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Development of an Inventory of Noncognitive Predictors of Academic Success

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To the Graduate Council:

I am submitting herewith a dissertation written by Annie W. Ward entitled "Development of an Inventory of Noncognitive Predictors of Academic Success." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.

E. E. Cureton, Major Professor

We have read this dissertation and recommend its acceptance:

E. O. Milton, L. M. Deridder, B. R. Holaday, K. R. Denton

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

May 22, 1958

To the Graduate Council:

I am submitting herewith a thesis written by Annie W. Ward entitled "Development of an Inventory of Noncognitive Predictors of Academic Success." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.

Edward E. Curton
Major Professor

We have read this these and
recommend its acceptance:

E. O. Milton

B. H. Holaday

S. D. Dyer

L. R. Schiller

Accepted for the Council:

Rale Hawthorn
Dean of the Graduate School

DEVELOPMENT OF AN INVENTORY OF NONCOGNITIVE
PREDICTORS OF ACADEMIC SUCCESS

A THESIS

Submitted to
The Graduate Council
of
The University of Tennessee
in
Partial Fulfillment of the Requirements
for the degree of
Doctor of Philosophy

by

Annie W. Ward

June, 1958

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the collection of the inventories.

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CHAPTER I

INTRODUCTION

Importance of the Study

The journals of education and psychology abound in studies of "prediction of academic success" in various courses, curricula and training programs. Since grades are readily available as a criterion and since previous grades and the scores on varied standardized tests are available as predictors, such studies are simple. The results of these studies are useful in selecting the best of available tests or the best combinations for predictive purposes, thus increasing the usefulness of the tests for group prediction. However, in spite of the number of these studies, and the refinement of statistical procedures used in conducting them, no such studies have yielded correlations high enough to permit accurate prediction for individual students. It is a comparatively simple matter to identify those students who cannot succeed: it is much more difficult to predict those who will.

Instructors at all levels of education have faced this problem, and most of them have formulated informal hypotheses to explain it, utilizing concepts of noncognitive factors. "Motivation", "aspiration", "interest", and "effort" are some of the commonly used, but vaguely defined, terms used in

explanation, and as the basis for remedial programs. Deans and principals often utilize probation for nonachieving students assuming that the punitive effect will result in higher motivation. Guidance counselors attempt to help students develop self-insight, clarify their goals, and develop better study habits. In elementary and secondary schools, teachers frequently mark students on "effort" as well as on achievement, hoping to "motivate" students to greater "effort".

There have also been many formal studies attempting to relate achievement unpredicted by standardized tests to several types of variables, with some of the findings offering some promise. Up to the present time, however, after more than a half-century of investigation, there is no standardized inventory of noncognitive factors that adds substantially to the prediction of academic success, when cognitive factors are controlled.

If an inventory can be developed which will increase appreciably the prediction of academic success, it would be of much help in college admissions work and in pre-admissions counseling. If it can be extended downward into secondary and elementary schools, students rated as "good risks" on intellectual factors, but "poor risks" on the nonintellectual ones, might be saved from failure through counseling or retraining of some kind.

As early as 1925, Terman (39) suggested that factors other than intelligence, such as effort and application,

determine to a great extent the achievement of gifted children, both in and out of school. Since that time much has been written about the role of various noncognitive factors in achievement, and many studies have been made. There are many evidences that educators are still concerned with the matter of noncognitive predictors of academic success. In a recent report of the Joint Committee of the School and College Relations Committees of the American Association of Collegiate Officers and Admissions Officers and the National Association of Secondary School Principals (18) it was pointed out that colleges need two types of information about incoming students:

. . . (a) their abilities to be successful in their chosen field of study and (b) their willingness to devote themselves industriously to this education. (p. 4)

Among other recommendations for improving the current situation is one that:

. . . the present competitive but cooperative effort among test publishers combined with needed and shared research be continued to improve and extend the types of test instruments now available and to build needed new instruments (e. g., to measure nonintellectual factors such as: motivation, interest, personality, etc.) (p. 5)

This study was undertaken in an attempt to develop such an instrument.

Statement of the Problem

The problem was to develop an inventory which would correlate significantly with academic achievement unpredicted

by the usual standardized test scores. Because of the purpose for which the inventory was to be designed, certain restrictions had to be imposed: (a) Since the study was conducted at a university, the inventory had to be suitable in content and interest for university freshmen. (b) The inventory had to be administrable in a group situation, because it must be administered to the entire freshman class. (c) The scoring must be objective and automatic because of the time pressure involved in administering, scoring and reporting the results of the Freshman Testing Program.

In addition to the necessary restrictions, other qualities also seemed essential: (a) It should be highly reliable. (b) It should not be readily susceptible to faking. (c) It should discriminate between students achieving academically and those not achieving.

Analysis of the Problem

In order to develop an instrument with the desired characteristics, these procedures were necessary: (a) Selection of the dimensions to be tested by the inventory, (b) Preparation and selecting of the items, (c) Selection of a criterion of academic success, (d) Identification of achieving and nonachieving students to serve as criterion groups, (e) Administration of the inventory to all first quarter freshmen students, (f) Selection of items which discriminate

between achievers and nonachievers, (g) Cross validation to determine the correlation of scores on the inventory with that part of academic achievement unpredicted by other test scores.

The selection of the dimensions of the inventory was based on a review of other studies; these studies and the dimensions selected are reported in Chapter II. The other procedures used in constructing the inventory are also reported in Chapter II. Chapter III is a report on the methodology of the item analysis, and Chapter IV contains a discussion of the items retained in the inventory, and a summary.

CHAPTER II

CONSTRUCTION OF THE INVENTORY

Selection of the Dimensions of the Inventory

Review of Related Studies

Within the past forty years there have been hundreds of articles speculating on the possible effect of noncognitive factors on academic achievement, and almost as many studies attempting to relate achievement to one or more factors.

In 1931, Tyler (40) reviewed studies of academic prediction up to that date, finding that many investigators using intellectual factors had concluded that other kinds of factors must also be considered. He also found that many such studies had already been made. Some of these studies used a measure of time spent in study, others used various methods of measuring personality traits, such as questionnaires, self-rating scales, and records of behavior. He also found that many studies of the relationship of interests and abilities had been made. Davis (7) in 1957 presented a carefully prepared survey of current research in nonintellectual and noninterest factors in academic achievement. His bibliography, which goes back to 1931, but which is largely made up of materials published since 1951, lists 124 titles.

In order to make any kind of meaningful interpretation of the great wealth of materials available in the area of noncognitive predictors of academic success, some organization seemed essential. The first step was to look at the techniques used. This simplified the second task of identifying common elements of the studies, because most of the terms used in these investigations are so nebulous that they must be defined in operational terms in order to be understood.

Techniques for studying nonintellectual factors in achievement have varied from the simple recording of introspection and interview comments to complete factor analyses of a great variety of data.

One commonly reported source of information is that based on the self-report of counselees. Edelston (10) listed clinically identified reasons for educational failure as: (a) External--an unsympathetic teacher, lack of friends, conflict in home relationships, (b) Reaction character formation --resistance to authority, rebellion, (c) Infantile neuroses--hysterical retreat, and (d) Defects of character--constitutionally originating. Kirk (20) from her experiences in a counseling center, states that nonachievers present a basic symptomatology, so common that the counselor automatically looks for evidences of it. These symptoms she lists as (a) No recognition or admission of the reasons for the academic deficiency, (b) Excellent insight into abilities,

(c) Unrealistic excuses and explanations, (d) Admission that he could be failing willfully, though he does not think so and (e) Refusal to discuss the problem. Kubie (21) reasons that the needs of a child often determine his later vocational choice, but that the vocation (or training for it) may fail to satisfy the needs. Weigand (43) used a structured interview, asking these questions: (a) What kind of work have you decided to do? (b) Who influenced you in that choice? (c) If you could pick any job you wanted, and were automatically given the necessary qualifications, What would you pick? (d) What is your major? (e) What is your minor? He found that three items differentiated between achievers and nonachievers: (a) Definiteness of choice, (b) Attitude toward choice and steps toward the goal, and (c) Connection between the goal and the major.

Another common method of procedure is to hypothesize that a single noncognitive variable is related to academic achievement, and find or devise some measure of that variable, correlating the measure with a measure of achievement. Few studies of this kind have produced significant results when cognitive factors have been adequately controlled. McClelland, et. al. (22) developed the concept of n Achievement from interpretations of the Thematic Apperception Test, and hypothesized that academic nonachievers would exhibit more n Achievement than achievers. However, Parrish and Rethlingshafer (30) found no difference between achievers and nonachievers,

who had been equated for intelligence. Norman (29) investigated the hypothesis that rigidity, as measured by the Hanfmann-Kasanin Concept Formation Test may be one factor accounting for differences in predicted and actual achievement. He found no significant differences between achievers and nonachievers on the concept formation test. Gustad (13) reviewed a number of studies using the Strong Occupational Level score as a measure of level of aspiration, and reported little relationship between that score and academic success. His own study produced nonsignificant results for the Occupational Level score as a predictor of academic achievement. Schultz and Ricciuti (34) found a similar lack of significance for other measures of level of aspiration.

At least one recent study has used a "shotgun" approach, throwing in all available information about students, and using the factor analysis technique to identify areas related to academic achievement. McQuary (23) applied factor analysis to such commonly available data about students as high school activities, test scores, high school percentile rank, parents' education and occupation, size of home community, size of family and position within it, number of hours study per week, college grade point average (g. p. a.) and a measure of introversion-extroversion. He identified six factors, five of them with loadings on the college g. p. a. The factors he called: (a) Academic performance, (b) Social class intelligence,

(c) Participating urban scholar, (d) Social extroversion, (e) Academic and financial security, and (f) Introvertive reader. The last is the only factor with no loading on academic performance. This study points out many correlates of academic performance, but permits no measure of the effect of noncognitive factors, since all factors with academic loadings are loaded with both cognitive and noncognitive factors.

Another commonly used method of studying noncognitive factors in achievement is the use of available tests or rating methods, either paper and pencil tests or projective tests. The variety of instruments used is an indication not only of ingenuity and scientific curiosity, but also of the lack of conclusive results with any one instrument.

Tyler (40) used a personality scale called the Self-Ordinary-General-Ideal scale, finding achievement correlating moderately with only two of the scales. This scale consisted of a number of statements with four columns, one for the examiner to use in checking the statements he considers typical of himself, one for those which he thinks his friends would consider typical of him, one for those typical of members of the profession he planned to enter, and one for those which would be true of his ideal self. Small correlations with achievement were found for some of the scales, which are based on differences in the placement of similar items. Stephenson (37) evolved a similar technique, called the Q sort, and found underachievers indicating

that defiance and independence were important qualities in themselves, while maturity and self-sufficiency were not so important to them. Overachievers indicated that a variety of other qualities were more important to themselves. Ward (42) secured teachers' ratings of students on cooperation, industry, reliability, courtesy, self-control, and personal attractiveness, and found that, for boys such ratings were more highly correlated with grades than were scores on achievement tests in the courses. For girls the best single predictor of grades was the achievement test score. Several studies have used personality tests such as the Minnesota Multiphasic Personality Inventory (12, 24) the Bernreuter Personality Inventory (17), the Thurstone Temperament Schedule (11), the Rorschach (32), the Thematic Apperception Test (30), and the Bell Adjustment Inventory (16), in an attempt to identify personality correlates of achievement. The results of such studies have generally been disappointing.

Another approach has been the attempts to construct an inventory which will predict achievement. Many of these inventories have been developed by item analysis of existing personality tests. Gough (12) selected thirty-six items from the Minnesota Multiphasic Personality Inventory, which he called the Hr scale. This scale correlated .38 with grades for college students. However, it also correlated .26 with I. Q. test scores, and failed to differentiate between achievers and nonachievers in a replication study in a high

school. McQuary and Truax (24) found twenty-three items on the MMPI which identified underachievers. These items are generally thought to be indicative of some type of maladjustment.

Another kind of inventory that has been developed is one based on "life experience" or information about the home, family and high school background. Malloy's (25) Life Experience inventory contains items related to school experience and attitude toward education, self appraisals, family relationships, and choice and types of friends. He found that scores on discriminating items increased slightly the multiple correlations with grades. Myers and Schultz (28), for the College Entrance Examinations Board, started the development of an attitude-interest questionnaire designed to predict achievement. The questionnaire originally contained questions about motivation for attending college, intellectual interests, teacher relations, study habits, withholding from outside activities, and parental backing. Items of the last two categories were dropped in order to decrease the length of the questionnaire. Schultz and Green (33) continued the development of the inventory, but found that it increased multiple r 's by only .01. Siegel (36) suggested that potential behavior can be predicted better from a knowledge of an individual's training, occupation, experience, and political and religious affiliations than from nebulous personality traits such as extroversion or dominance. He developed the

Biographical Inventory, yielding scores on eleven biographical variables: interest in action, interest in people, heterosexual interest, interest in religion and ethics, interest in literature, music, and art, interest in politics, interest in social science, socio-economic status, economic independence, dependence upon the home, physical health, and conservatism.

Inventories of work-study habits and attitudes are another promising type of inventories designed to predict academic achievement. Brown and Holtzman's (5) Survey of Study Habits and Attitudes has been used in several studies. The authors of the inventory report good correlations with grades (.26-.66) and low correlations with intelligence. Borow (3) constructed an inventory of 900 items, and found that those items which discriminated between achievers and nonachievers were usually related to study habits.

While many types of inventories have shown some correlation with academic success, the failure of any to provide clear-cut, consistent predictions required a careful analysis of the kinds of items used, the techniques of item selection used, and the control for such variables as curriculum difficulty in selecting achievers and nonachievers. An examination of the available inventories indicated that most of them contain items in the form of statements, which the examinee checks if true or omits if not true. It is extremely difficult to disguise the intent of items of this type. A more defensible

technique of item writing seems to be Siegel's, in which many alternatives, scored in different clusters, were listed under a fairly small number of item headings. Some of the inventory developers retained items with discriminating probabilities as great as .50, using scoring weights based on the probabilities. With probabilities of differences in criterion groups approaching .50, it is not strange that the discriminating power of the item fluctuates from one group to another. Failure to control for the difficulty of the academic program results in disproportionate numbers of students from a few curricula being designed as nonachievers, while large numbers from other curricula are classified as achievers. Items discriminating between these groups may do so because of differences in people electing the various curricula, rather than true differences in achievers and nonachievers.

Classification of Noncognitive Variables from Related Studies

The majority of promising studies of noncognitive factors associated with academic achievement involve variables which may be classified in one or more of four categories: (a) Motivation (including interests), (b) Personality variables, (c) Home, family and school background, and (d) Work-study habits. A summary of the studies relating to each category follows.

Motivation. The term most frequently used to explain variations in achievement not predicted by cognitive tests is undoubtedly "motivation", a term used to cover a variety of concepts. McClelland (22) hypothesizes a "need to achieve" and Borow (3) felt that perhaps the noncognitive variable of greatest importance to academic achievement was an interest to academic matters. A number of studies (28, 43, 44, 45) have indicated that definiteness of vocational choice and the student's personal interest in the goal are indicative of overachievement. Items related to variables of this nature are included in the global studies by Hepner (16) and McQuary (23).

Personality Variables. Many studies of the relationship of personality variables to academic success have been based on a hypothesis that one specific variable is important. Norman (29) found no relationship for a measure of rigidity. Gustad (13) found similarly discouraging results for the Strong Occupational Level score used as a measure of aspiration. Parrish and Rethlingshafer (30) found no discrimination between achievers and nonachievers for McClelland's construct of n Achievement. A number of studies (12, 17, 22, 45) using currently available paper-and-pencil tests have seemed promising, but the results have not always held up on cross-validation. The use of the projective tests has proved similarly unrewarding. McQuary's (23) factor analysis study produced some evidence that conflicts with parents and other

evidences of maladjustment were related to nonachievement.

Home, Family, and School Background. The size and type of home community were identified as important variables by Myers (27), and McQuary (23). These investigators also found that the size of high school attended, and the extent of participation in high school activities were important variables. Davis and Frederiksen (8), Shuey (35), and Weitz and Wilkinson (45) compared college progress of students from private schools with those from public schools and found the public school graduates to be superior in college achievement when ability was controlled. Baker and Baker (2) found the kind of program followed in high school to be related to some college courses, but not to others. Hepner (16) found that variables in the college environment such as the traditions, quality of instruction, curricular offering, and guidance services were related to student achievement. McQuary (23), and Myers (27) found that the size of the family and position within the family were important variables in academic achievement. The occupation and education of the parents were also found to be related to achievement, and Weigand's (43) and Edelston's (10) report of students' self reports indicate the negative effort of conflict with parents.

