exhibition); (12) aut (Autonomy); (13) aff (Affiliation); (14) int (Intrasection); (15) suc (Succorance); (16) dom (Dominance); (17) aba (Abasement); (18) nur (Nurturance); (19) chg (Change); (20) end (Endurance); (21) het (Heterosexuality); (22) agg (Aggression); (23) con (Consistency); and, (24) HSR (High School Rank in percentile).

The two criteria of success which were used in this study were the first semester grade point average (GPA I) and the cumulative grade point average (CUM GPA).

The sample group consisted of most of the freshman classes of the Honors Program for the Fall semesters of the years 1965, 1966, and 1967. The total number of subjects was 111, of which 61 were females and 50 were males. They were, at the time of this study, classified as follows: 49 were freshmen; 33 were sophomores; and, 29 were juniors. The total sample group consisted of those then "active" in the program as well as those who withdrew or were ineligible to remain in the program.

The data for the study were obtained from the permanent record files of the University of Houston Honors Program, from official high school transcripts, from official University of Houston transcripts, and from the files and records of the University Counseling and Testing Service.

Coefficients of correlation were obtained as measures of the relationship between the predictor variables and the criteria of success. In addition inter-correlations of the predictors and criteria were obtained.

A personality profile of the honors group was obtained from the Edwards Personal Preference Schedule which showed significant differences from the standardization norm group.

The study was limited in that it was a pilot study, an initial examination of data from a limited and somewhat restricted sample group. Obviously, a major statistical problem lay in the restricted range of the sample. Most of the test scores for the sample group were above the standardization sample mean and also showed, in many instances, less variability.

Since the sample group consisted of a total of 111 cases, and, within this total there was a great deal of missing data for individuals, it was found necessary to use several computer runs to maximize the number in each sample for whom data were available. In addition, since the sample of 111 contained freshmen, sophomores, and juniors, the total number of semester hours for the individual subjects varied greatly.

The IBM 1230 Optical Scanner was used in the card punching operations and the Sigma 7 Computer in the University Computing Service was used to compute the Pearson Product Moment coefficients of correlation between the predictor variables and the criteria and to compute the inter-correlations between all the variables and the criterion.

Conclusions

On the basis of the findings in this study the following conclusions seem justified:

1. There seemed on the basis of this limited study and restricted sample no significant relationship between any of the three SAT scores and GPA I or CUM GPA.

2. No significant coefficients of correlation were obtained between the Concept Mastery Test, the three scores on the Cooperative English Test, and the two criteria of success, GPA I and CUM GPA.

3. The Edwards Personal Preference Schedule, while providing a useful personality profile of the honors group, did not reveal positive correlations with either of the criteria with the exception of suc (Success) which was correlated at .29 to the CUM GPA at the .05 level of confidence. A negative finding which was quite surprising was that the end (Endurance) scale correlated $-.42$ with CUM GPA, and, was significant at the .01 level of confidence.

4. Of the 24 predictor variables, the high school achievement in terms of high school percentile rank (HSR) proved to be the most useful measure of future academic performance. The correlations to the two criteria of success ranged, at the .01 level of confidence from .34 to .45, depending on the sample size.

5. The two criteria of success were highly correlated in two separate sample groups at the .01 level of confidence. In the sample of 63 the correlation was .95; in the sample of 99 the correlation was .94. While this correlation is spurious due to the inter-dependence of GPA I and CUM GPA in that the latter measure includes the former, it is apparent that

past college performance is by far the best indicator of future college performance and even surpasses the high school rank as a predictor variable.

6. The Edwards Personal Preference Schedule revealed the following personality profile for the sample honors group: they scored higher on the scales of Achievement, Intracception, Endurance, and Change; they scored lower on the scales of Order, Heterosexuality, Deference, Affiliation, and Succorance.

Recommendations

The data obtained in this study might prove useful if the obtained correlations were combined in a multiple regression equation which could possibly produce a higher degree of predictive power. Studies should probably be attempted which would expand the criteria to include other measures of personal achievement either within the campus-academic setting, within the community, or in the sense of evaluating the results of a longitudinal follow-up study.

It has been found useful to group samples in such a way as to make them quite homogeneous, for example, grouping by college, major, class or sex. Another kind of homogeneous grouping which might produce significant results would be dividing the courses into various subject areas, particularly the honors courses or colloquia, and determining the various relationships to the grade criterion.

The "case history" approach to prediction might be evaluated either in terms of particular tests in this area or in the sense of weighing the biographical material available on this honors group from their permanent records in the Honors Program files.

A study might be undertaken using a matched control group of non-honors students and comparing their records of performance with a sample

from the honors group. Another type of control study might be matching "honors rejected" with "honors accepted" and comparing their academic performances.

