

COLLEGE GRADES IN RELATION TO INVENTORY
MEASURES OF PERSONALITY

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Gerald Lee Hershey
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1. The first part of the thesis is a review of the literature on the topic of the thesis.

2. The second part of the thesis is a description of the methodology used in the study.

3. The third part of the thesis is a presentation of the results of the study.

4. The fourth part of the thesis is a discussion of the results of the study.

5. The fifth part of the thesis is a conclusion of the study.

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by
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A THESIS

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This study compared the effectiveness of two methods of relating inventory measures of personality to college grades. On the basis of previous findings, it was hypothesized that scales composed of items that discriminate between those with high and low grades (the Item Method) would be a more accurate predictor of college grades than scales measuring any one general trait of personality (Trait Method).

Subjects were 171 second and third year students in the colleges of Business and Arts and Sciences at Michigan State University, who were enrolled in three sections of a course in the Psychology of Business and Personnel. Measures of 22 personality traits were obtained for each student by means of personality inventories. The criterion of academic achievement used was college grade point average.

The Trait Method provided evidence that those with high grade point averages were significantly lower in economic values (-.29), ambitious (.26), warm (.20), liberal (.18), non-conforming (+.17), and unsociable (+.16). Utilizing the Item Method, a 60 item "GPA Scale" was developed which correlated .69 (N=35), .55 (N=50), and .32 (N=118) with grade point averages of students in three different Psychology courses.

GERALD LEE HERSHEY

ABSTRACT

The evidence supports the hypothesis that the Item Method provides more accurate predictions of college grades than the Trait Method.

Approved Henry C. Smith
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THE PROBLEM

The influx of veterans into colleges after World War II stimulated an increased interest in locating non-intellective factors related to college achievement. The interest has been given recent impetus by the President's Council on Higher Education, which predicts enrollments in college by up to sixty per cent of all secondary school graduates by 1960 (15). The rapid growth in students has created a need to locate non-intellective instruments for measuring a student's potentialities to supplement presently available intellectual ones. Thus, the College Entrance Examination Board has recently offered support for research on these aspects of college success. A symposium during the 1957 American Psychological Association convention was devoted to the topic "New Perspectives in the Prediction of College Success" (2).

The results of studies relating intelligence to college grades indicate that there is considerable room for non-intellective measures to improve prediction. One of the earliest studies relating intelligence and grades was that of Bridges (5) who, in 1919, found a correlation of .35 between scholastic achievement and the Army Alpha Intelligence Tests. In 1923, Anderson and Spencer (3)

found correlations of .38, .45, and .43 for the classes of '23, '24, and '25 between the Yale Classification Test (General Aptitude) and scholastic achievement. Garrett (15), summarizing a series of studies from 1923 to 1939, found a median correlation of .43 and a range of coefficients from .12 to .56. In a summary of 94 studies correlating various measures of intelligence with scholastic success in college from 1919 to 1947, he found a median correlation of .47 and a range of coefficients from .17 to .67. Typically, then, intelligence only accounts for about 20 per cent of the variance in grades.

Early efforts to relate non-intellective factors to grades were generally discouraging. The literature dates back to 1925 when Chambers (7) found an encouraging correlation of .54 between Pressey X-O Scores and college success at Ohio University. However, Flemming (14) obtained .07 as a coefficient of correlation with the test the same year at Columbia University, and obtained mostly negative correlations with the test parts at a small college in 1929. Gilliland (17) found a -.02 correlation at Northwestern University in 1930. In one of the early reviews of the literature, Stagner (36) found that objective measures of personality show no linear relationship to either academic aptitude or academic achievement. Harris (23) found inconsistent results in a number of studies

relating personality tests and college grades from 1930 to 1937. Garrett (15), reviewing studies from 1925 to 1945, also found no consistent relationship. The range of 63 correlations was from $-.30$ to $.64$. The median fell at $.09$.

Possible Explanations for the Negative and Inconsistent Findings

What are some of the factors which might have contributed to the confusion evident in the literature? Certainly experimental and methodological weaknesses have contributed significantly. Personality tests developed for quite different purposes have been used (1, 8). Many of the measures used were based on inefficient, a priori method of test construction (21). Samples have been inadequate and unrepresentative (27, 39). Level of academic progress has varied among subjects (1). Different and sometimes non-objective criteria of achievement were often used (1, 35, 38). Sex differences have been confounded (31). No effort to determine whether the relationships obtained were linear or curvilinear was attempted (36).