Work-Study Habits. Brown and Holtzman's Survey of Study Habits and Attitudes has contributed somewhat to multiple correlations. Borow (3) found that most of the discriminating

items on his inventory were related to work-study habits.

Ward (42) found ratings on cooperation, reliability and industry correlating higher with grades than achievement test scores for tenth grade boys. Strong (38) pointed out the need for "application" in achieving academic success.

A review of the related studies indicated that variables associated with motivation, personality factors, home, community and school background and work-study habits seemed to offer promise for further study. For the present study, these categories were selected as the dimensions to be measured by the inventory. It was hoped that an inventory measuring all these variables would be more valuable in predictions of academic success than a measure of any one of them alone.

The preliminary inventory which was evolved had items relating to the four areas listed above. The number of items and alternatives for each category are listed in Table I. There were 96 items with 689 alternatives in the inventory.

TABLE I

CLASSIFICATION OF ITEMS INCLUDED IN
PRELIMINARY INVENTORY

<u>Categories</u>	<u>Number of Items</u>	<u>Number of Alternatives</u>
<u>Motivation</u>		
Educational and vocational planning, aspiration, reasons for attending college	9	70
Scholastic interests	1	45
Subtotal	10	115
<u>Home, School, and Community Background</u>		
Size of community, size and type of high school, time between high school and college	3	26
High school activities	1	23
Parents' education and occupation	3	27
Family size and position in family	1	9
High school curriculum	1	4
Parental characteristics	4	56
Subtotal	13	145
<u>Work-Study Habits</u>	26	103
<u>Personal Characteristics</u>		
Relationships with parents	3	17
Relationships with peers	5	37
Relationships with others	9	78
Personal interests	7	57
Personal preferences		
In school situations	13	48
In other situations	8	38
Other personal characteristics		51
Subtotal	45	326
Total	96	689

CHAPTER III

METHODOLOGY OF ITEM ANALYSIS

Selection of the Criterion of Academic Success

The first quarter grade point average (g. p. a.) based on the scale: A=4, B=3, C=2, D=1, F=0, was selected as the criterion of academic success. The choice of the first quarter g. p. a., rather than a later cumulative average, was based on these considerations: (a) Many students either leave or are dismissed at the end of the first quarter. (b) There is more commonality of courses taken by students of a given curriculum during the first quarter. After that, some students reduce their course loads or repeat courses, so that much commonality is lost. (c) The first quarter g.p.a. contains grades on the first attempt at the courses, while later g. p. a.'s may include repetitions of courses.

Selection of Criterion Groups

Because a number of studies at this and other universities (1, 6, 15, 31) have demonstrated that different curricula differ markedly in difficulty level, it was decided that the identification of achievers and nonachievers should be based on students following a common course of study, rather than

on the entire freshmen student body. An attempt was made to secure groups of at least 100, homogeneous as to the courses taken during the first quarter. With three exceptions, the entire first quarter student body of each undergraduate college at the University of Tennessee was used as one group. Physical Education students were omitted from the College of Education group because their program differs from that of other Education students. Journalism students were omitted from the College of Business Administration group because they are not required to take mathematics. The Liberal Arts students were divided into three groups: I. Those having no major, II. Those with majors in Mathematics or Science, and III. Those with majors in fields other than mathematics or science. There were some Liberal Arts students who indicated majors not easily classified as Science or Non-Science, and they were omitted from the study. With two exceptions, all groups had at least 100 students. The exceptions were Agriculture ($N=79$), and Liberal Arts I ($N=42$). Because of the nature of these groups they were considered separately despite the comparatively small N 's. The designation and number of each group are reported in Table I.

For each group a regression equation was developed, and the predicted g. p. a. was computed for each student. The predictions were based on the tests administered routinely to all freshmen entering the University in the Fall quarter of

TABLE II

NUMBER AND DESIGNATION OF STUDENTS IN
VARIOUS COURSES OF STUDY

College	Curricula	N
Agriculture	All	79
Business Administration	All except Journalism	324
Education	All except Physical Education majors	101
Engineering	All	436
Home Economics	All	130
Liberal Arts I	No major	42
Liberal Arts II	Majors in Mathematics or Science courses; Pre-Medical, Pre-Dental, Pre-Nursing, Pre-Medical Technology Curricula	126
Liberal Arts III	Majors in English, Speech, Fine Arts, Sociology, History, Political Science, Philosophy, Psychology	122

1957. The scores were equated by the use of stanines based on total University freshmen population. Because of the high correlations between tests of the same general type, the two stanines on the quantitative tests, College Qualification Test (N) and Cooperative Elementary Algebra were added to yield one quantitative score, and the three verbal scores, College Qualification Test (V), Cooperative Mechanics of Expression, and Cooperative Reading Comprehension, were added to yield a Verbal score. The regression equations were based on these two composite scores.

The difference between the predicted g. p. a. and the actual g. p. a. was computed for each student and a distribution of these deviation scores was prepared. All the deviation scores were considered as one population. Since the deviations were based on the g. p. a. predicted and obtained in a given course of study, the relative difficulty of the various courses had been controlled, so there seemed no good reason for treating students of the various curricula as separate groups beyond that point.

The 27 per cent of students whose actual g. p. a. was highest above the predicted g. p. a. were designated as the "achievers", while the 27 per cent whose actual g. p. a. was furthest below the predicted g. p. a. were designated as "nonachievers". These percentages were selected because it has been demonstrated by Kelley (19) that the use of this percentage of the tails of a normal distribution yields the

greatest precision in item analysis, because the ratio of the difference to its standard error is maximized.

Administration of the Inventory

Although the ideal procedure in the administration of the inventory would have been to include it in the regular freshman testing program, this was not feasible because the fall quarter was well underway by the time the inventory was completed. It was, however, considered desirable to develop immediately at least a preliminary inventory which could be used with subsequent freshmen classes, with provision for a continuing evaluation and revision of the inventory. Since all freshmen students are required to take English, this seemed a logical place to secure a complete sample of freshmen. The instructors of the freshmen English classes were asked for their cooperation in providing a class period for the investigator to explain and distribute the inventory, with the students taking it out and returning it at the next class meeting.

The investigator or an associate¹ met each class to explain the purpose of the inventory and distribute it. The instructions read to the students and the mimeographed directions which accompanied the inventory are included with the Preliminary inventory in Appendix A.

¹Mr. E. J. Fisher, a fellow graduate student, and director of the University of Tennessee Student Counseling Center.

The investigator or an assistant met each class at the next class meeting to collect the returned inventories. Students failing to return their paper were told to bring them at the next class meeting. Letters were written to those not returning the inventory at the second class meeting. The returns were surprisingly high, with many classes having 100 per cent returns, although a few had only 50 per cent. The differences seemed attributable to the amount of emphasis the various instructors put on the project, rather than to any other one factor. It was feared that a greater proportion of nonachieving students would not return their inventories. This remained to be checked empirically, after the criterion groups were selected. The inventories were also marked to indicate whether they were returned at the next meeting of the class, or whether there was a delay. It was found that a slightly larger percentage of the nonachievers did fail to hand in an inventory, and more of them handed theirs in late. Table III presents the breakdown of the returns for the achieving and nonachieving groups. There were 1352 students for whom all data were available for computing the difference in predicted and actual g. p. a. However, inventories were not available for 99 (26 per cent) of the nonachievers and 85 (22 per cent) of the achievers. This left 266 in the smaller group, the nonachievers. An analysis showed that the return or nonreturn of the inventory was not related to the magnitude

TABLE III

SUMMARY OF THE RETURN OF INVENTORIES
FROM EACH OF THE CRITERION GROUPS

<u>Designation</u>	<u>Achievers</u> N	<u>Percent-</u> <u>age</u>	<u>Non-</u> <u>Achievers</u> N	<u>Percent-</u> <u>age</u>
27 <u>per cent</u> of the total group	365	100	365	100
Inventories not returned	85	22	99	26
Inventories returned at next class meeting	251	81	218	70
Inventories returned late	29	7	48	14
Total inventories returned	280	88	266	84

of the deviation of predicted and actual g. p. a., so it was felt that the inventories received from each group were typical of the groups, and no further attempt was made to secure additional returns.

For each student an IBM card was punched, containing the responses to all the items on the inventory. The student number was punched into columns 1-7, and multiple punches were used for the other columns. The punching directions were included on the inventory in the left margin.

After the criterion groups of achievers and nonachievers were selected, the cards containing their deviation scores were matched with their inventory cards.

All of the nonachievers for whom inventories were available were used as the sample for that group. The number of cards for the achieving group was reduced by pulling out cases, on the basis of the deviation score, in such a way that the distribution of deviation scores was left intact, until the number remaining equalled the number of nonachievers, 266.

Selection of Items

The inventory cards for the nonachieving group were identified by an "X" gang-punched into column 80, and each group of cards was run through the counting sorter, which yielded the number of students in each of the criterion groups

checking each of the 689 alternatives. The differences were evaluated for significance by the use of the Chi-square technique for comparing equal groups:

$$\text{Chi-square} = \frac{N (1D1-1)^2}{S (N-S)}; S=H+L; D=H-L, \text{ where } N=\text{total}$$

number in both groups (266+266=532), H=number in high group (achievers) who checked the alternative, L=number in low group (nonachievers) who checked the alternative.

As a further check on the discriminating power of the items, a subsample from each of the criterion groups was selected: (a) 38 students whose predicted g. p. a. was 2.00 or better, but whose actual g. p. a. was below 1.50; (b) 41 students whose predicted g. p. a. was below 1.50, but whose actual g. p. a. was 2.00 or better. These limits were selected because students are required to have a 2.00 average by the end of the second year, but may remain in school with an average of 1.50 or better the first year. These are the students for whom errors in prediction could have the most serious consequences. It seemed highly desirable, therefore, that the final inventory should differentiate between these two groups.

To be included in the final inventory, an item had to meet two criteria. (a) In the first selection, using the highest and lowest 27 per cent, it had to discriminate between achievers and nonachievers with a probability of .05 or less. (b) For the criterion groups selected on an arbitrary basis of predicted passes who failed, and predicted failures who

passed, the items had to show a difference in the same direction. There were 58 items which met both of these criteria. The data for the analysis are presented in Appendix B. In the first item analysis, there were 121 items which discriminated between the groups of achievers and non-achievers at the .05 level or better. The number of items with varying discriminatory probabilities is reported in Table IV. On the second analysis most of the items with probabilities greater than .01 were eliminated, so that of the 58 items selected for the final inventory, 39 had probabilities of .01 or less, and only 12 had probabilities as great as .02-.05.

An inspection of the items indicated that most of them were easily classifiable as those pertaining to home or school background, those pertaining to work-study habits, and those pertaining to vocational planning. Other types of items were not discriminating for this group of students. The discriminating items are discussed in Chapter IV.

In preparing the revised inventory the original format of the item was usually preserved, including many nondiscriminating choices, in order to preserve the import of the item, and to disguise the nature of the discriminating choice. The final inventory appears in Appendix C.

TABLE IV

NUMBER AND PERCENTAGE OF ALTERNATIVES DISCRIMINATING
AT EACH PROBABILITY LEVEL ON FIRST ITEM SELECTION,
AND NUMBER RETAINED AFTER SECOND ITEM SELECTION

Probability of Difference	First Selection ¹		Second Selection ²	
	Items	Percentage	Items	Percentage
Less than .001	21	3	19	3
.001-.01	37	5	20	3
.01-.02	20	3	7	1
.02-.05	43	6	12	2
Greater than .05	<u>568</u>	<u>83</u>	<u>0</u>	<u>0</u>
Total	689	100	58	9

¹Upper and lower 27 per cent achievers.

²Those predicted to pass (predicted g. p. a. 2.00 or better) who failed, (actual g. p. a. less than 1.50) and those predicted to fail (g. p. a. less than 1.50) who passed (g. p. a. greater than 2.00)

Cross-Validation

There were 125 freshmen students entering the University in the Winter quarter of 1958 who were available to serve as a cross-validation sample. All of these students took the preliminary inventory, the results of which were punched into IBM cards as with the original sample. Predicted grade point averages were computed for this group, using the regression weights developed from the data of the Fall quarter groups, and the deviation of actual g. p. a. from predicted g. p. a. was computed for each student. Students whose deviations were the highest and lowest 27 per cent served as the criterion groups. There were thirty-three cases in each group.

The cards were scored on the items which had been found to be discriminating, giving each positive item a value of +1 and each negative item a value of -1. The score for each student was the algebraic sum; i. e., his positive score minus his negative score. A distribution of the scores thus obtained was prepared for each criterion group. These distributions are shown in Table V. The mean for the achievers was 3.303, with a standard deviation of 3.214, while for the nonachievers the mean was -2.758, with a standard deviation of 4.402. A t test of the significance of the mean difference yielded a t value of 5.660, with a probability of less than .00001.

As a further check on the predictive power of the inventory, the point-biserial correlation corrected for range

was computed. This is formally identical with the Brogden (4) biserial correlation. The formula is:

$$r_B = \frac{M_1 - M_2}{M_I - M_{II}},$$

where M_1 = Predictor mean for upper criterion group,

M_2 = Predictor mean for lower criterion group,

M_I = Predictor mean for upper half of predictor distribution,

M_{II} = Predictor mean for lower half of predictor distribution.

The value of r_B for the data of Table V was $r_B = .75$, an extremely high predictive index.

The multiple correlation was computed for the prediction of g. p. a. from the weighted test scores and the inventory. The value of the multiple r was .79, an increase of .06 over the prediction from weighted test scores alone.

TABLE V

DISTRIBUTION OF SCORES ON DISCRIMINATING ITEMS
FOR ACHIEVERS, NONACHIEVERS AND TOTAL
CROSS-VALIDATION SAMPLE

Score	Achievers	Nonachievers	Middle Group	Total
10	2		1	3
9			2	2
8	2		3	5
7	2		1	3
6	2	2	1	5
5	1		8	9
4	7		4	11
3	4	4	3	11
2	3	1	4	8
1	3	2	7	12
0	2	4	5	11
-1	3	1	1	5
-2	2		6	8
-3		2	6	8
-4		4	3	7
-5		3		3
-6		0	1	1
-7		4	2	6
-8		3		3
-9		2	1	3
-10		0		0
-11		1		1
N	33	33	59	125
M	3.303	-2.758	1.237	.728
σ	3.214	4.402	4.322	4.706

CHAPTER IV

DISCUSSION, CONCLUSIONS AND SUMMARY

Discussion of Selected Items

Although the inventory contained 689 alternatives, each of which was treated as an item, only 58 of these met the criteria for inclusion in the final inventory. Twenty-seven of the items were positive, i. e., were checked by a significantly greater number of achievers, and thirty-one were negative, checked by a significantly greater number of nonachievers.

Although nearly one half of the alternatives on the original inventory were in the area of personal characteristics, very few items of this type survived the item selection. It might be possible to find some clusters of items that would discriminate between achievers and nonachievers, but this hardly seemed worthwhile in view of the discriminating power of the other types of items.

In the discussion of the selected items, the same outline is used as was used in the discussion of the preparation of the inventory in Chapter II.

Items Related to Motivation. There were two types of items included in the inventory which were designed to measure motivation. One item, with forty-five alternatives was a

listing of school courses, some academic, others of a non-academic nature. There was a slight tendency for the achievers to check more of the academic courses, but the differences either were not significant or did not hold up in the second item selection procedure. The other items were related to educational and vocational planning, and a measure of level of aspiration. Six of the original nine items of this kind contained at least one discriminating alternatives. These items and alternatives are listed in Table VI.

A strong argument for more high school guidance services is presented by some of the results on these items. A significantly greater number of achievers indicated that the person who was of most help to them in the choice of an occupation was someone in the high school--teachers, principal, or guidance worker, while the nonachievers tended to receive their greatest help from parents. A greater number of achievers also indicated that they had made a definite vocational choice, or had chosen an occupational field, while nonachievers indicated either vocational indecision or a feeling that they needed to change.