An assessment of a university honors program may not only serve the needs of the specific program, but in the process of self-evaluation it might lead the way toward innovative thinking, creative approaches, and pilot projects which have broader functional applications to the entire educational experience at the college level.

BIBLIOGRAPHY

1. Adams, H. L., and Blood, D. F. Creative potential in honors students. The Superior Student, 1965, 7 (2), 41-43.
2. Astin, A. W. Research on the identification of talented students. The Superior Student, 1964, 6 (2), 20-22.
3. Aydelotte, Frank. Breaking the academic lock step: the development of honors work in American colleges and universities. New York: Harper and Brothers, 1944.
4. Cohen, J. W. Development of the honors movement in the United States. In J. W. Cohen (Ed.), The superior student in American higher education. New York: McGraw-Hill, 1966. Pp. 9-24.
5. Cohen, J. W. The first coordinated effort; the ICSS. In J. W. Cohen (Ed.), The superior student in American higher education. New York: McGraw-Hill, 1966. Pp. 25-49.
6. Cuzzort, R. P. Evaluating honors programs. The Superior Student, 1964, 6 (2), 3-8.
7. Damrin, D. E. Selection of honors students at the University of Illinois. The Superior Student, 1965, 7 (2), 23-28.
8. Demos, George, and Weijola, Merrill. Achievement-personality criteria as selectors of participants and predictors of success in special programs in higher education. California Journal of Educational Research, 1966, 17 (4), 185-190.
9. Educational Testing Service. Cooperative English tests: information concerning their construction, interpretation, and use. Princeton: Educational Testing Service, 1960.
10. Educational Testing Service. College board score reports: a guide for counselors and admissions officers. Princeton: Educational Testing Service, 1966-67.
11. Fricke, B. G. An evaluation of assessment procedures. The Superior Student, 1965, 7 (2), 3-9.
12. Fricke, B. G. Evaluate the goals of honors programs. The Superior Student, 1964, 6 (2), 13-15.
13. Fricke, B. G. The OAIS test and testing program. The Superior Student, 1965, 7 (2), 44-50.
14. Gillmore, D. M., and Sprinkle, R. L. A first step in evaluation. The Superior Student, 1964, 6 (2), 30-33.
15. Heil, L. M. Scholastic and personality variables associated with acceptance and success in the Brooklyn College scholar's program. The Superior Student, 1965, 7 (2), 34-40.

16. Heist, P. A., and Langland, Lois. Evaluating honors programs: history, problems, and prospects. In J. W. Cohen (Ed.), The superior student in American higher education. New York: McGraw-Hill, 1966.
17. Holland, J. L. Prediction of scholastic success for a high aptitude sample. School and Society, 1968, 86, 290-293.
18. Holland, J. L. Selection of honors students. The Superior Student, 1965, 7 (2), 16-19.
19. Langland, Lois. Selection procedures for gifted and honors programs at UCLA. The Superior Student, 1965, 7 (2), 29-33.
20. Lewis, E. C., and Schumacher, Gary. Prediction of superior performances in a university of science and technology. In Walter Weir (Ed.), Proceedings of the second annual meeting of the national collegiate honors council. Washington, D. C.: National Collegiate Honors Council, 1967. Pp. 83-90.
21. Schnitzen, J. P. Ability characteristics of high school graduates entering the University of Houston as new freshmen: Fall, 1967. Counseling and Testing Service, University of Houston. Mimeographed, 1967.
22. Spaeth, J. L. General problems in selecting candidates for honors programs. The Superior Student, 1965, 7 (2), 20-22.
23. Taylor, Calvin, and Ellison, R. W. Biographical predictors of scientific performance. Science, 1967, 155, 1075-1080.
24. The Psychological Corporation. Concept mastery test. L. W. Terman. New York: The Psychological Corporation, 1956.
25. The Psychological Corporation. Edwards personal preference schedule. New York: The Psychological Corporation, 1959.
26. University of Houston Honors Program. Meeting of the faculty council. Mimeographed. January, 1968.
27. University of Houston, M. D. Anderson Library Archives. General information catalog no. 14-a, 1949-1950.
28. University of Houston, M. D. Anderson Library Archives. Honors program (brochure). 1960.
29. University of Houston, M. D. Anderson Library Archives. Report of committee on honors courses and graduation with honors. Oct., 1947.
30. Warren, Jonathon, and Heist, Paul. Personality attributes of gifted college students. Science, 1960, 132, 330-337.
31. Weir, Walter. New trends in honors. In Walter Weir (Ed.) Proceedings of the Second Annual Meeting of the National Collegiate Honors Council. Washington, D. C.: National Collegiate Honors Council, 1967. Pp. 15-17.