One of the other major factors responsible for the inconsistencies in the literature is the varied approaches utilized in the studies to date. The literature reflects essentially two different approaches to the development of inventories to predict college success: the Trait Method and the Item Method.

The Trait Method

Stern, et al. (37) illustrate the approach in a study of college freshmen. The objective criterion selected was grades based upon the results of performance on comprehensive examinations which were devised, administered, and graded by a group of examiners who were independent of the instructional staff. Subjects for the study included 63 freshmen, entering the college at the 11th grade level and averaging 16 years in age. The authors first used the ACE Psychological Examination which yielded a correlation of only .17 with grade average.

The authors then administered a number of measures which seemed likely to yield significant correlations. These included: the Physiognomic Cues Test, Three Thurstone Factors (Closure, Flexibility of Closure, and Space Factor), Stimulus-Free Problem Solving Test, and Stern's Test of Stereotypy. They also obtained measures of the subjects relevant thinking in the classroom as well as ratings by the subjects instructors and dormitory counsellors. The only measures related to the criterion were Thurston's space factor, relevant thinking in the classroom, and the instructor's ratings of classroom participation.

The authors next administered the Activities Index (a test of 300 items based on the assumption that potential participation, or the manifestation of interest, in a

specific class of behaviors is a reflection of the subject's personal needs) was administered to all subjects. Data from the index was analyzed for two groups of students--a group of high achievers (grade averages of 3.2 and above), and another group of low achievers (grade averages of 1.8 and below).

Differential response to the Activities Index by the high and low achievers on the comprehensive examinations provided a means of conceptualizing a model which typified the high achiever. On the basis of this model the authors found that the high achievers tended to be characterized by highly purposeful and intellectual activities, with only minimal interest in recreational activities and with little interest in relations with members of the opposite sex.

The authors then attempted to cross-validate their general description of the need patterns of the high and low achievers on the basis of a biographical questionnaire which was filled out by 50 students five years previously. The model was substantiated in terms of the types of movie, radio program, and book preferences selected by the high and low achievers.

Another, more recent, illustration of the trait approach was conducted by Gebhart and Hoyt (16). Their subjects were 240 freshmen Engineering and Arts and Sciences college students divided, according to college,

into low, average, and high, on the basis of grade point average. Scores on the sixteen variables of the Edwards Personal Preference Schedule were obtained from the freshmen testing program. They found that high ability groups scored consistently and significantly higher on the Achievement, Exhibition, Autonomy, Dominance, and Consistency scales; low ability groups scored consistently and significantly higher on the Deference, Order, Abasement, and Nurturance scales.

The Item Method

The Item Method follows the reasoning that even though a test may have a low correlation with a criterion of academic achievement, there may be some particular items of the test which are predictive of academic success. And, conversely, it may also be posited that some of the individual items in a test are negatively correlated with academic success. Thus, one should locate the items in a scale which are predictive of achievement and use them (along with similar items from other scales) to make the prediction.

One of the first studies tending in this direction was that of Borow (4). He devised a series of 399 items, all relating to academic performance, insofar as intuition could determine. These items were then analyzed individually to discover which ones would, in fact, reliably differentiate under and over-achievers. The resulting

scale correlated .30 with college grades in cross-validating samples, and combined with capacity tests to give multiple correlations of .50. However, he failed to control the "social desirability" factor and the "best" responses were relatively easy to guess. Other workers have since utilized a similar methodology. Altus (1) item analyzed the Minnesota Multiphasic Personality Inventory searching for items predictive of academic achievement. Owens and Johnson (32) carried out a similar analysis.

In a more recent study, Gough (19) constructed a personality scale to predict academic achievement in college undergraduate curricula. The first step in constructing the scale was to assemble a pool of inventory items likely to be related to grades. The writing and selection of beginning items was based upon three general sources: previous findings, theories about academic motivation and achievement, and intuitive hunches about contributing factors. Through item analysis in three different samples, 36 items from the pool of 150 items were retained for the first version of the scale, called Hr (for honor point ratio) to distinguish it from Ac (high school academic achievement scale) developed earlier by the writer (18, 21).

The Hr scale was correlated with course grades in the original four samples, totaling 603 cases. The median r was .47, and the mean r , using the z -transformation, was .48. Four cross-validating samples, totaling 336 cases,

were given the initial 36-item scale. The median r here was .33, and the mean r was .38. This scale is now included as a sub-scale of the California Psychological Inventory.