All the discriminating alternatives of this category indicated that students who had given attention to planning their college program and to choosing an occupation achieved better than those who had not. A greater proportion of students indicating that they were partially self-supporting were achievers, while of those entirely supported by parents,

TABLE VI

DISCRIMINATING ITEMS RELATED TO
EDUCATIONAL AND VOCATIONAL PLANNING

Item	Difference	
	Direction	Probability
Indicate those people who have been most helpful to you in selecting an occupation.		
High school teachers, high school principal, or guidance counselor in high school	+	<.001 ✓
How are your expenses being paid?		
Entirely supported by parents	-	<.001 ✓
Partly self-supported	+	<.001 ✓
Check the reason that was most important in your decision to attend college.		
I want to get a good general education--to learn all I can	+	.01-.001 ✓
To please my mother	-	.01-.001
How definite are your vocational plans?		
I have made a definite choice, and am pursuing a course which leads to preparation for that vocation.	+	.01-.02 ✓
I have decided on a general field in which I would like to work, and am exploring several possibilities of vocations within that field.	+	.05 ✓
I have no idea what vocation I want to follow.	-	.01-.02 ✓
I had made a definite choice, but now find I am in the wrong field.	-	.05 ✓

TABLE VI (CONTINUED)

DISCRIMINATING ITEMS RELATED TO
EDUCATIONAL AND VOCATIONAL PLANNING

Item	Difference	
	Direction	Probability
By the end of the first term (quarter, semester), I expect my grades will be		
Barely passing in most courses	-	<.001 ✓
Good in some courses, low in others, with an overall average high enough to stay in school	-	<.001 ✓
Average or better in every course	+	<.001 ✓
Very good in every course except possibly one	+	<.001 ✓
Check every item that is true of you.		
I want to be successful in order to make my family proud of me.	-	.02-.05 ✓

a greater proportion were nonachievers. This suggests that students who are partially responsible for the financing of their education are more likely to be those who elect to attend college, rather than having the decision made for them by their parents. Additional support for this interpretation is found in the item concerning the reasons for deciding to attend college. The best reason from the standpoint of achievement, is to get a good general education, while the poorest is to please one's parents.

The other aspect of educational and vocational planning included in the inventory was an item asking for a general prediction of the grades for the first quarter. Four of the five alternatives for this item were discriminating. Only five students, all nonachievers, selected "so low I will not be able to continue in school". Of the other alternatives, nonachievers tended to select the next two lowest alternatives, while achievers selected the two highest. Apparently students are fairly realistic in their general expectations, although very poor students are not realistic enough.

Items Relating to Home and School Background. The discriminating items relating to the home community, size of high school attended, and information about the parents are reported in Table VII. Responses to these items seem to indicate that meager school and home circumstances are typical of the achievers, while nonachievers tend to come from larger communities and schools, and from better homes. A greater

TABLE VII

DISCRIMINATING ITEMS RELATED TO
HOME AND SCHOOL BACKGROUND

Item	Difference	
	Direction	Probability
Which category best describes the community in which you lived during high school?		
Rural area, no town larger than 2500 people	+	.01-.001 ✓
Small city, 25,000-50,000 people	-	.01-.001 ✓
What is your position in your family?		
Oldest child	-	.01-.001 ✓
What is your father's or guardian's occupation?		
Managerial or semiprofessional	-	.01-.02 ✓
What size of high school did you attend?		
More than 1000 students	-	.01 ✓
How much education did your father have?		
Between 4 and 8 years, no high school	+	<.001 ✓
Post-college training	-	.01-.02 ✓
Mark all activities in which you engaged while in high school.		
Appearing in plays, TV or radio programs	+	<.001 ✓
Editing school paper	+	.02-.05 ✓
Belonging to honorary club (Beta, Key, National Honor Society)	+	<.001 ✓
My father		
Keeps his clothes and other belongings in good order	-	.01-.001 ✓

proportion of achievers checked items indicating that they come from a rural community of less than 2500 people, and that their father had less than an eighth grade education, while a significantly greater number of nonachievers indicated that they come from a town larger than 25,000, attended a high school of more than 1000 students, and had a father engaged in a managerial or semi-professional occupation. This seems strange, in view of what is known about the correlation between socio-economic status and achievement test scores; but it must be remembered that the prediction of the grade point average from test scores had been controlled in selecting the groups of achievers and nonachievers. It seems likely that test scores for students from limited home and school environments underestimate the true ability of such students, while scores for students from strong high schools and stimulating home environments are a better estimate of their true ability. It is also very possible that students from poor backgrounds are highly motivated, or they would not have enrolled in college at all, while youths from better homes take college attendance as a matter of course. These items offer more evidence that achievers are in school largely of their own considered choice, while nonachievers are there because their parents think it is the thing to do.

The only discriminating item related to the size of the family or the position within the family was the one indicating that the student was the oldest child, which was

checked by a significantly greater number of nonachievers. This does not substantiate the usual hypothesis that the oldest child in the family is the most conscientious one, but no explanation can be advanced for this finding. On the first item analysis, a greater proportion of second children were achievers, but this did not hold up in the subsample.

Only one item among those referring to personal characteristics of the father and mother was found to be discriminating: "My father--keeps his belongings in good order". This item was checked by nonachievers. No explanation for this finding is readily available, but it held up in both analyses.

Three items on the list of high school activities were found to be typical of achievers: editing a school paper, appearing in plays, TV, or radio programs, and belonging to an honorary club. Since all these activities are usually limited to students with fairly good academic records, it is not surprising that students checking these items are good students at the University, too.

Items Relating to Work-Study Habits. Although less than one-sixth of the 689 alternatives on the preliminary inventory were related to work-study habits, more than one-third of those selected were in this category.

No one who has played the role of a teacher will be surprised that these items discriminate between achievers and nonachievers. What is surprising is the degree of candor

with which students supplied the information. There are several possible explanations. It may be that the circumstances under which the data were collected presented no threat to students, so that they felt no need to conceal their reactions. The directions emphasized that no student would be personally identified, and that the results would have no effect on grades. If this is the explanation, future administrations may not be so successful in eliciting honest responses. Another possibility is that poor students simply are ignorant of good work-study habits and could not select the "best answer", while good students could. If this is true, then the inventory is a test of knowledge of work-study habits, rather than an inventory of practices. The items and discriminating alternatives are listed in Table VIII.

Two of the negatively discriminating items indicate the achievers' inability or refusal to cope with disinterest in a subject or a dull instructor. For the statement "When I have an instructor who lectures in a monotone. . .", non-achievers checked "I frequently almost go to sleep and miss most of what he says", while achievers checked the other choices. Nonachievers also indicate an inability to do good work in a class which does not interest them. A great number of achievers indicate that they do their best work in a course which they will need later, while nonachievers checked other alternatives.

TABLE VIII

DISCRIMINATING ITEMS RELATED TO
WORK-STUDY HABITS

Item	Difference	
	Direction	Probability
When I have an instructor who lectures in a monotone		
I frequently almost go to sleep, and miss most of what he says	-	.001 ✓
I like courses which are		
So hard that I have to study a lot, and learn a lot of new material	+	.02-.05 ✓
When I am studying		
I must have absolute quiet or I cannot concentrate	+	.01-.02 ✓
I like to have the radio playing	-	.01-.001 ✓
When I have a special assignment or a difficult task		
I begin working as soon as I get the assignment, and usually finish ahead of time	+	.01-.001 ✓
When I have an appointment for a certain time		
I am usually a little early	+	.01-.001 ✓
I am sometimes early and sometimes late	-	.01-.001 ✓
If the bell rings before I finish a test, I		
Immediately hand in my paper	-	.02-.05 ✓
Finish the question I am on and then turn in my paper	+	.02-.05 ✓

TABLE VIII (CONTINUED)

DISCRIMINATING ITEMS RELATED TO
WORK-STUDY HABITS

Item	Difference	
	Direction	Probability
When I have a certain amount of work I do, I usually		
Take brief rests every once in a while	+	<.001 ✓
Do about half of it, then take a long rest before finishing	-	.01-.001 ✓
Stop frequently to talk to someone, look for something, etc.	-	.01-.001 ✓
I keep my notes for various courses		
All together in the same notebook	-	.01-.02 ✓
In a separate notebook for each class	+	.01 ✓
I do my best work in courses in which I feel the course is something I will need later	+	<.001
If I have an hour or so of free time between classes, I usually		
Relax with friends	-	<.001
Go to the library	+	.02-.05
Find some quiet place and study	+	<.001
Check every item that is true of you		
I am unable to do good work in a class which does not interest me	-	<.001 ✓
If I have a choice of seats in a classroom, I try to		
Sit close to the front, where I can see and hear everything	+	<.001 ✓
Sit wherever my friends are sitting	-	.01-.001 ✓
During holidays and short vacations		
I work on assignments which will be due soon after school reconvenes	+	.01-.001 ✓

Responses to other items present a picture of non-achievers as students with many interests stronger than their interest in school work. Nonachievers select a seat near their friends, while achievers choose a front seat in the classroom, so they can see and hear everything. When nonachievers have some free time between classes, they like to relax with friends, while achievers either find a quiet place to study or go to the library. Achievers indicate that they like courses so hard that they have to study, while few nonachievers select that alternative. When achievers have a special assignment, they start working immediately, while nonachievers wait until near the deadline. When faced with a certain amount of work to do, achievers indicate that they take brief rests periodically, while nonachievers take one long rest about half-way through, or "stop frequently to talk to someone, look for something, etc." During holidays and short vacations, nonachievers apparently try to forget school, while achievers use the time to work on assignments due after school reconvenes. If the bell rings before a test is completed, nonachievers hand in their papers immediately, while achievers complete the question on which they were working. A greater proportion of nonachievers indicate that they like to have the radio playing while they are studying.

Two items indicate that achievers exhibit more personal efficiency than nonachievers. Achievers indicate that they

either have a separate notebook for each course, or that they have a separate section for each course in one notebook, while nonachievers keep everything together in one notebook. When they have an appointment, achievers are usually either exactly on time, or a little early, while nonachievers are sometimes early and sometimes late.

Personal Characteristics. Only eleven of the original 326 alternatives of personal characteristics discriminated between achievers and nonachievers. These are listed in Table IX. Two of these indicated that nonachievers tend to be more interested in social activities than in academic matters. A significantly larger number of nonachievers indicated that they have many close friends and are on friendly terms with almost everyone. They also indicated that the thing they enjoy most about school is being with other students. The interest in others may explain the results on the item, "If some friends and I were in trouble, and I was the only one caught, I would . . ." Achievers indicate that they would either try to get the others to give themselves up or tell the authorities who the others were. Nonachievers indicated that they would take all the blame themselves. (On the first item selection the difference was significant at the .01 level, but there was no difference between the criterion groups on the re-analysis.) There is some evidence that some of the non-achievers' failure to make the kind of grades they should is partly due to an exhibition of a critical attitude in the classroom.

TABLE IX

DISCRIMINATING ITEMS RELATED TO
PERSONAL CHARACTERISTICS

Item	Difference	
	Direction	Probability
When I am looking at a magazine I usually attempt to work out Situation puzzles (such as, What would you have done?)	-	.01-.02 ✓
I have Many close friends, and am on friendly terms with almost everyone	-	.02-.05
If some friends and I were in trouble, and I was the only one caught, I would Try to get the others to give themselves up	+	.02-.05 ✓
Tell the authorities who the others were	+	.01-.001 ✓
Reading materials read regularly		
Mystery stories (books)	-	<.001 ✓
Mystery stories (magazines)	-	<.001 ✓
My favorite activities involve		
Helping someone	+	.01-.001 ✓
Earning money	-	.05 ✓
I dislike people who Cannot take criticism	-	.01-.001 ✓
Check every item that is true of you		
The thing I enjoy most about school is being with other students	-	.01-.001 ✓
In class discussions		
I frequently disagree and sometimes am able to change the majority opinion	-	.02-.05 ✓

Nonachievers indicate that in class discussions they frequently disagree and sometimes are able to change the majority opinion. They also indicate that they dislike people who cannot take criticism. These results are difficult to reconcile with the results which indicate that nonachievers have many friends, whom they are eager to please. Since none of the items was selected by all nonachievers, it may be that there are two segments of the nonachiever group, which could be identified as the social group and the antisocial group. However, there is no other evidence in this study to support this idea.

The other discriminating items of personal characteristics present further evidence that nonachievers have many interests strong than their interest in academic matters. McQuary's (23) conclusion that excessive reading is a symptom of academic deficiency was supported by the results of this study. Except for the reading of encyclopedias, nonachievers indicate more reading than achievers, especially of mystery stories. Non-achievers also watch more television programs and work out more situation puzzles in magazines; and their favorite activities involve earning money. Achievers like to help other people.

In the original item analysis, more achievers indicated that they liked activities involving learning about something, but there was no difference in the two groups on the second item analysis.

Conclusions and Recommendations

Although the discriminating items on the inventory came from all categories which the inventory was designed to cover, there seems to be a common element running through most of them. This element may be identified as "lack of academic interest". A re-examination of those items which were selected for the final inventory indicates that most of the items which discriminated did so not because of the specific information on which the item is based, but because that information is an indication that the student either has or does not have an interest in academic matters. Borow (3) reached somewhat the same conclusion in a similar study at Pennsylvania State University. He says, "Often what seems to be fairly specific entities of student adjustment may be pervaded by more generalized attitudes about academic matters."

The symptoms of the lack of academic interest are not the same for all nonachieving students. With many, it is indicated in their reasons for deciding to attend college. For many young people, a college education is merely a hurdle to be crossed in preparing for an occupation, or it is considered to be an opportunity to make social contacts, and take part in many nonacademic activities. Other students start at the University because their parents are eager for them to better themselves; with others it is the continuation of a social pattern. The necessity for maintaining a passing

grade point average is an annoyance to these people, to be circumvented as far as possible by such devices as enrolling in "crip" courses, seeking easy instructors, or carrying a light academic load. Faculty advisors, instructors, and readmissions counselors will recognize many of their problem students among this group. They (or their family) want the recognition and status of the college degree, but have no desire for the learning on which it is supposed to be based.

As pointed out earlier in the discussion of the items related to work-study habits, nonachievers indicate either unwillingness or inability to cope with situations which are less than ideal--a boring instructor, a course in which they are not interested, or distractions when they are studying. These are frequent complaints of students asking for counseling for academic problems.

Another common request from academically deficient counselees is for an evaluation of their abilities, because they feel they may be in the wrong field. This same feeling was reflected in the results of this study. There seems to be a feeling that if a course of study requires some effort, it is the wrong program. This is another indication of the desire for a degree or certified competency without the desire to acquire the knowledge on which the award should be based.

This seems to be a basic problem in current education at all levels. Educators may be partly responsible for the problem, having oversold the idea that a good education pays

off in prestige and money, but there are other forces that operate in the same direction. Almost every issue of the popular magazines contains an article on the importance of education. However, very few of these indicate that education is a dynamic process which the student must carry on for himself. There is an implicit assumption that one can become educated by merely spending some time in an institution where knowledge is made available. Critics of modern education might do well to take a second look at their definition of education. Educators also have an obligation to educate the public about the nature of the educational process.

As Harris (15) said:

It seems to be interest and better work in the harder subjects, those that require consistent application for mastery, that go with above-expectancy grades in general, as against the below-expectancy grades associated with interest or achievement in those subjects in which good work is possible by virtue or special background without sustained present effort.

If universities are to contribute more than mere vocational preparation to the education of young men and women, some means must be found of increasing the desire for learning for the sake of learning. This cannot wait until entrance into college, however. Very young children exhibit an insatiable curiosity, which could be the basis for later zeal for learning. However, somewhere before the ninth grade, most of them have lost the desire to know, and are content with absorbing only what the teachers require.

It may take a complete re-evaluation of child-rearing and educational practices to effect any real change. In the meantime, some immediate solution must be found for the problem of the students in school who exhibit little desire for learning. Some possible solutions are listed below:

1. An inventory such as the one developed in this study should be used to identify potential nonachievers.

2. A program for the selection of students should consider the matter of "motivation for academic work", as well as ability to do the work.

3. An attempt should be made through counseling and group guidance to increase the interest in academic training and to retrain students' study habits.

4. Provision should be made to provide students whose vocational goals are ill-defined with both vocational and personal guidance to help them identify not only their vocational objectives but also their objectives for attending the University. It may be that for many, another type of training would be more feasible.

5. If the current trend toward vocational training as an objective for college attendance grows, the instructional staff will have to expect a lack of academic motivation per se in many students. Other motivations such as practical applicability will have to be used to secure active participation in class work. It might even be necessary to revise the requirements for some curricula to eliminate all but practical courses.