Stern, et al. (37) utilized this technique in an item analysis of the Activities Index. Through locating items which discriminated between high and low achievers, they developed a 23 item sub-scale with total scores on this scale correlating .63 with comprehensive examination averages for a group of 100 Freshmen.

Purpose

Table I summarizes the results of a number of studies utilizing both Item and Trait Methods. The table shows that studies using the Item approach have, on the whole, found higher correlations with college grades than those using the Trait approach. However, it appears that a comparison of the two approaches using the same students and the same pool of items would more firmly establish this conclusion. Thus, the hypothesis to be tested in this study is as follows:

The Item method can provide a scale which is a more accurate predictor of college grades than trait scales of comparable length.

TABLE I
A SUMMARY OF STUDIES USING THE TRAIT AND ITEM
METHODS TO RELATE PERSONALITY AND GRADES

Date	Reference	Trait or Scale	Correlation
The Trait Method			
1925	Chambers (7)	Pressey X-O	.54
1925	Flemming (14)	Pressey X-O	.07
1925	Flemming (14)	Larid's Inv.	.11
1927	Hunt (25)	Moss Soc. Intell.	.47
1927	Flemming (15)	Woodworth Pers. Data	.03
1929	Flemming (15)	Intro.-Extrov.	.26
1930	Gilliland (17)	Colgate Intro.-Extro.	.06
1930	Harris (23)	Thurstone Pers. Sched.	.04
1933	Stagner (36)	X-O Affectivity	-.05
		Allport A-S	-.11
		Moss Social Intell.	.37
		Bernreuter:	
		Neurosis	.07
		Self-Sufficiency	.07
		Introversion	.07
		Dominance	-.06
1937	Darley (9)	Sociability	-.25
1939	Durflinger (11)	Bernreuter	-.17
1945	Zalman (42)	Bernreuter (Jr. Div.):	
		Neurosis	-.02
		Self Suff.	.03
		Introversion	.02
		Dominance	.01
1949	Gough (18)	MMPI: Sec.-Insec.	-.01
Total Coefficients: 22 Range: 79 Median: .07			
The Item Method			
1933	Young & Esterbrook (41)	Strong Interest	.35
1945	Borow (4)	Pool of 90 items	.30
1947	Brown (6)	MMPI (45 items)	-.12
1948	Altus (1)	MMPI (60 items)	.23
1953	Gough (19)	36 items	.48
1953	Gough (21)	64 items	.58
1956	Stern <u>et al.</u> (37)	23 items from Activities Index	.63
Total Coefficients: 7 Range: 75 Median: .37			

METHOD AND PROCEDURE

Subjects

Subjects for the major study consisted of 171 Michigan State University students (142 males and 29 females) enrolled in three sections of a second year psychology course entitled: The Psychology of Business and Personnel. The majority of subjects were second and third year students enrolled in the College of Business and the College of Science and Arts.

Criterion

The criterion of college achievement was the grade point average (GPA) earned on the basis of grades for all courses taken in the university. Grade points at Michigan State University are calculated on the following scale: A equals four points, B equals three, C equals two, D equals one, and F equals zero; average GPA is determined by dividing total points earned by total credits carried.

Personality Measures Used

The measures of personality utilized consisted of twenty-two scales developed by H. C. Smith (the scales will hereafter be referred to as the H.C.S. Inventory, see

Appendix A). Each scale consists of 30 True-False statements (with the exception of the Breadth of Interest Scale with 60 items). The names given the 22 scales and a brief statement of the intent of each is given below:

- | | |
|--|--|
| 1. Activity
Inactive--Active | An attempt to determine the general activity level of the individual. |
| 2. Sensory Awareness
Unaware--Aware | The degree to which an individual is aware of his surrounds via his sense organs. |
| 3. Sexuality
Low--High | Interest in members of the opposite sex and activities pertaining thereto. |
| 4. Emotionality
Unemotional--Emotional | The degree to which an individual becomes emotionally involved in situations and with others. |
| 5. Optimism
Optimism--Pessimism | The general pattern of responses to situations; is it pessimistic or optimistic? |
| 6. Expressiveness
Inhibited--Expressive | The relative amount of freedom or restraint the individual displays in expressing emotion. |
| 7. Thinking
Introverted--Extroverted | The degree to which an individual is inward or outward oriented in his perception of the environment. |
| 8. Interests
Narrow--Broad | An attempt to measure an individual's self extension through determining the number of likes in such areas as occupations, school subjects, amusements, activities, and types of people. |
| 9. Self-Confidence
Low--High | How the individual evaluates his own worth, adequacy, and competence. |