Acceptance of the last suggestion would result in turning universities into nothing more than vocational training plants. In that case, serious questions should be raised about the necessity for the college or university, if technical and trades schools could provide the same training at a lower cost. This writer at least, is not ready to concede that there is no need for learning which is not vocationally oriented or which is not immediately applicable. There must be many others who feel the same way. However, unless some concerted action is taken to change the current thinking, the university as it is currently conceived may soon become extinct.

Suggestions for Further Research

Before the inventory developed in this study can be used with any degree of confidence, several additional studies should be made:

1. A check on the reliability of the instrument should be made, probably by a re-test at the end of one quarter.
2. A study should be made of the susceptibility to faking, comparing original scores with those made by the same students after they are told the purpose of the inventory.
3. Additional evidence of predictive validity should be secured with complete freshmen classes.

In addition, it would be desirable to investigate the predictive power of part-scores, e. g., background factors vs.

work-study habits, to see which, if either, contributes most to the predictive power of the inventory. Part-scores would also be useful in working with individual students, because the total score is not diagnostic.

The use of an inventory such as this is only one approach to the study of nonachievement. It is the only method feasible for large groups and initial screening procedures. But there is also a place for a clinical study. There were a few students identified in this study as nonachievers, although their scores on the inventory were above the mean of the achiever group. In a clinical study, it might be possible to identify other reasons for the nonachievement which are not covered in the present inventory. Items covering information thus identified could be added to the inventory.

As pointed out earlier, the problem of nonachievement is not limited to colleges. A similar inventory, or a revision of this one, should be developed for use with elementary and secondary school pupils, to serve as a basis for training in habits and attitudes related to academic work.

Summary

After a survey of other studies of nonintellectual factors in academic success, an inventory of 689 alternatives was constructed, ostensibly covering factors identified in other studies as being related to achievement. From fall

quarter freshmen at the University of Tennessee, criterion groups of achievers and nonachievers were selected on the basis of the difference between the predicted and actual g. p. a. for the first quarter, with predictions being worked out separately for eight courses of study at the University. The responses of these two groups were compared for each alternative on the inventory, and the probability of change differences between the groups was worked out by the Chi-square test. The discriminating powers of the items with the lowest probabilities were further checked with a subsample of students predicted to pass (predicted g. p. a. of 2.00 or better) who failed, (actual g. p. a. of less than 1.50) and those predicted to fail (less than 1.50) who passed (g. p. a. greater than 2.00). Only those items were selected for the final inventory which had alternatives which discriminated at the .05 level or less for the first criterion group, and which discriminated between the subsample groups in the same direction. Fifty-eight alternatives met these criteria. Twenty-seven were positive, and thirty-one were negative. Most of the items retained in the final inventory were related either to home, school and community variables, or to work-study habits. Inventories for a cross-validation sample of freshmen entering the University in the Winter quarter were scored on the discriminating items, and the means of the achieving and

nonachieving groups were compared, yielding a t value of 5.660 with a probability of below .00001. A point-biserial correlation between the inventory scores and the deviation scores corrected for range yielded a correlation of .75. The multiple correlation for the prediction of the first quarter g. p. a. from test scores and the inventory score yielded $r = .79$, an increase of .06 over prediction based on test scores alone.



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APPENDICES

UNIVERSITY OF CALIFORNIA



APPENDIX A

DIRECTIONS ACCOMPANYING THE INVENTORY

THE UNIVERSITY OF TENNESSEE
KNOXVILLE

Office of the Dean of Admissions

December 2, 1957

Dear Freshman:

The University faculty is cooperating in a study of the adjustment of students to the University. All freshmen students are being asked to participate in the study which should be of much help to future students. A report of the findings will be available by the end of the year.

The freshmen English instructors have graciously consented to have the questionnaires distributed and collected through their classes. However, not even these instructors will know how individual students answer each item.

Be sure to fill in the questionnaire and return it at the end of the next meeting of this class. It is imperative that every freshman cooperate in this study; therefore, those not returning their questionnaire will be contacted personally.

Sincerely yours,

R. F. Thomason, Dean
Admissions and Records

D I R E C T I O N S

(Read aloud to Students)

This questionnaire contains a number of items about your family and high school background, your interests, your likes and dislikes, and your ideas about instructors and courses. There are no right and wrong answers. The best answer is your own opinion.

Do not be detracted by the apparent length of the questionnaire. After the first two pages, every item can be answered by merely checking the things that apply to you. Do not spend too much time on these items. Your first impulse is the best response. In a tryout, most students finished in less than an hour.

All information will be held confidential. Student numbers will be used in place of names, and the names will be removed as soon as the student numbers are verified. If you do not know your student number leave it blank. It can be filled in later, then the name will be removed.

We think you will find the questionnaire interesting, and that you will enjoy an opportunity to express your opinion about some of the items.

On some parts of the inventory you are to check only one item for each statement. On other parts you are to check every item that applies. Be sure to read the directions at the beginning of each section.

Be sure to bring the completed questionnaire to your next English class, where they will be collected.

STUDENT INTEREST AND ATTITUDE SURVEY

Student Number _____ Name _____

Sex M ____ F ____

College (Check one) Agri. ____ Bus. Adm. ____ Educ. ____

Engr. ____ Home Ec. ____ Lib. Arts ____

Curriculum or major: _____

Marital Status: (Check one)

- ____ Single
- ____ Married
- ____ Divorced
- ____ Separated
- ____ Widowed

Which category best describes the community in which you lived during high school?

- 1 ____ Rural area, no town larger than 2500 people
- 2 ____ Small town, 2500-25,000 people
- 3 ____ Small city, 25,000-50,000 people
- 4 ____ Large city, more than 50,000 people
- 5 ____ Suburb of a large city

How many children were born into your family? _____ 6-14 (coded)

What is your position? (oldest, second, youngest, etc.) _____

How many older than you died before reaching the age of six? _____

What is your father's or guardian's occupation? (If father is deceased, answer on the basis of your stepfather. If you have no stepfather, answer on the basis of your mother or breadwinner in the family).

Indicate with a check (✓) all those who have helped you in selecting an occupation. Put a circle around the one who was most helpful. 24-26 (coded)

- 27 ____ Mother
- 28 ____ Father
- 29 ____ High school teachers
- 30 ____ Guidance counselor in high school
- 31 ____ High school principal
- 32 ____ Minister
- 33 ____ Physician
- 34 ____ Professional guidance counselor
- 35 ____ College guidance worker
- 36 ____ Other (please specify) _____

How are your expenses being paid? (Check everything that applies).

- ☐ Entirely supported by parents
- ☐ Entirely supported by some relative, not parents
- ☐ Entirely supported by someone not a relative including a club or agency
- ☐ Entirely supported by a scholarship
 - ☐ Scholastic
 - ☐ Athletic
 - ☐ Special (Please indicate) _____
- ☐ Entirely supported by the G. I. bill
- ☐ Entirely supported by self
 - ☐ By working while attending school
 - ☐ By working before entering college
 - ☐ By working during summers, and when not in school
 - ☐ By a student loan, to be repaid after graduation
- ☐ Partly self-supported
- ☐ Partly supported by parents
- ☐ Partly supported by relatives
- ☐ Partly supported by someone not a relative
- ☐ Partly supported by a scholarship
- ☐ Partly supported by the G. I. bill

37-45
(coded)

If you have a scholarship, fill in these blanks

Kind _____
Length of time _____
Amount _____

On the list below check (,/) all the reasons that influenced your decision to attend college. Then circle the check for the reason that was most important.

- 46 ☐ I wanted a better job than I could get without more education
- 47 ☐ In my chosen occupation, I have to have a college education
- 48 ☐ I want to get a good general education--to learn all I can
- 49 ☐ I did not want to go into military service just yet
- 50 ☐ I was undecided about what I wanted to do
- 51 ☐ I wanted to meet new people and to enjoy the social life
- 52 ☐ I wanted to continue in athletics
- 53 ☐ All my friends were coming and I wanted to stay with them
- 54 ☐ No one in my family had a college education, and I thought it would be an accomplishment
- 55 ☐ My father wanted me to have a good education
- 56 ☐ To please my mother
- 57 ☐ Both my parents wanted me to come
- 58 ☐ My high school teachers encouraged me to come
- 59 ☐ I don't know--I've always just expected to go to college

What size of high school did you attend?

- 60 ☐ Less than 200 students
 61 ☐ 200-500 students
 62 ☐ 500-1000 students
 63 ☐ More than 1000 students

What kind of high school did you attend? (Check one on each line)

- 64-66 ☐ Public ☐ Private ☐ Parochial School
 67-69 ☐ Boarding School ☐ Non-boarding ☐ Day School
 70-72 ☐ Military ☐ Non-military ☐ Service School
 73-75 ☐ Coeducational ☐ Boys only ☐ Girls only

How much time elapsed between your attendance at high school and entrance in the University?

- 76 ☐ Less than 6 months
 77 ☐ 1 year or less
 78 ☐ 2-3 years
 79 ☐ 4-7 years
 80 ☐ 8-10 years
 81 ☐ 11-15 years
 82 ☐ 16 years or more

How definite are your vocational plans?

- 83 ☐ I have made a definite choice, and am pursuing a course which leads to preparation for that vocation
 84 ☐ I have decided on a general field in which I would like to work, and am exploring several possibilities of vocations within that field
 85 ☐ I am undecided between several vocational fields
 86 ☐ I have no idea what vocation I want to follow
 87 ☐ I had made a definite choice, but now I find I am in the wrong field

How do you feel about the course of study in which you are now enrolled?

- 88 ☐ Completely satisfied
 89 ☐ Like most of it
 90 ☐ It's about as good as any
 91 ☐ I may decide to change later
 92 ☐ I dislike it, and will change as soon as possible
 93 ☐ I probably will drop out of school at the end of the present term

How do you feel about attending this college?

- 94 ☐ It's where I have always wanted to go
 95 ☐ I preferred a different college, but I had to come
 here for financial reasons
 96 ☐ I preferred a different college, but I had to come
 here for family reasons
 97 ☐ I would rather have gone to work
 98 ☐ I would rather have gone into military service
 99 ☐ I wish I had gone to business college, a conservatory
 of music, a technical school, or some other special
 kind of school

How does your father feel about your vocational choice? (Check one)

- 100 ☐ Wholeheartedly in favor of it
 101 ☐ Thinks it is fine, although would have preferred
 something else
 102 ☐ Thinks I should decide for myself
 103 ☐ Very upset about it, and trying to get me to change
 104 ☐ I don't know what he thinks about it

How does your mother feel about your vocational choice? (Check one)

- 105 ☐ Wholeheartedly in favor of it
 106 ☐ Thinks it is fine, although would have preferred
 something else
 107 ☐ Thinks I should decide for myself
 108 ☐ Very upset about it, and trying to get me to change
 109 ☐ I don't know what she thinks about it

How much education did your father have? (Check one)

- 110 ☐ Less than 4 years
 111 ☐ Between 4 and 8 years, no high school
 112 ☐ Some high school, but did not graduate
 113 ☐ Graduated from high school, but no college
 114 ☐ Some college, but did not graduate
 115 ☐ Graduated from college
 116 ☐ Post-college training
 117 ☐ Advanced or professional degree (Ph. D., M. D., Ed. D.,
 M. A., M. S., etc.)
 118 ☐ Don't know

How much education did your mother have? (Check one)

- 119 ☐ Less than 4 years
 120 ☐ Between 4 and 8 years, no high school
 121 ☐ Some high school, but did not graduate
 122 ☐ Graduated from high school, but no college
 123 ☐ Some college, but did not graduate
 124 ☐ Graduated from college

- 125 Post-college training
126 — Advanced or professional degree (Ph. D., M. D., Ed. D.,
 — M. A., M. S., etc.)
127 — Don't know

For each item below, check the alternative that is most true of you. Be sure to check one alternative for each item. Remember, there are no right and wrong answers. The right answer is what is true for you.

My feeling about small children is

- 128 — I enjoy being with them.
129 — I find them interesting if I do not have to be
 responsible for them all the time
130 — I dislike being with them for any length of time

I like courses which are

- 131 _____ Easy, covering mostly things I already know
132 _____ So hard that I have to study a lot, and learn a lot
 of new material
133 _____ Of medium difficulty, with some new material

On a major class project, I would

- 134 — Select something that required little work
135 — Do whatever the chairman asked me to do
136 — Try to be selected as chairman
137 — Volunteer to present the final report

In making assignments, I think the most important thing is for the instructor to

- 138 — Explain the purpose of the assignment
139 — Explain how to do the assignment
140 — Give specific directions, about when to do certain things

I prefer

- 141 One big assignment, on which most of the grade for
 a course depends
- 142 Several smaller assignments, on which most of the
 grade for a course depends
- 143 Daily assignments, on which most of the grade for
 a course depends

If I had my choice, I would prefer

- 144 ☐ To live in a large dormitory with many people
- 145 ☐ To live with a few congenial friends
- 146 ☐ To live with my family
- 147 ☐ To live by myself

When an instructor makes an assignment, I prefer

- 148 ☐ A lot of freedom in choosing my topic and deciding what to do
- 149 ☐ Some suggestions about how to proceed
- 150 ☐ Complete directions as to what to do and a list of approved topics to choose from

When I have to take an important test I usually

- 151 ☐ Try to review everything I have had, rereading the entire textbook
- 152 ☐ Get together with other people to study
- 153 ☐ Look over earlier tests and quizzes to try to anticipate what we will have on the test

In taking notes during a lecture

- 154 ☐ I concentrate on listening, and take very few notes
- 155 ☐ I try to get a complete outline of the instructor's talk, although I jot down only enough to help me recall the instructor's words
- 156 ☐ I try to write down everything the instructor says

When I have an instructor who lectures in a monotone

- 157 ☐ I frequently almost go to sleep, and miss most of what he says
- 158 ☐ I try to listen, and depend mostly on reading from the book
- 159 ☐ I force myself to take notes, so I have to listen carefully
- 160 ☐ I ask questions occasionally, so I can arouse a little interest

I believe that the best way to prepare for a final exam is to

- 161 ☐ Set aside one day or night just before the exam, and study hard everything you have covered
- 162 ☐ Begin a week or so before the exam and review one topic at a time
- 163 ☐ Try to keep up all during the term and review quickly only those points which I had forgotten

When reading a textbook, I

- 164 ☐ Read straight through the assignment, without stopping for anything
- 165 ☐ Read through, making occasional notes in the margin
- 166 ☐ Read through, writing an outline in a notebook
- 167 ☐ Skim through first, to see what is covered, then re-read carefully to get the main points

When I have to study I usually

- 168 ☐ Go to the library if possible
- 169 ☐ Find a place where I can be undisturbed
- 170 ☐ Try to find some friends to study with
- 171 ☐ Sit down in any available place and ignore all the distractions

When I am studying

- 172 ☐ I must have absolute quiet or I cannot concentrate
- 173 ☐ I am usually able to ignore noises and people
- 174 ☐ I like to have the radio playing
- 175 ☐ I often watch TV at the same time
- 176 ☐ I like to have other people around

If I don't have time to copy over a messy paper I will

- 177 ☐ Hand it in on time as it is
- 178 ☐ Explain the situation to the instructor and ask for more time
- 179 ☐ Copy it over and hand it in late, saying nothing
- 180 ☐ Stay out of class and copy the assignment over, turning it in later

When I have a great many things to do, I usually

- 181 ☐ Work on one thing until it is complete, then start something else
- 182 ☐ Try to work a little on all of them
- 183 ☐ Can't decide where to start, so I do nothing
- 184 ☐ Start something else entirely different

When I have a special assignment or a difficult task

- 185 ☐ I begin working as soon as I get the assignment, and usually finish ahead of time
- 186 ☐ I begin working early, but seldom finish until the deadline
- 187 ☐ I wait until close to the deadline, and usually manage to finish in time
- 188 ☐ I frequently fail to allow enough time, but often turn in work which needs a little more preparation

189 ☐ I am nearly always late in getting my work finished

When I have an appointment for a certain time

190 ☐ I often allow entirely too much time

191 ☐ I am usually a little early

192 ☐ I am usually exactly on time

193 ☐ I am usually a little late

194 ☐ I am sometimes early and sometimes late

When I have a difficult problem to work out

195 ☐ I like to have absolute freedom to look for the solution on my own

196 ☐ I like to have some hints or suggestions as to how to proceed

197 ☐ I like to have complete written instructions

198 ☐ I like to have someone at hand to consult with

I like to have tests

199 ☐ Very frequently - at least once a week

200 ☐ Occasionally - three or four times during the term

201 ☐ Rarely - only a final exam, and perhaps a midterm

I prefer tests that are

202 ☐ Most objective (multiple choice, true-false, matching)