- | | | |
|-----|---|--|
| 10. | Self-Insight
Low--High | A measure scored on the basis of total number of unpleasant traits, which a person says describes him, plus total number of pleasant traits which he says does not describe him. |
| 11. | Economic Values
Low--High | Whether the individual is primarily interested in what is useful; preoccupied with affairs of the business world. |
| 12. | Artistic Values
Low--High | Measure of interest in form and harmony, beauty, and aesthetic activities. |
| 13. | Scientific Values
Low--High | Relative degree of interest in scientific endeavors and scientific method. |
| 14. | Religious Values
Low--High | Measure of the intensity and confidence of the individual's belief in God, in the supernatural, and in divine intervention. |
| 15. | Liberalism
Conservative--
Liberal | Degree of liberalism and conservatism the individual displays in relation to a number of issues. |
| 16. | Ambition
Unambitious--
Ambitious | Whether the individual desires to do things as rapidly and as well as possible; whether he makes intense, prolonged, and repeated efforts to accomplish difficult things; and whether he enjoys competition. |
| 17. | Organization
Unorganized--
Organized | Attempts to measure some aspects of Cattell's "Positive vs. Immature Dependent Character," e.g. Consistently ordered vs. Relaxed; Conscientious vs. Undependable, etc. |
| 18. | Emotional Control
Uncontrolled--
Controlled | What are the individual's reactions to emotional emergencies and to frustrating situations. |

- | | |
|---|---|
| 19. Gregariousness
Unsociable--
Sociable | Measures need for affiliation. Not to be confused with "sociability" which implies social skill, social values, interests in intimate friendships, etc. |
| 20. Warmth
Cold-Warm | The degree to which an individual likes, accepts, approves, feels close to, and wants to help others. |
| 21. Dominance
Submissive--
Dominant | Measures degree of dominance through items related to dominance feelings, behavior, and leadership. |
| 22. Conformity
Nonconformity--
Conformity | Attempts to differentiate conformists from non-conformists. |

In the development of the H.C.S. Inventory, a method suggested by Hanley (22) was used for reducing the influence of the "social desirability" factor. In the preliminary development of each scale, the author asked students to answer 60 items, not in terms of their own choice, but what they felt was the most desirable answer. Their responses to each statement were then item analyzed; if a large majority of the students agreed on the desirable answer it was dropped from the scale or reworded to make it even more neutral in desirability. If the "split" was 25 to 75 or greater (50-50 being socially neutral) the item was retained.

Each scale was then administered to another group of students who were instructed to answer the items as they applied to themselves; these responses were item analyzed.

The 30 most discriminating items were retained for the final version of the scales.

Table II summarizes the consistencies and stabilities obtained for all 22 scales. Internal Consistencies (Odd-Even corrected by Spearman-Brown) range from .10 to .93 with a median of .79. Measures of stability (Test-Retest) range from .49 to .94 with a median of .78.5.

TABLE II
CONSISTENCIES AND STABILITIES OF
THE H.C.S. PERSONALITY INVENTORY

Personality Trait	Internal Consistency	Stability	
		After One Week	After Six Weeks
Activity	.77	.90	.81
Sensory Awareness	.49	.88	.72
Sexuality	.82	--	.88
Emotionality	.92	.86	.84
Optimism	.83	.91	.91
Expressiveness	.86	.94	.81
Thinking	.79	.81	.77
Breadth of Interests	.93	.90	.72
Self-Confidence	.88	.94	.81
Self-Insight	.10	--	.49
Economic Values	.60	--	.79
Religious Values	.91	--	.92
Scientific Values	.78	--	.78
Aesthetic Values	.90	--	.94
Liberal Values	.76	--	.78
Ambition	.73	.87	.84
Organization	.85	.87	.90
Emotional Control	.84	.92	.86
Gregariousness	.78	.92	.85
Warmth	.63	.91	.65
Dominance	.59	.84	.84
Conformity	.71	.90	.88

A factor analysis of the 22 scales was conducted. The scores of 75 students who had completed all 22 scales formed the principle material for the analysis. The scores of 75 students who had completed only 15 of the scales were later used as a check. The entire factor analysis was completed on the "MISTIC" (Michigan State Integral Computer). This reduced considerably the computing time for such an analysis. The Quartimax Method (30) was employed which is an entirely objective technique requiring no judgments on the part of the analyst.

Table III presents the factors located in the H.C.S. Inventory. Only traits with factor loadings of .40 or more have been included. In addition to these 11 factors, there were 3 minor factors among which the highest loading was -.20 with the Activity Scale. The relatively wide distribution of variance among the factors found, the number of significant factors found, as well as the relatively low correlations between the traits (Range = 98, Median = .06), indicate that the traits are relatively independent of each other (see Appendix B).

To test the stability of the factors, the scores of 75 additional students who took 15 of the 22 scales were independently analyzed in an identical fashion. Only five of the factors had at least one trait with a loading of over .40. However, these five were readily related to the five factors found in the first analysis and were in approximately the same order of importance (see Table III).

TABLE III
FACTORS LOCATED IN TWO ANALYSES OF
THE H.C.S. PERSONALITY INVENTORY

Factor	Personality Trait	Factor Loading N=75 (22 Traits)	Factor Loading N=75 (15 Traits)
A	Dominance	.72	.85
	Emotional Cnt.	.66	.44
	Activity	.62	.54
	Self-Esteem	.55	.50
	Sexuality	.40	--
B	Emotional Cnt.	-.86	-.81
	Emotionality	.60	.44
	Optimism	-.59	-.52
	Self-Esteem	-.57	-.53
	Organization	-.54	-.45
C	Liberalism	-.79	
	Religious Values	.78	
	Conformity	.61	.47
	Sensory Awareness	.42	
D	Warmth	-.74	
E	Breadth of Int.	.71	.17
	Aesthetic Values	.61	
	Thinking	-.43	-.76
	Sensory Awareness	.35	
F	Ambition	.54	.76
	Organization	--	.59
G	Scientific Values	.59	
H	Sociability	.49	
	Economic Values	.31	
I	Conformity	-.43	
J	Sensory Awareness	.42	
K	Self-Insight	-.49	

Trait Method Procedure

The Trait Method utilized in this study essentially consisted of computing a mean correlation for the three sections of the scores on the 22 personality scales with the criterion of grade point average. In addition, the scales were administered to a group of seven honor students in psychology (students having grade point averages of 3.5). Their deviation from the median of the major group was determined for each scale.

An attempt to determine whether the relationship between each scale and grades was linear was made in the following manner. The students in one section were divided into three groups on the basis of scores on each scale (low, average, and high). The same number of males and females appeared in each group. Average course grades and grade point averages were then computed for each of the three groups. The difference between the means of the three groups were then tested for significance. The procedure was repeated with one other section. With one exception, there was no evidence that any of the traits were curvilinearly related to grades. The exception found was with the Breadth of Interest scale which was curvilineally related to course grades but not to grade point average (individuals with an average number of interests received significantly higher course grades than those with either a high or low amount of interests).

Item Method Procedure

The procedure for this method is similar to the one used by Gough (19) in the development of his Hr Scale. The technique used for locating discriminating items was Kelley's (28) method for estimating correlations, based on the upper and lower 27 per cent of a group. Thus, students in the upper 27 per cent of the distribution for GPA and course grades and those in the lower 27 per cent were isolated.

An item analysis of responses to items in the 22 scales of the H.C.S. Inventory (690 items) was conducted for both groups. Flanagan's (13) Table was then utilized to determine the biserial coefficient of correlation for each item with the two criteria. Items with a correlation of .20 or higher, and in the same direction as the course grades, were included in the final version of the scale (see Appendix D). The purpose of the secondary criterion was to select items which were positively related to course achievement. The scale ("GPA Scale") consists of 60 items (see Appendix D).

The scale was administered to one section of a course in the Psychology of Business and Personnel. Two cross-validations were obtained in another section of the Psychology of Business and Personnel and an Introductory course in Psychology. Students in the introductory course were a more heterogenous group in terms of colleges represented than the group in the other course.

In order to determine the "fakability" of such a test, all three groups of students were asked, after having taken the test, what the test was attempting to measure. Despite the wide variety of responses, not one student in the three sections was able to detect the purpose of the test.

In order to obtain additional information as to the discriminatory powers of the GPA Scale, the instrument was administered to six honor students in psychology. Their performance on the test was compared with the norms established on the basis of the fifty students in the introductory psychology course.