203 ☐ Mostly essay (written discussion question)

204 ☐ Partly essay and partly objective

I prefer instructors who

205 ☐ Are rather formal and very professional

206 ☐ Are friendly in class but reserved outside of class

207 ☐ Are friendly and approachable outside of class

208 ☐ Are always interested in my problems, even those not related to school work

If I disagree with something an instructor says, I would

209 ☐ Say nothing

210 ☐ Make some comment to people sitting close to me

211 ☐ Discuss it with the instructor privately

212 ☐ Ask a question which might bring up some other viewpoints, but not press the point

213 ☐ Contradict the instructor and force him to retract

If I have a choice of seats in a classroom, I try to

- 214 ☐ Sit close to the front, where I can see and hear everything
 215 ☐ Sit near the back, so I am inconspicuous
 216 ☐ Sit wherever my friends are sitting
 217 ☐ Sit in the first seat I come to

If I meet one of my instructors outside of class I usually

- 218 ☐ Look somewhere else, so I don't seem to see him
 219 ☐ Speak if he speaks to me first
 220 ☐ Speak to him even if he is looking away
 221 ☐ Stop and have a real conversation with him

In class discussions

- 222 ☐ I usually agree with the opinion of the majority
 223 ☐ I sometimes disagree with the majority, but do not press my argument
 224 ☐ I frequently disagree and sometimes am able to change the majority opinion
 225 ☐ I nearly always disagree, and often get into heated discussions

When I disagree with other members of the class

- 226 ☐ I seldom say much
 227 ☐ I am often able to change the opinion of the class
 228 ☐ Most of the class disagrees with me
 229 ☐ I like to express my opinion, but don't care whether the others change their opinion or not

By the end of the first term (quarter, semester), I expect my grades will be

- 230 ☐ So low I will not be able to continue in school
 231 ☐ Barely passing in most courses
 232 ☐ Good in some courses, low in others, with an overall average high enough to stay in school
 233 ☐ Average or better in every course
 234 ☐ Very good in every course except possibly one

I believe that my ability to do college work is

- 235 ☐ About average
 236 ☐ Below average
 237 ☐ A little above average
 238 ☐ Very much above average
 239 ☐ High in some areas, low in others

In my chosen occupation, I expect to be

- 240 ☐ As good as most others in the same occupation
- 241 ☐ Much better than most others
- 242 ☐ At the top of my profession in a short period of time (about 10 years)

In my room and on my desk

- 243 ☐ I like to keep my belongings neat and in order, with a place for everything
- 244 ☐ I like to have my things in order, but I don't like to put them that way myself
- 245 ☐ Disorder does not bother me, as long as I can find what I want
- 246 ☐ Disorder does not bother me at all

When I have to take a test

- 247 ☐ I am always very nervous
- 248 ☐ I am not too worried if I think I know the material to be covered
- 249 ☐ I usually welcome the opportunity to demonstrate how much I have learned

I like for most of my friends to be

- 250 ☐ Superior to me, intellectually, financially, socially
- 251 ☐ About my level
- 252 ☐ A little inferior to me

When I am looking at a magazine I usually attempt to work out

- 253 ☐ Crossword puzzles
- 254 ☐ Mazes (such as to help the rat find the cheese)
- 255 ☐ Tests of information
- 256 ☐ Situation puzzles (such as, What would you have done?)
- 257 ☐ Personality tests
- 258 ☐ Puzzles involving numbers (such as: If a hen and a half can lay an egg and a half in a day and a half... etc.)

If I saw a puzzle in a magazine or book which involves an apparatus or piece of equipment, I would most likely

- 259 ☐ Skip over it
- 260 ☐ Read through it, then turn back to the answer
- 261 ☐ Try to construct the apparatus and work it out
- 262 ☐ Show it to someone and try to work it out together
- 263 ☐ Attempt to figure it out with a paper and pencil

I have

- 264 ☐ Very few friends
 265 ☐ A few close friends, and several others not so close
 266 ☐ Many close friends, and am on friendly terms with almost everyone

If I were buying a house, I would chose, assuming that the prices were all the same

- 267 ☐ A house in a good residential area
 268 ☐ A house which was very attractive, regardless of its location
 269 ☐ A house which was conveniently located and arranged, regardless of the neighborhood and appearance
 270 ☐ A house near my friends

I would prefer a job (Check one in each group)

- 271 ☐ With fairly low pay, which I enjoyed very much
 272 ☐ With average pay, which I liked fairly well
 273 ☐ With high pay, which I did not care for
 274 ☐ With low pay, high prestige
 275 ☐ With average pay, average prestige
 276 ☐ With high pay, low prestige
 277 ☐ With low prestige, which I liked very much
 278 ☐ With average prestige, which I liked fairly well
 279 ☐ With high prestige, which I disliked

When selecting food in a cafeteria I usually take care to

- 280 ☐ Choose a well-balanced meal
 281 ☐ Choose whatever is the best buy
 282 ☐ Choose food which is attractive
 283 ☐ Buy my favorite foods, regardless of the cost
 284 ☐ Try food that is new and different

When I go to a large party where I do not know many people, I usually

- 285 ☐ Stick with the group I came with
 286 ☐ Try to meet as many new people as possible
 287 ☐ Look for the host or hostess and the guest of honor
 288 ☐ Look for someone who seems to be lonesome and talk to him
 289 ☐ Join a group that seems to be having a good time

If someone asks me to do something which I do not want to do, I usually

- 290 — Agree, and do my best to do it
- 291 — Agree, and try to find some excuse to back out
- 292 — Agree, then do nothing unless pressed
- 293 — Try to refuse, but agree if pressed, and do as well as possible
- 294 — Refuse, giving some excuse
- 295 — Refuse, saying that I don't want to do it

If the bell rings before I finish a test, I

- 296 — Immediately hand in my paper
- 297 — Finish the question I am on and then turn in my paper
- 298 — Ask for more time so I can finish the entire test

If I am working on something, and someone asks me to do another job, I prefer to

- 299 — Get started immediately on the new job
- 300 — Finish the old job first, then start the new job
- 301 — Look at the new work and plan a little for it, but finish the old job before I really begin work on the new one

If I were at a small, informal party, and was missed when refreshments were passed, I would

- 302 — Try to keep anyone from knowing that I had not had any refreshments
- 303 — Go to the kitchen and help myself
- 304 — Tell the hostess that I had been missed
- 305 — Announce publicly that I had been missed and make a joke of it

If a teacher asks a question to which I know the answer

- 306 — I raise my hand and answer the question
- 307 — I answer if called on, but will not volunteer
- 308 — I try to be as inconspicuous as possible, so I won't be called on
- 309 — If I am called on, I say I don't know

I believe my home and family life have been

- 310 — Much happier than average
- 311 — About as happy as average
- 312 — Much less happy than average

When I have a certain amount of work to do, I usually

- 313 ☐ Work very rapidly until I finish everything
- 314 ☐ Take brief rests every once in a while
- 315 ☐ Do about half of it, then take a long rest before finishing
- 316 ☐ Stop frequently to talk to someone, look for something, etc.

If I am working on an assignment, and I come across something in which I am particularly interested but which is unrelated to what I am doing, I

- 317 ☐ Ignore it
- 318 ☐ Make a note for future reference, then go on with what I am doing
- 319 ☐ Stop working on the assignment and start on the new idea

If I am in a group when a controversial subject comes up

- 320 ☐ I say nothing, and hope someone will change the subject
- 321 ☐ I express my opinion honestly if asked, saying that I may be wrong
- 322 ☐ I express my opinion freely, and defend my viewpoint
- 323 ☐ I welcome the opportunity for a stimulating discussion

In choosing clothes,

- 324 ☐ I select comfortable clothes, with no regard to beauty or style
- 325 ☐ I select attractive, neat clothes, which are inconspicuous
- 326 ☐ I prefer well made, basic clothes which don't go out of style
- 327 ☐ I like to be sure I am wearing the latest fashion
- 328 ☐ I try to get clothes similar to those of my friends

On long research assignments, I prefer

- 329 ☐ To work by myself
- 330 ☐ To work on some part, and let someone else work on other parts, then put our efforts together
- 331 ☐ To work with someone else all the way

I keep my notes for various courses

- 332 ☐ All together in the same notebook
- 333 ☐ All in the same notebook, in separate sections
- 334 ☐ In a separate notebook for each class

When an instructor makes an assignment, I usually

- 335 ☐ Write it in my textbook
 336 ☐ Write it in a special section of my notebook
 337 ☐ Depend on my memory

If I finish a test before time is up, I usually

- 338 ☐ Hand it in, and go on with something else
 339 ☐ Look over it, and correct careless mistakes
 340 ☐ Go back and work longer on hard questions
 341 ☐ Change many of my answers
 342 ☐ Hold my paper until someone else turns in a paper
 343 ☐ Check to be sure I have answered every question

My religious ideas are

- 344 ☐ Very much like those of my parents
 345 ☐ Almost exactly opposite from those of my parents
 346 ☐ Rather confused at the present time
 347 ☐ Almost non-existent

Have you ever belonged to a church? ☐ Yes ☐ No

Do you now belong to a church? ☐ Yes ☐ No

If either answer is Yes, check one answer below.

- 348 ☐ I accept all the teachings of my church
 349 ☐ I agree with the major teachings of my church, but
 disagree on some minor points
 350 ☐ I can accept very little of the teaching of my church

During holidays and short vacations

- 351 ☐ I try to forget school entirely
 352 ☐ I use the time to catch up on my school work
 353 ☐ I work on assignments which will be due soon after
 school reconvenes

If someone in authority expresses an opinion with which I
do not agree

- 354 ☐ I feel uncomfortable and embarrassed
 355 ☐ I wonder if he is right and I am wrong
 356 ☐ I have a desire to discuss the matter with him
 privately
 357 ☐ I want to debate the matter publicly

If some friends and I were in trouble, and I was the only one caught, I would

- 358 ☐ Take all the blame, rather than giving them away
 359 ☐ Try to get the others to give themselves up
 360 ☐ Tell the authorities who the others were

Check below the curriculum that is most like the one you followed in high school.

- 361 ☐ College preparatory (at least 2 years math, foreign language and/or science)
 362 ☐ Business
 363 ☐ Vocational (major in Home Economics, Agriculture, shop)
 364 ☐ Distributive Educations or Diversified Occupations

In this section, check every item that is true of you.

Look at the list of courses below. Check every one that you would like to take. Do not consider whether you have the ability to pass the course, or whether you have had other courses which might be necessary in order to take the courses. Consider merely whether you would like them.

- | | | | |
|------------------------------|------------------------------------|------------------------------|----------------------------|
| 365 <input type="checkbox"/> | Oil painting | 375 <input type="checkbox"/> | Sculpture |
| 366 <input type="checkbox"/> | Psychology | 376 <input type="checkbox"/> | Interpretive dancing |
| 367 <input type="checkbox"/> | Sociology | 377 <input type="checkbox"/> | Playing musical instrument |
| 368 <input type="checkbox"/> | Anthropology | 378 <input type="checkbox"/> | Fiction writing |
| 369 <input type="checkbox"/> | Salesmanship | 379 <input type="checkbox"/> | Appreciation of literature |
| 370 <input type="checkbox"/> | Political science | 380 <input type="checkbox"/> | Effective study |
| 371 <input type="checkbox"/> | Journalism | 381 <input type="checkbox"/> | Botany |
| 372 <input type="checkbox"/> | Letter writing | 382 <input type="checkbox"/> | Zoology |
| 373 <input type="checkbox"/> | Debating | 383 <input type="checkbox"/> | Meteorology |
| 374 <input type="checkbox"/> | Dramatics | 384 <input type="checkbox"/> | Chemistry |
| 385 <input type="checkbox"/> | Bacteriology | 395 <input type="checkbox"/> | Gardening |
| 386 <input type="checkbox"/> | Astronomy | 396 <input type="checkbox"/> | Care of animals |
| 387 <input type="checkbox"/> | Physics | 397 <input type="checkbox"/> | Machine repair |
| 388 <input type="checkbox"/> | Nuclear physics | 398 <input type="checkbox"/> | Higher mathematics |
| 389 <input type="checkbox"/> | Architecture | 399 <input type="checkbox"/> | Business arithmetic |
| 390 <input type="checkbox"/> | Interior decoration | 400 <input type="checkbox"/> | Accounting |
| 391 <input type="checkbox"/> | Fashion design | 401 <input type="checkbox"/> | Statistics |
| 392 <input type="checkbox"/> | Woodworking | 402 <input type="checkbox"/> | Bookkeeping |
| 393 <input type="checkbox"/> | Dressmaking | 403 <input type="checkbox"/> | Bible history |
| 394 <input type="checkbox"/> | Auto mechanics | 404 <input type="checkbox"/> | Ethics |
| 405 <input type="checkbox"/> | Comparative religions | <input type="checkbox"/> | Photography |
| 406 <input type="checkbox"/> | Interpretation of Bible literature | <input type="checkbox"/> | Government |
| 407 <input type="checkbox"/> | Child development | <input type="checkbox"/> | Geology |
| 408 <input type="checkbox"/> | Marriage relations | <input type="checkbox"/> | Foreign language |
| 409 <input type="checkbox"/> | Personality improvement | <input type="checkbox"/> | Body conditioning |

Mark all the kinds of reading materials that you read regularly.

- | | | | | | |
|-----|-------|-----------------------------|-----|-------|------------------------|
| 415 | _____ | Newspapers | 425 | _____ | Books |
| 416 | _____ | Front page news | 426 | _____ | Romantic stories |
| 417 | _____ | Columnists | 427 | _____ | Adventure stories |
| 418 | _____ | Editorials | 428 | _____ | Classics |
| 419 | _____ | Comics | 429 | _____ | Mystery stories |
| 420 | _____ | Want ads | 430 | _____ | Biography |
| 421 | _____ | Horoscopes | 431 | _____ | Technical books |
| 422 | _____ | Advice column | 432 | _____ | Encyclopedias |
| 423 | _____ | Sports page | 433 | _____ | Historical novels |
| 424 | _____ | Church news | 434 | _____ | Philosophy or religion |
| | _____ | Society page | | _____ | History |
| 435 | _____ | Magazine Articles | | _____ | Magazine stories |
| 436 | _____ | On world conditions | | _____ | Short stories |
| 437 | _____ | About medical problems | | _____ | Continued stories |
| 438 | _____ | About personal problems | | _____ | Long novelettes |
| 439 | _____ | About famous people | | _____ | Mystery stories |
| 440 | _____ | About religion | | _____ | Romantic stories |
| 441 | _____ | About philosophy and ethics | | _____ | Sports stories |
| | _____ | About sports | | _____ | Science fiction |

Check all the types of television programs that you watch when you have the opportunity.

- | | | | | | |
|-----|-------|-----------------------|-----|-------|--|
| 449 | _____ | Sports events | 457 | _____ | Science shows |
| 450 | _____ | Comedians | 458 | _____ | Science fiction shows |
| 451 | _____ | Musicals | 459 | _____ | Quiz shows |
| 452 | _____ | Variety shows | 460 | _____ | Dramatic shows |
| 453 | _____ | Westerns | 461 | _____ | Movies |
| 454 | _____ | "Hill-billy" programs | 462 | _____ | Panel discussion of controversial problems |
| 455 | _____ | News commentators | 463 | _____ | None |
| 456 | _____ | Political speeches | | | |

Mark all activities in which you engaged while in high school.

- | | | |
|-----|-------|--|
| 464 | _____ | Church clubs or organizations |
| 465 | _____ | Band or chorus |
| 467 | _____ | Partying |
| 468 | _____ | Dating |
| 469 | _____ | Church attendance |
| 470 | _____ | Teaching Sunday School |
| 471 | _____ | Attending Scouts, Y Clubs, Boys Club, etc. |
| 472 | _____ | Helping with younger Scouts, Sunday School, etc. |
| 473 | _____ | Attending lectures (not at school) |
| 474 | _____ | Attending concerts |
| 475 | _____ | Debating |
| 476 | _____ | Appearing in plays, TV or radio programs |
| 477 | _____ | Editing school paper |
| 478 | _____ | Working on school paper or annual |

- 479 ☐ Working on a radio, phonograph, or hi-fi set
- 480 ☐ Assembling and classifying a collection
- 481 ☐ Conducting scientific experiments (outside of school)
- 482 ☐ Attending social club, fraternity or sorority meetings
- 483 ☐ Belonging to school club (Science Club, Latin Club, Home Ec. Club, etc.)
- 484 ☐ Belonging to honorary club (Beta, Key, National Honor Society)
- 485 ☐ None

Read each statement below then check every item under it that applies to you.

I do my best work in courses in which

- 486 ☐ I am interested in the subject
- 487 ☐ The instructor knows the subject thoroughly
- 488 ☐ The instructor is good at explaining things
- 489 ☐ The instructor is approachable and lets students ask questions
- 490 ☐ I feel the course is something I will need later
- 491 ☐ I have a good background in the subject

I like classes in which

- 492 ☐ The instructor lectures, we take notes, and the grade is entirely based on tests
- 493 ☐ The instructor leads the class, but gives opportunity for students to ask questions and discuss things, and where the grade is based partly on class participation
- 494 ☐ Most of the class time is devoted to discussion, with students taking the lead
- 495 ☐ Students are responsible for planning and carrying out most activities, with the instructor acting as a consultant

My favorite activities involve

- 496 ☐ Learning about something
- 497 ☐ Other people
- 498 ☐ Being outdoors
- 499 ☐ Expressing myself artistically, or musically
- 500 ☐ Making something
- 501 ☐ Helping someone
- 502 ☐ Earning money

When I am asked to join an organization, I join

- 503 ☐ If I like the people in it
- 504 ☐ If it has an objective that I am interested in
- 505 ☐ If I think I can contribute something to it
- 506 ☐ If I will gain some prestige through belonging to it
- 507 ☐ If I think it will help me financially

I dislike people who

- 508 ☐ Are critical of other people
- 509 ☐ Are late for appointments
- 510 ☐ Are slow in their work
- 511 ☐ Brag about things for which they are not responsible
- 512 ☐ Act younger than they are
- 513 ☐ Act older than they are
- 514 ☐ Are irresponsible
- 515 ☐ Disagree with me
- 516 ☐ Criticize me, even if it is constructive
- 517 ☐ Talk a lot
- 518 ☐ Are prejudiced
- 519 ☐ Are wishy washy
- 520 ☐ Are unladylike or inconsiderate
- 521 ☐ Drink excessively
- 522 ☐ Smoke
- 523 ☐ Are inferior to me
- 524 ☐ Are superior to me
- 525 ☐ Ask me to do unreasonable things
- 526 ☐ Cannot take criticism
- 527 ☐ Lack self-confidence

I like people who

- 528 ☐ Are self-confident
- 529 ☐ Are frank
- 530 ☐ Are physically attractive
- 531 ☐ Are sentimental
- 532 ☐ Dress attractively
- 533 ☐ Are punctual
- 534 ☐ Disagree with me
- 535 ☐ Agree with me
- 536 ☐ Seem to like me
- 537 ☐ Are superior to me
- 538 ☐ Can take criticism
- 539 ☐ Have confidence in me
- 540 ☐ Accomplish things

My mother and I (Check one in each group)

- 541 ☐ Have very little in common
 542 ☐ Are very much alike in temperament and interests
 543 ☐ Are more alike than we are different
 544 ☐ Are more different than we are alike

 545 ☐ Have always been able to discuss almost everything
 546 ☐ Were never able to discuss anything
 547 ☐ Discussed most topics, but could not discuss many personal topics

My mother

- 548 ☐ Has always been more like a sister to me than a mother
 549 ☐ Is very quick tempered
 550 ☐ Has always been unapproachable
 551 ☐ Is easy to get along with
 552 ☐ Was a strict disciplinarian
 553 ☐ Was too easy-going for my own good
 554 ☐ Was unpredictable in her discipline
 555 ☐ Always left everything up to my father
 556 ☐ Really ran our family
 557 ☐ Had many interests outside the family
 558 ☐ Is very intelligent
 559 ☐ Lived only for the family
 560 ☐ Is an excellent housekeeper
 561 ☐ Enjoyed her homemaking activities
 562 ☐ Carried on her homemaking activities only because they were necessary for the welfare of the family
 563 ☐ Is a warm lovable person
 564 ☐ Often neglected her homemaking duties
 565 ☐ Has high ambitions for her children
 566 ☐ Wants her children to be happy
 567 ☐ Is usually the first one up in the morning

My father and I (Check one in each group)

- 568 ☐ Have very little in common
 569 ☐ Are very much alike in temperament and interests
 570 ☐ Are more alike than we are different
 571 ☐ Are more different than we are alike

 572 ☐ Have always been able to discuss almost everything
 573 ☐ Were never able to discuss anything
 574 ☐ Discussed most topics, but could not discuss many personal topics

My father

- 575 ☐ Is very companionable
- 576 ☐ Is quite successful in his business or profession
- 577 ☐ Is well known for his civic activities
- 578 ☐ Is a strict disciplinarian
- 579 ☐ Leaves all discipline to my mother
- 580 ☐ Is very sentimental
- 581 ☐ Enjoys working around the house and yard
- 582 ☐ Spends most of his spare time studying or working on something related to his vocation
- 583 ☐ Enjoys doing things with the family
- 584 ☐ Likes to get out with a group of men occasionally
- 585 ☐ Is very understanding
- 586 ☐ Has high ambitions for his children
- 587 ☐ Thinks happiness is more important than financial success
- 588 ☐ Keeps his clothes and other belongings in good order
- 589 ☐ Expects the house to be neat and clean at all times
- 590 ☐ Frequently helps put the house in order
- 591 ☐ Is usually the first one up in the morning
- 592 ☐ Is quick tempered
- 593 ☐ Is easy to get along with
- 594 ☐ Is very intelligent

If I have an hour or so of free time between classes, I usually

- 595 ☐ Relax with friends
- 596 ☐ Go to the library
- 597 ☐ Find some quiet place and study
- 598 ☐ Study with some friends
- 599 ☐ Try to catch up on my rest

In arguments and discussions

- 600 ☐ I usually feel that I am right, no matter how many disagree with me
- 601 ☐ I can usually see both sides of the issue
- 602 ☐ I usually agree with the opinion of the majority
- 603 ☐ I frequently change my opinion after listening to the others

When I have an important decision to make, I usually

- 604 ☐ Make my decision without discussing it with anyone
- 605 ☐ Discuss it with my father
- 606 ☐ Discuss it with my mother
- 607 ☐ Discuss it with my friends
- 608 ☐ Discuss it with my teacher
- 609 ☐ Discuss it with my minister
- 610 ☐ Discuss it with my dean or counselor

In my work

- 611 ☐ I am able to accomplish a great deal in a short period of time
- 612 ☐ I am slower than most people at almost everything
- 613 ☐ I always work rapidly, even if there is no need to
- 614 ☐ I work very rapidly on things I like to do, but slower on things I dislike
- 615 ☐ I work faster on distasteful tasks so I can hurry and get them over

In my organizations I

- 616 ☐ Prefer to be just a member
- 617 ☐ Like to serve on committees
- 618 ☐ Like to be chairman of a committee
- 619 ☐ Like to hold an important office

Check every item that is true of you.

- 620 ☐ I am bothered by a crooked picture, uneven window shades or open drawers in a room
- 621 ☐ I dislike waiting on people
- 622 ☐ I get fidgety in slow traffic
- 623 ☐ I like to be the president or chairman of a group
- 624 ☐ I usually remember birthdays and anniversaries of my friends
- 625 ☐ I often have fainting spells
- 626 ☐ I have been bothered occasionally with feeling very weak and sick
- 627 ☐ If my friends think I am not doing something right, I will stop, even though I want to continue
- 628 ☐ I believe that there is too much misbehavior among students of this school
- 629 ☐ When I was a child I belonged to a club or gang that always stuck together
- 630 ☐ I like to be frank, even if people get mad or get their feelings hurt
- 631 ☐ People often get mad at me, when I am only trying to help
- 632 ☐ I have a habit of counting objects, such as panes in windows, bulbs on electric signs, fence posts, etc.
- 633 ☐ I often memorize numbers such as telephone numbers, auto licenses, etc.
- 634 ☐ In arguments and discussions I usually feel that I am right
- 635 ☐ I can nearly always see both sides of an argument
- 636 ☐ I seldom know which is the right side of an argument
- 637 ☐ I would like to be a success so my mother will be proud of me

- 638 I am never best in anything
639 I can do anything if I have good written instructions
for it
640 If I marry I hope we will be happier than my parents
have been
641 Sometimes I am sure other people can tell what I
am thinking
642 I like to do what teachers and others expect me to
do if possible
643 I enjoy going to class, but I dislike doing homework
644 I like to have a job to make my own spending money
645 I feel blue in gloomy weather
646 I enjoy shopping
647 I do not like to be the center of attention
648 I do not like for people to disagree with me,
because it makes me feel inferior
649 I feel uncomfortable when I do not know the answers
to questions in class
650 I worry about how people feel about me
651 I worry if I think someone does not like me, or
does not think I am right
652 I like to loaf or goof off at times, but I always
feel guilty when I do
653 I like to be praised for things I do
654 I do not like criticism, even if it is constructive
655 I often talk too much--say things I am sorry for later
656 I wish I could talk more freely, thinking of things
to say at the appropriate time, rather than later
657 I like to do things for people
658 I like people who do things for me
659 I hate to throw anything away
660 I object to unladylike behavior in girls
661 I object to inconsiderate behavior in boys
662 I am unable to do good work in a class which does
not interest me
663 The thing I enjoy most about school is being with
other students
664 I enjoy a feeling of being under a little pressure
every once in awhile
665 I like to experiment with new and different ways
of doing things
666 I do not enjoy malicious gossip
667 I do not enjoy dirty jokes
668 I usually express my opinions freely about my friends'
clothes, manners or behavior
669 Little things often irritate me unbearably
670 If something bothers me, I usually tell the person
concerned
671 I refuse to worry about things over which I have
no control

- 672 ___ I think most people like me, or at least, do not
 dislike me
- 673 ___ I feel resentful when I do something I do not want
 to do, just because I think someone expects me
 to do it
- 674 ___ I would like to be able to give my friends and family
 advice without making them feel hurt and resentful
- 675 ___ I have times of feeling very good, and other times
 of being very gloomy
- 676 ___ I am usually very contented with my life
- 677 ___ I am usually able to find something good about
 everyone I meet
- 678 ___ I realize that everyone has some faults, and no
 one is perfect
- 679 ___ I like to finish some job, or feel that I have
 accomplished something each day
- 680 ___ I dislike to have to be still for long periods of time
- 681 ___ I like to play in competitive sports
- 682 ___ I feel good when I have engaged in some physical
 activity that gives me a good workout
- 683 ___ I like to test my strength and feel that I am
 developing my muscles
- 684 ___ I dislike being confined to a house for a long
 period of time
- 685 ___ My favorite activities involve being outdoors
- 686 ___ I have never been in trouble with the law
- 687 ___ I was occasionally suspended from high school
- 688 ___ I always enjoy a good joke, even if it's on me
- 689 ___ I sometimes feel that someone is hypnotizing me
 or controlling my actions in some way

KEY TO CODED ITEMS

- 6-14 Size of family and position in family
- 6 Small family, 1-2 children
 - 7 3-5 children
 - 8 Six or more children
 - 9 Only child
 - 10 Oldest child
 - 11 Second child
 - 12 Middle child
 - 13 Youngest
 - 14 Other
- 15-23 Father's occupation
- 15 Unskilled laborer
 - 16 Semi-skilled laborer
 - 17 Craftsman
 - 18 Clerical or sales work
 - 19 Supervisory
 - 20 Manager or owner of small business
 - 21 Manager of large business, or semi-professional
 - 22 Poorly paid professional
 - 23 Well paid professional
- 24-26 Person who was most helpful
- 24 Parents
 - 25 Someone in high school
 - 26 Someone in the occupation

37-45 Method of financial support

- 37 Entirely supported by someone else
- 38 Entirely supported by self
- 39 Partially self-supported
- 40 Holding scholastic scholarship
- 41 Wholly or partially supported by parents
- 42 Wholly or partially supported by other relatives
- 43 Partially supported by scholarship
- 44 Partially supported by someone not relative
- 45 Partially supported by G. I. bill

APPENDIX B

DATA FOR ITEM ANALYSIS

Item No.	High 27%	Low 27%	Difference	Sum	χ^2	Probability	Selected Items
1	67	38	29	105	9.30	.01-.001	*
2	78	71	7	149			
3	17	38	-21	55	8.11	.01-.001	*
4	53	65	-12	118	1.37	.20-.30	
5	47	54	-7	101			
6	108	128	-20	236	2.74	.10	
7	115	115	0	230			
8	26	22	4	48			
9	33	35	-2	68			
10	98	130	-32	228	7.37	.01-.001	*
11	46	28	18	74	4.53	.02-.05	
12	8	5	3	13			
13	57	56	1	113			
14	25	12	13	37	4.18	.02-.05	
15	5	2	3	7			
16	60	41	19	101	3.96	.02-.05	
17	36	37	-1	73			
18	34	37	-3	71			
19	30	28	2	58			
20	38	52	-14	90	2.26	.10-.20	
21	9	23	-14	32	5.61	.01-.02	*
22	32	24	8	56			
23	11	15	-4	26			
24	121	138	-17	259	1.93	.10-.20	
25	50	23	27	73	10.73	<.001	*
26	15	16	-1	31			
27	176	182	-6	265			
28	169	175	-6	344			
29	152	119	33	271	7.73	.01-.001	
30	31	28	3	59			
31	44	33	11	77	1.52	.20-.30	
32	22	20	2	42			
33	17	11	6	28			
34	17	16	1	33			
35	20	18	2	38			
36	15	16	-1	31			
37	99	141	-42	240	12.76	<.001	*
38	11	13	-2	24			
39	151	111	40	262	11.44	<.001	*
40	57	13	44	70	30.42	<.001	


Item No.	High 27%	Low 27%	Difference	Sum	χ^2	Probability	Selected Items
41	201	229	-28	430	8.84	.01-.001	
42	23	16	7	39			
43	47	18	29	65	13.74	<.001	
44	16	12	4	28			
45	20	10	10	30	2.86	.05-.10	
46	208	196	12	404	1.24	.20-.30	
47	160	132	38	292	5.53	.01-.02	
48	144	112	32	256	7.23	.01-.001	*
49	15	21	-6	36			
50	34	48	-14	82	2.43	.10-.20	
51	78	74	4	152			
52	6	12	-6	18	1.43	.20-.30	
53	7	7	0	14			
54	24	20	4	44			
55	100	124	-24	224	4.07	.02-.05	
56	38	65	-27	103	8.13	.001-.01	*
57	156	156	0				
58	106	97	9	203			
59	18	33	-15	51	1.87	.10-.20	
60	18	12	6	30			
61	99	82	17	181	2.14	.10-.20	
62	76	84	-8	160			
63	64	92	-28	156	6.61	.01	*
64	247	234	13	481	3.00	.05-.10	
65	9	24	-15	33	6.33	.01-.02	
66	10	6	4	16			
67	10	10	0				
68	128	124	4	252			
69	1	0	1	1			
70	9	18	-9	27	2.50	.10-.20	
71	138	121	17	259	1.92	.10-.20	
72	4	3	1	7			
73	163	158	5	321			
74	12	18	-6	40			
75	5	5	0				
76	223	239	-16	462	3.70	.05-.10	
77	9	9	0	18			
78	11	6	5	17			
79	18	9	9	27	2.49	.10-.20	
80	0	2	-2				

Item No.	High 27%	Low 27%	Difference	Sum	χ^2	Probability	Selected Items
81	2	0	2	2			
82	1	0	1	1			
83	115	90	25	205	4.43	.01-.02	*
84	120	97	23	217	3.85	.02-.05	*
85	24	35	-11	59	1.92	.10-.20	
86	7	19	-12	26	4.60	.05	*
87	6	21	-15	27	7.64	.01-.001	*
88	69	48	21	117	4.38	.02-.05	
89	154	142	12	296			
90	9	7	2	16			
91	35	62	-27	97	8.52	.01-.001	
92	2	11	-9	13	5.04	.02-.05	
93	0	5	-5	5	3.23	.05-.10	
94	181	175	6	356			
95	51	36	15	87	2.69	.10-.20	
96	11	22	-11	33	3.23	.05-.10	
97	5	5	0	10			
98	0	1	-1	1			
99	7	16	-9	23	2.91	.05-.10	
100	93	96	-3	189			
101	21	25	-4	46			
102	122	124	-2	246			
103	5	3	2	8			
104	19	20	-1	39			
105	102	116	-14	218	1.31	.20-.30	
106	22	18	4	40			
107	133	127	6	260			
108	1	2	-1	3			
109	6	11	-5	17			
110	9	6	3	15			
111	62	32	30	94	10.87	.001	*
112	45	39	6	84			
113	52	57	-5	109			
114	40	55	-15	95	2.51	.10-.20	
115	27	40	-13	67	2.06	.10-.20	
116	3	14	-11	17	6.08	.01-.02	*
117	20	23	-3	43			
118	8	5	3	13			
119	2	1	1	3			
120	37	18	19	55	6.57	.01-.02	

Item No.	High 27%	Low 27%	Difference	Sum	χ^2	Prob-ability	Selected Items
121	43	43	0	86			
122	92	103	-11	195			
123	44	46	-2	90			
124	30	41	-11	71	1.62	.20-.30	
125	8	5	3	13			
126	9	3	6	12	2.13	.10-.20	
127	3	4	-1	7			
128	167	172	-5	339			
129	87	79	8	166			
130	15	16	-1	31			
131	8	7	1	15			
132	56	35	21	91	5.30	.02-.05	*
133	204	225	-21	429	4.81	.02-.05	
134	18	16	2	34			
135	198	197	1	395			
136	38	40	-2	78			
137	11	15	-4	26			
138	86	69	17	155	2.33	.10-.20	
139	106	122	-16	228	1.72	.10-.20	
140	77	79	-2	156			
141	4	13	-9	17	3.89	.05	
142	133	140	-7	273			
143	129	113	16	242	1.70	.10-.20	
144	73	87	-14	160	1.51	.20-.30	
145	96	92	4	188			
146	86	70	16	156	2.04	.10-.20	
147	14	16	-2	30			
148	59	73	-14	132	1.70	.10-.20	
149	151	143	8	294			
150	58	51	7	109			
151	90	87	3	177			
152	41	49	-8	90			
153	141	134	7	275			
154	58	68	-10	126			
155	189	168	21	357	3.40	.05-.10	
156	21	23	-2	44			
157	32	66	-34	98	13.62	<.001	*
158	120	106	14	226	1.30	.20-.30	
159	103	79	24	182	4.41	.02-.05	
160	12	16	-4	28			

Item No.	High 27%	Low 27%	Difference	Sum	\bar{X}	Probability	Selected Items
161	13	18	-5	31			
162	75	62	13	137	1.41	.20-.30	
163	182	182	0				
164	45	44	1	89			
165	100	83	17	183	2.13	.10-.20	
166	24	26	-2	50			
167	100	112	-12	222			
168	30	27	3	57			
169	207	191	16	398	2.24	.10-.20	
170	9	9	0	18			
171	23	38	15	61	3.63	.05-.10	
172	136	106	30	242	6.37	.01-.02	*
173	103	94	9	197			
174	25	52	-27	77	10.26	.01-.001	*
175	0	3	-3	3			
176	7	13	-6	20			
177	104	86	18	190	2.37	.10-.20	
178	147	157	-10	304			
179	11	13	-2	24			
180	3	6	-3	9			
181	159	142	17	301	1.95	.10-.20	
182	105	109	-4	214			
183	2	10	-8	12	4.17	.02-.05	
184	0	4	-4	4	2.27	.10-.20	
185	66	37	29	103	9.44	.01-.001	*
186	123	108	15	231	1.50	.20-.30	
187	55	74	-19	129	3.32	.05-.10	
188	23	42	-19	65	5.68	.01-.02	
189	0	3	-3	3	1.34	.20-.30	
190	13	10	3	23			
191	179	149	30	328	6.69	.001-.01	*
192	31	33	-2	64			
193	12	9	3	21			
194	31	67	-36	98	15.32	<.001	*
195	54	46	8	100			
196	120	101	19	221	2.51	.10-.20	
197	9	6	3	15			
198	88	112	-24	200	4.24	.02-.05	
199	141	146	-5	287			
200	118	108	10	226			

Item No.	High 27%	Low 27%	Difference	Sum	\bar{X}	Probability	Selected Items
201	6	6	0	12			
202	128	121	7	249			
203	18	25	-7	43			
204	118	116	2	234			
205	14	15	-1	29			
206	19	7	8	26	1.98	.10-.20	
207	139	144	-5	283			
208	100	102	-2	202			
209	55	46	9	101			
210	32	26	6	58			
211	51	37	14	88	2.30	.10-.20	
212	128	148	-20	276	2.71	.10	
213	7	8	-1	15			
214	188	150	38	338	11.11	<.001	*
215	8	11	-3	19			
216	33	59	-26	92	9.81	.01-.001	*
217	37	46	-9	83			
218	0	6	-6	6	4.21	.02-.05	
219	138	117	21	255	3.01	.05-.10	
220	124	130	6	254			
221	1	6	-5	7	2.31	.10-.20	
222	48	40	8	88			
223	183	169	14	352	1.41	.20-.30	
224	33	53	-20	86	5.00	.02-.05	
225	1	3	-2	4			
226	111	91	20	202	2.88	.05-.10	
227	19	24	-5	43			
228	10	5	5	15	1.09	.30	
229	127	142	-15	269	1.47	.20-.30	
230	0	5	-5	5	3.23	.05-.10	
231	8	54	-46	62	36.96	<.001	*
232	126	183	-57	309	24.21	<.001	*
233	92	16	76	108	65.34	<.001	*
234	39	10	29	49	17.62	<.001	*
235	120	121	1	241			
236	5	16	-11	21	4.95	.02-.05	
237	82	49	33	131	10.37	.01-.001	
238	8	6	2	14			
239	55	72	-17	127	2.64	.10-.20	
240	162	161	1	323			

Item No.	High 27%	Low 27%	Difference	Sum		Probability	Selected Items
241	77	70	7	147			
242	24	31	-7	55			
243	193	184	9	377			
244	20	23	-3	43			
245	52	51	1	103			
246	3	5	-2	8			
247	46	60	-14	106	1.99	.10-.20	
248	202	192	10	394			
249	20	14	6	34			
250	9	15	-6	24	1.09	.20-.30	
251	253	342	10	496	2.41	.10-.20	
252	4	7	3	11			
253	44	53	-9	97			
254	29	31	-2	60			
255	102	106	-4	208			
256	52	77	-25	129	5.89	.01-.02	*
257	98	95	3	193			
258	58	51	7	109			
259	72	51	21	123	4.23	.02-.05	
260	95	100	-5	195			
261	36	35	1	71			
262	11	14	-3	25			
263	56	66	-10	122			
264	6	6	4	2			
265	104	83	21	187	3.30	.05-.10	
266	153	178	-25	331	4.61	.02-.05	*
267	236	230	6	466			
268	3	17	-14	20	8.78	.001-.01	
269	4	5	1	9			
270	21	18	3	39			
271	94	94	0				
272	142	137	5	279			
273	10	11	-1	21			
274	36	25	11	61	1.85	.10-.20	
275	170	163	7	333			
276	24	28	-4	52			
277	67	69	-2	136			
278	137	133	4	370			
279	8	9	1	17			
280	179	151	28	330	5.82	.01-.02	

Item No.	High 27%	Low 27%	Difference	Sum	χ^2	Probability	Selected Items
281	38	29	9	67	1.09	.30	
282	7	16	-9	23	2.91	.05-.10	
283	32	54	-22	86	6.12	.01-.02	
284	16	23	-7	39			
285	101	87	14	188	1.39	.20-.30	
286	78	85	-7	163			
287	9	8	1	17			
288	27	31	-4	58			
289	63	72	9	135			
290	87	97	-10	184			
291	5	6	-1	11			
292	6	3	3	9			
293	125	107	18	332	2.31	.10-.20	
294	20	15	5	35			
295	20	35	-15	55	3.97	.05-.05	
296	19	34	-15	53	4.10	.02-.05	*
297	189	163	26	352	5.24	.02-.05	*
298	59	65	-6	124			
299	3	3	0				
300	168	146	22	314	3.42	.05-.10	
301	97	114	-17	211	2.01	.10-.20	
302	81	83	-2	164			
303	47	46	1				
304	106	99	7	205			
305	31	35	-4	66			
306	165	147	18	312	2.23	.10-.20	
307	101	111	-10	212			
308	3	2	1	5			
309	0	3	-3	3	1.34	.20-.30	
310	119	122	-3	241			
311	131	131	0	0			
312	16	10	6	26			
313	46	56	-10	102			
314	197	141	56	338	24.54	< .001	*
315	8	24	-16	32	7.48	.001-.01	*
316	18	43	-25	61	10.66	.001-.01	*
317	29	15	14	44	4.18	.02-.05	
318	196	183	13	379	1.32	.20-.30	
319	44	64	-20	108	4.19	.02-.05	
320	9	11	-2	20			

Item No.	High 27%	Low 27%	Difference	Sum	χ^2	Probability	Selected Items
321	118	117	1	235			
322	95	89	6	184			
323	52	50	2	102			
324	5	13	-8	18	2.82	.05-.10	
325	96	93	3	189			
326	124	108	16	232	1.72	.10-.20	
327	25	35	-10	60	1.52	.20-.30	
328	22	23	-1	45			
329	168	143	25	311	4.46	.02-.05	
330	48	63	-15	111	2.23	.10-.20	
331	51	54	-3	105			
332	26	46	-20	72	5.80	.01-.02	*
333	117	127	-10	244			
334	118	88	30	206	6.66	.01	*
335	79	78	1	157			
336	145	150	-5	295			
337	39	38	1	77			
338	9	10	-1	19			
339	202	182	20	384	3.38	.05-.10	
340	58	57	1	115			
341	2	1	1	3			
342	2	8	-6	10	2.55	.10-.20	
343	45	56	-9	101			
344	217	216	1	433			
345	12	11	1	23			
346	27	29	-2	56			
347	5	7	-2	12			
348	98	94	4	192			
349	131	146	-15	277	1.48	.20-.30	
350	10	7	3	18			
351	126	171	-45	297	1.48	.20-.30	
352	59	40	19	99	4.02	.02-.05	
353	85	52	33	137	10.07	.001-.01	*
354	6	13	-7	19	1.96	.10-.20	
355	125	106	19	231	2.48	.10-.20	
356	135	131	4	266			
357	5	17	-12	22	5.74	.01-.02	
358	156	193	-37	349	10.80	.001-.01	
359	90	65	25	155	5.24	.02-.05	*
360	18	4	14	22	8.01	.001-.01	*

Item No.	High 27%	Low 27%	Difference	Sum	χ^2	Probability	Selected Items
361	220	223	-3	443			
362	25	30	-5	55			
363	29	15	14	44	4.19	.02-.05	
364	8	3	5	11	1.49	.20-.30	
365	93	92	1	185			
366	173	171	2	344			
367	100	80	20	180	3.03	.05-.10	
368	51	54	-3	105			
369	77	87	-10	164			
370	70	58	12	128	1.24	.20-.30	
371	89	100	-11	189			
372	70	52	18	122	3.07	.05-.10	
373	97	81	16	178	1.90	.10-.20	
374	97	98	-1	195			
375	60	55	5	115			
376	71	72	-1	143			
377	130	108	22	238	3.35	.05-.10	
378	79	71	8	150			
379	76	50	26	126	6.50	.01-.02	
380	68	60	8	128			
381	81	58	23	139	4.71	.02-.05	
382	97	77	20	174	3.08	.05-.10	
383	77	75	2	152			
384	134	112	22	246	3.33	.05-.10	
385	87	56	31	143	8.60	.001-.01	
386	124	111	13	235	1.09	.20-.30	
387	132	102	30	234	6.41	.01-.02	
388	101	83	18	184	2.40	.10-.20	
389	94	110	-16	204	1.78	.10-.20	
390	105	95	10	200			
391	87	76	9	163			
392	71	63	8	134			
393	67	49	18	116	3.18	.05-.10	
394	102	127	-25	229	4.41	.02-.05	
395	48	39	9	87			
396	78	75	3	153			
397	78	74	4	152			
398	124	112	12	236			
399	61	54	7	115			
400	71	55	16	126	2.33	.10-.20	

Item No.	High 27%	Low 27%	Difference	Sum	χ^2	Probability	Selected Items
401	53	47	6	100			
402	67	54	13	121	1.54	.20-.30	
403	115	85	30	200	6.73	.001-.01	
404	70	57	13	217	1.48	.20-.30	
405	87	70	17	157	2.31	.10-.20	
406	101	73	28	174	6.22	.01-.02	
407	89	80	9	169			
408	152	134	18	286	2.18	.10-.20	
409	142	142					
410	115	115					
411	97	70	27	167	5.89	.01-.02	
412	89	83	6	172			
413	89	83	6	172			
414	121	126	-5	247			
415	250	255	-5	505			
416	98	116	-18	214	2.25	.10-.20	
417	81	115	-34	196	8.79	.001-.01	
418	208	237	-29	445	10.77	.001-.01	
419	61	74	-13	135	1.42	.20-.30	
420	33	35	-2	68			
421	71	66	5	137			
422	183	213	-30	396	8.36	.001-.01	
423	45	38	7	83			
424	127	128	-1				
425	107	112	5	219			
426	173	208	-35	381	10.69	.001-.01	
427	102	110	-8	212			
428	119	160	-41	279	12.05	< .001	*
429	131	120	11	251			
430	54	55	-1	109			
431	58	42	16	100	2.77	.05-.10	
432	88	105	-17	193	2.08	.10-.20	
433	55	53	2	108			
434	66	87	21	153	3.66	.05-.10	
435	145	143	2	288			
436	111	96	15	207	1.54	.20-.30	
437	141	116	25	257	4.33	.02-.05	
438	162	166	-4	328			
439	89	86	3	175			
440	49	39	10	88			

Item No.	High 27%	Low 27%	Difference	Sum	χ^2	Probability	Selected Items
441	160	182	-22	342	3.61	.05-.10	
442	223	235	-12	458	1.89	.10-.20	
443	46	48	-2	94			
444	58	65	7	123			
445	97	132	-35	229	8.86	.001-.01	*
446	92	101	-9	193			
447	136	153	-17	289	1.93	.10-.20	
448	123	137	-14	260	1.27	.20-.30	
449	181	194	-13	375	1.30	.20-.30	
450	216	223	-7	439			
451	163	173	-10	336			
452	183	185	-2	368			
453	137	159	-22	296	3.35	.05-.10	
454	47	25	22	72	7.08	.001-.01	
455	161	150	11	311			
456	61	51	10	112			
457	130	116	14	246	1.27	.20-.30	
458	135	166	-25	295	4.38	.02-.05	
459	168	150	18	318	2.25	.10-.20	
460	138	154	-16	292	1.71	.10-.20	
461	205	212	-7	417			
462	84	88	-4	172			
463	2	1	3	3			
464	189	172	17	359	2.19	.10-.20	
465	103	114	-11	217			
467	203	202	1	405			
468	238	233	5	471			
469	247	240	7	487			
470	47	48	-1	95			
471	102	124	-22	226	3.39	.05-.10	
472	78	74	4	152			
473	31	38	7	69			
474	101	101	0	202			
475	53	38	15	91	2.59	.10-.20	
476	132	96	36	178	10.34	.001-.01	*
477	36	21	15	57	3.85	.02-.05	*
478	132	103	29	235	5.96	.01-.02	
479	36	46	-10	82	1.16	.20-.30	
480	48	43	5	91			

Item No.	High 27%	Low 27%	Difference	Sum	χ^2	Probability	Selected Items
481	35	36	-1	71			
482	101	102	-1	203			
483	211	199	12	410	1.29	.20-.30	
484	166	83	83	249	50.76	<.001	*
485	2	0	2	2			
486	255	258	-3	513			
487	105	81	24	186	4.37	.02-.05	
488	196	168	28	364	6.34	.01-.02	
489	135	114	21	249	3.01	.05-.10	
490	144	106	38	250	10.33	.001-.01	*
491	165	143	22	308	3.40	.05-.10	
492	100	66	34	166	9.54	.001-.01	
493	184	184	0				
494	36	53	-17	89	3.45	.05-.10	
495	21	26	-5	47			
496	175	135	40	310	11.76	<.001	
497	145	133	12	278			
498	165	184	-19	349	2.69	.10-.20	
499	57	49	8	106			
500	92	98	-6	190			
501	133	98	35	231	8.84	.001-.01	*
502	110	131	-21	241	3.03	.05	*
503	167	167	0				
504	226	205	21	431	4.88	.02-.05	
505	134	118	16	252	1.69	.20-.30	
506	74	61	7	135			
507	34	31	3	65			
508	168	173	-5	341			
509	119	104	15	223	1.51	.20-.30	
510	42	32	10	74	1.27	.20-.30	
511	239	226	13	465	2.46	.10-.20	
512	97	102	-5	199			
513	78	91	13	169	1.25	.20-.30	
514	165	147	18	332	2.31	.10-.20	
515	4	4	0				
516	15	15	0				
517	61	54	7	115			
518	82	95	-13	177	1.22	.20-.30	
519	147	129	18	276	2.18	.10-.20	
520	175	164	11	339			

Item No.	High 27%	Low 27%	Difference	Sum	χ^2	Probability	Selected Items
521	185	164	21	349	3.33	.05-.10	
522	21	18	3	39			
523	8	9	-1	17			
524	14	10	4	24			
525	115	110	5	225			
526	130	163	-33	293	7.78	.001-.01	*
527	35	50	-15	85	2.74	.05-.10	
528	207	201	6	408			
529	195	204	-9	399			
530	168	164	4	332			
531	91	94	-3	185	1.15	.20-.30	
532	179	178	1	357			
533	161	160	1				
534	66	78	-12	144			
535	116	105	11	221			
536	192	200	-8	392			
537	57	49	8	106			
538	189	192	-3	381			
539	184	178	6	362			
540	205	195	10	400			
541	22	23	1	45	2.29 1.85	.10-.20 .10-.20	
542	75	80	-5	155			
543	129	120	9	249			
544	31	27	4	58			
545	139	134	5	273			
546	8	13	-5	21			
547	82	86	-4	168			
548	18	22	-4	40			
549	30	43	-13	73			
550	10	18	-8	28			
551	206	188	18	394	2.83	.05-.10	
552	49	48	1				
553	35	43	-8	78			
554	33	50	-17	83	2.83	.05-.10	
555	16	11	5	27			
556	32	33	1				
557	67	73	-6	140			
558	117	126	-9	243			
559	77	63	14	140	1.64	.20-.30	
560	176	181	-5	357			

Item No.	High 27%	Low 27%	Difference	Sum	χ^2	Probability	Selected Items
561	160	155	5	315			
562	22	13	9	35	1.96	.20-.30	
563	205	185	20	390	3.47	.05-.10	
564	6	8	-2	14			
565	184	191	-7	375			
566	228	225	3	453			
567	139	122	17	261	1.93	.10-.20	
568	23	18	5	41			
569	102	122	-20	224	2.78	.05-.10	
570	119	105	14	224	1.30	.20-.30	
571	39	43	-4	82			
572	97	117	-20	214	2.82	.05-.10	
573	36	33	3	69			
574	116	98	18	214	2.26	.10-.20	
575	136	139	-3	275			
576	163	182	-19	345	2.67	.10-.20	
577	54	59	-5	113			
578	79	76	3	155			
579	27	27	0				
580	33	30	3	63			
581	146	138	8	284			
582	62	67	-5	129			
583	143	153	-10	296			
584	126	116	10	242			
585	118	112	6	230			
586	183	192	-9	375			
587	156	128	28	284			
588	115	143	-28	312	5.65	.01-.02	*
589	93	93	0				
590	90	101	-11	191			
591	79	89	-10	168			
592	51	68	-17	119	2.77	.05-.10	
593	170	161	9	331			
594	134	158	-24	292	4.02	.02-.05	
595	108	158	-50	266	18.1	<.001	*
596	19	7	12	26	4.89	.02-.05	*
597	144	84	60	224	26.84	<.001	*
598	38	36	2	74			
599	51	65	-14	116	1.8	.10-.20	
600	31	27	4	58			

Item No.	High 27%	Low 27%	Difference	Sum	\bar{X}	Probability	Selected Items
601	215	216	-1				
602	17	13	4	30			
603	59	58	1				
604	58	65	-7	123			
605	138	130	8	268			
606	156	151	5	307			
607	140	139	1				
608	31	22	9	53	1.34	.20-.30	
609	23	11	12	34	3.80	.05-.10	
610	18	18	0				
611	55	49	6	104			
612	40	45	-5	85			
613	38	35	3	73			
614	157	156	1				
615	26	25	1				
616	57	57	0				
617	110	130	-20	240	2.74	.05-.10	
618	65	49	16	114	2.51	.10-.20	
619	108	108	0				
620	137	140	-3	277			
621	179	159	20	338	2.93	.05-.10	
622	115	129	-14	244	1.28	.20-.30	
623	115	99	16	214	1.76	.10-.20	
624	118	143	-25	261	4.33	.02-.05	
625	7	2	5	9	1.81	.10-.20	
626	39	39	0				
627	60	76	-16	136	2.22	.10-.20	
628	61	34	27	95	8.66	.001-.01	
629	69	85	-16	154	2.06	.10-.20	
630	79	102	-23	181	4.05	.02-.05	
631	29	38	-8	66			
632	55	72	-17	127	2.65	.10-.20	
633	102	124	-22	126	4.59	.02-.05	
634	94	102	-8	196			
635	231	232	1				
636	18	12	6	30			
637	183	205	22	388	4.20	.02-.05	*
638	38	52	-14	90	2.26	.10-.20	
639	69	85	-16	154	2.06	.10-.20	
640	76	83	-7	159			

Item No.	High 27%	Low 27%	Difference	Sum	χ^2	Probability	Selected Items
641	88	90	-2	178			
642	217	205	12	422	1.39	.20-.30	
643	91	117	-26	208	4.93	.02-.05	
644	220	219	1				
645	60	52	8	112			
646	154	158	4	312			
647	101	88	13	189	1.18	.20-.30	
648	25	19	6	14			
649	186	166	20	352	3.03	.05-.10	
650	124	136	-12	260			
651	105	91	14	196	1.37	.20-.30	
652	99	101	-2	200			
653	152	154	2	306			
654	17	16	1	33			
655	84	93	-9	177			
656	162	154	8	316			
657	222	217	5	439			
658	160	171	-11	331			
659	127	118	9	245			
660	213	195	18	408	3.04	.05-.10	
661	217	203	14	420	1.91	.10-.20	
662	84	132	-48	216	17.22	<.001	*
663	90	121	-31	211	7.07	.001-.01	*
664	152	162	-10	314			
665	161	162	1				
666	171	179	-8	350			
667	103	82	21	185	3.31	.05-.10	
668	59	67	-8	126			
669	91	92	1				
670	74	87	-13	161	1.28	.20-.30	
671	94	101	-7	195			
672	223	216	7	439			
673	63	54	9	117			
674	138	138	0				
675	195	185	10	380			
676	159	153	6	312			
677	195	199	-4	394			
678	252	244	8	496	1.46	.20-.30	
679	208	169	39	377	13.15	<.001	
680	152	186	-34	338	8.84	.001-.01	
681	192	195	3	387			
682	192	174	18	366	2.53	.10-.20	
683	133	117	16	250	1.70	.20-.30	
684	186	210	-24	396	5.23	.02-.05	
685	160	185	-25	345	4.75	.02-.05	
686	225	210	15	435	2.47	.10-.20	
687	10	15	-5	25			
688	229	240	-11	469	1.80	.10-.20	
689	28	22	6	50			

APPENDIX C



REVISED INVENTORY

INTERESTS AND PREFERENCE INVENTORY DIRECTIONS

This is an inventory with questions about your high school, home, community and family, your vocational plans, and your personal preferences. To simplify scoring, it has been designed for use with a separate answer sheet. Do not make any marks on the mimeographed question sheets. In order to indicate the items which apply to you, simply mark the "T" position on the answer sheet for the number corresponding to the number of the item.

A sample is given below:

What size high school did you attend? T F

- | | |
|----------------------------|--|
| 1. Less than 200 students | 1. |
| 2. 200-500 students | 2. |
| 3. 500-1000 students | 3. <input checked="" type="checkbox"/> |
| 4. More than 1000 students | 4. |

The sample indicates that this student attended a high school with 500-1000 students.

Be sure to put your name on your answer sheet. No other information is necessary. Begin at once, and work rapidly.

HOME AND SCHOOL BACKGROUND

Which category best describes the community in which you lived during high school?

Rural area, no town larger than 2500 people

Small town, 2500-25,000 people

Small city, 25,000-50,000 people

Large city, more than 50,000 people

Suburb of a large city

What was your position in your family?

Only child

Oldest child

Youngest child

Neither oldest or youngest

What kind of work does your father or the breadwinner in your family do?

Production work in a large industrial plant

Skilled trade

Work in an office

Sales work

Manager of small business

Owner of small business

Manager of large business

Physician or attorney

Other professional work

Work in a service occupation, (Cleaning shop, laundry, beauty shop, barber, etc.)

On the list below check all the activities in which you engaged in high school?

Debating

Appearing in plays, TV or radio programs

Editing school paper

Working on school paper or annual

Participation in a discussion group

Working on an automobile

Working on a radio, phonograph, or hi-fi set

Assembling and classifying a collection

Belonging to school club (Science, Latin, Home Ec., etc.)

Belonging to honorary club (Beta, Key, National Honor Society)

Check everything that applies:

My mother

Is very companionable

Is well known for civic activities

Is difficult to talk to

Is a strict disciplinarian

Is very sentimental

Enjoys doing things with the family

Thinks happiness is more important than financial success

Keeps her clothes and other belongings in good order

Is quick tempered

Is easy to get along with

Is very intelligent

Is quite successful in business or profession

My father

Is very companionable

Is well known for civic activities

Is difficult to talk to

Is a strict disciplinarian

Is very sentimental

Enjoys doing things with the family

Thinks happiness is more important than financial success

Keeps his clothes and other belongings in good order

Is quick tempered

Is easy to get along with

Is very intelligent

Is quite successful in business or profession

What size high school did you attend?

Less than 200 students

200-500 students

500-1000 students

More than 1000

How much education did your father have? (Check one)

Elementary school, but no high school

Some high school, but did not graduate

Graduated from high school, but no college

Some college, but did not graduate

Graduated from college

Post-college training

**Advanced or professional degree (Ph. D., M. D., Ed. D.,
M. A., M. S., etc.)**

How much education did your mother have? (Check one)

Elementary school, but no high school

Some high school, but did not graduate

Graduated from high school, but no college

Some college, but did not graduate

Graduate from college

Post-college training

Advanced or professional degree (Ph. D., M. D., Ed. D.,
M. A., M. S., etc.)

VOCATIONAL AND EDUCATIONAL PLANS

How definite are your vocational plans? (Check only one)

I have made a definite choice, and will follow a course
which leads to preparation for that vocation

I have decided on a general field in which I would like
to work, but have not decided on a specific vocation
within that field

I am undecided between several vocational fields

I have no idea what vocation I want to follow

I thought I had made a choice, but now think I need to
make a change

Check the person or persons who was of the most help to you
in selecting an occupation?

Parents

High school teachers or principal

Someone in the profession

A guidance counselor

Check the reason that was most important in your decision to attend college..

I wanted a better job than I could get without more education

In my chosen occupation, I have to have a college education

I want to get a good general education--to learn all I can

I was undecided about what I wanted to do

I wanted to meet new people

I wanted to continue in athletics

All my friends were coming

My parents wanted me to come

My high school teachers encouraged me to come

No one else in my family has a college education, and I thought it would be an accomplishment

(CHECK THE STATEMENT BELOW THAT IS MOST TRUE FOR YOU)

By the end of the first quarter I expect my grades will be

So low I will not be able to continue in school

Barely passing in most courses

Good in some courses, low in others, with an overall average high enough to stay in school

Average or better in every course

Very good in every course except possibly one

How are your expenses being paid? (Check one)

Entirely by parents or other relatives

Entirely self supported

Partly self supported, partly supported by parents
Wholly or partly supported by scholastic scholarship
Athletic grant-in-aid
G. I. bill, Vocational Rehabilitation, other agency

PERSONAL PREFERENCES

I like courses which are

Easy, covering mostly things I already know
So hard that I have to study a lot, and learn a lot
of new material
Of medium difficulty, with some new material

In class discussions

I usually agree with the opinion of the majority
I sometimes disagree with the majority, but do not
press my argument
I frequently always disagree, and often get into
heated discussions

If I have a choice of seats in a classroom, I try to

Sit close to the front, where I can see and hear everything
Sit near the back, so I am inconspicuous
Sit wherever my friends are sitting
Sit in the first seat I come to

When I have an instructor who lectures in a monotone

I frequently almost go to sleep, and miss most of what
he says
I try to listen, and depend mostly on reading from
the book

I force myself to take notes, so I have to listen
carefully

I ask questions occasionally, so I can arouse a
little interest

If the bell rings before I finish a test, I

Immediately hand in my paper

Finish the question I am on and then turn in my paper

Ask for more time so I can finish the entire test

I keep my notes for various courses

All together in the same notebook

All in the same notebook, in separate sections

In a separate notebook for each class

During holidays and short vacations

I try to forget school entirely

I use the time to catch up on my school work

I work on assignments which will be due soon after
school reconvenes

When I have a special assignment or a difficult task

I begin working as soon as I get the assignment, and
usually finish ahead of time

I begin working early, but seldom finish until the
deadline

I wait until close to the deadline, and usually manage
to finish in time

I frequently fail to allow enough time, but often turn
in work which needs a little more preparation

I am nearly always late in getting my work finished

When I am studying

I must have absolute quiet or I cannot concentrate

I am usually able to ignore noises and people

I like to have the radio playing

I often watch TV at the same time

I like to have other people around

When I have a certain amount of work to do, I usually

Work very rapidly until I finish everything

Take brief rests every once in a while

Do about half of it, then take a long rest before
finishing

Stop frequently to talk to someone, look for something, etc.

My favorite activities involve

Being outdoors

Expressing myself artistically, or musically

Making something

Helping someone

Earning money

When I have an appointment for a certain time

I often allow entirely too much time

I am usually a little early

I am usually exactly on time

I am usually a little late

I am sometimes early and sometimes late

When I am looking at a magazine I usually attempt to work out

Crossword puzzles

Mazes (such as to help the rat find the cheese)

Tests of information

Situation puzzles (such as, What would you have done?)

Personality tests

Puzzles involving numbers (such as: If a hen and a half can lay an egg and a half in a day and a half . . . etc.)

If some friends and I were in trouble, and I was the only one caught, I would

Take all the blame, rather than giving them away

Try to get the others to give themselves up

Tell the authorities who the others were

(MARK EVERY STATEMENT THAT APPLIES TO YOU)

I dislike people who

Are critical of other people

Are late for appointments

Are slow in their work

Brag about things for which they are not responsible

Act younger than they are

Act older than they are

Are irresponsible

Disagree with me

Criticize me, even if it is constructive

Talk a lot

Are prejudiced

Are wishy washy

Are crude or inconsiderate

Drink excessively

Smoke

Are inferior to me

Are superior to me

Ask me to do unreasonable things

Cannot take criticism

Lack self-confidence

I like classes in which

The instructor lectures, we take notes, and the grade is entirely based on tests

The instructor leads the class, but gives opportunity for students to ask questions and discuss things, and where the grade is based partly on class participation

Most of the class time is devoted to discussion, with students taking the lead

Students are responsible for planning and carrying out most activities, with the instructor acting as a consultant

I usually remember birthdays and anniversaries of my friends

The thing I enjoy most about school is being with other students

I want to be successful in order to make my family proud of me

I am unable to do good work in a class which does not interest me

Mark all the sections of newspapers that you read regularly.

Front page news

Advice column

Columnists

Sports page

Editorials

Church news

Want ads

Society page

Horoscopes

How many did you mark under Newspapers?

0-3

4-5

6 plus

Mark all the types of books that you read regularly.

Romantic stories

Technical books

Adventure stories

Encyclopedias

Classics

Historical novels

Mystery stories

Philosophy or religion

Biography

History

How many did you mark under books?

0-2

3-4

5 plus

Mark all the magazine articles that you read regularly.

On world conditions

About religion

About medical problems

About philosophy and ethics

About personal problems

About sports

About famous people

How many did you mark under magazine articles?

0-2

3-4

5 plus

Mark all the Magazine stories that you read regularly.

Short stories

Romantic stories

Continued stories

Sports stories

Long novelettes

Science fiction

Mystery stories

How many did you mark under magazine stories?

0-2

3-4

5 plus

Check all the types of television programs that you watch when you have the opportunity.

Sports events

Variety shows

Comedians

Science fiction

Musicals

How many did you mark under television programs?

0-2

3-4

5 plus