RESULTS

Trait Method

Table IV summarizes the significant coefficients of correlation between grade point average and the personality traits related. The correlations are based on the mean correlation, using the z transformation, among the three groups of subjects.

TABLE IV
CORRELATIONS OF GRADE POINT AVERAGE***
WITH H.C.S. PERSONALITY INVENTORY

Personality Trait	Correlation with Grade Point Average (N=171)
Economic Values	-.29**
Ambition	.26**
Warmth	.20**
Liberalism	.18*
Conformity	-.17*
Gregariousness	-.16*

* P = .05

** P = .01

*** Coefficients based on mean r using the z transformation

There are six traits significantly related to grade point average; the remainder of the traits had r's of .13 or less. A multiple correlation between the six traits

and grade point average was computed with an r of .46 being obtained.

In order to determine whether these same traits might be related to the less stable criterion of grades in a single course, correlations between the 22 traits and grades in the Psychology course for the 171 students were obtained. With the exception of one, none of the 22 traits were significantly related to course grades. The one exception was a .19 correlation with conformity which is opposite to the relationship found with grade point average. This might indicate a trait related to achievement in this type of course.

The 22 scales were administered to a group of seven honor students in psychology. Table V presents the results of the analysis in terms of the honor students deviation from the median for the 22 traits. Four of the top six deviations are found in traits having a significant relationship with grade point average.

Table VI shows the correlations which were individually significant in relation to the factors in which they appear with a factor loading of more than .40. Economic Values which appeared in no factor with a loading of .40 or more was the largest.

TABLE V
DEVIATION FROM THE NORMS ON H.C.S. INVENTORY
OF SEVEN HONOR STUDENTS IN PSYCHOLOGY

Direction of Trait	Percentile Deviation from Median in Norms*
Non-Conforming	42
High-Sexuality	40
Low Economic Values	39
Liberal	37
Low Religious Values	33
Ambitious	32

*See Appendix C

TABLE VI
FACTORS CONTAINING TRAITS SIGNIFICANTLY
RELATED TO GRADE POINT AVERAGE

Factor	Personality Trait	Correlation with Grade Point Average
C	Liberalism	.18*
	Religious Values	.13
	Conformity	-.17*
	Sensory Awareness	-.07
D	Warmth	.20**
F	Ambition	.26**
H	Gregariousness	-.16*
I	Conformity	-.17*

* P = .05

** P = .01

Item Method

Table VII represents the coefficients of correlation between GPA Scale scores and grade point averages for three groups of students.

TABLE VII
CORRELATION BETWEEN GPA SCALE SCORES
AND GRADE POINT AVERAGE

Course	N	Correlation with Grade Point Average
Psychol. Bus. & Pers.	35(30M-5F)	.69**
Intro. to Psychol.	50(35M-15)	.55**
Psychol. Bus. & Pers.	118(110M-8F)	.32**

** P = .01

Table VII indicates the significant coefficients of correlation for scores on the GPA Scale with personality Traits for the 35 students enrolled in the Psychology of Business and Personnel Course.

TABLE VIII
CORRELATIONS OF GPA SCALE SCORES WITH
H.C.S. PERSONALITY INVENTORY

Personality Trait	Correlation with GPA Scale (N=35)
Conformity	-.53**
Ambition	.50**
Scientific Values	.46**
Gregariousness	-.38*
Warmth	.34*

* P = .05

** P = .01

Table IX presents the norms for the GPA Scale based on scores of the students enrolled in the Introductory Psychology Course.

TABLE IX
NORMS FOR THE GPA SCALE*

Scores on GPA Scale	Percentile										
	0	10	20	30	40	50	60	70	80	90	100
	17	21	23	25	26	27	28	30	31	34	41

* N = 50

The scores of six honor students who took the GPA Scale are as follows: 31, 32, 32, 35, 36, and 38; all are above the 80th percentile.

DISCUSSION

Trait Method

The correlations of the major study, as well as the smaller study of honor students, found that the high achievers held low economic values and were ambitious, warm, liberal, non-conforming, and unsociable. Other studies have obtained results generally consistent with these findings.

Three studies (30, 9, 12) report a significant relation between high grades and a tendency towards liberal or radical economic and social views. Gebhart and Hoyt (16) found that high achievers scored significantly higher on Edward's Achievement scale. H.C.S.'s Ambition scale and Edward's Achievement scale appear to be measuring essentially the same trait. The fact that no findings relating to the Warmth trait were found evidently reflects a lack of research concerning this particular trait. Even though no studies relating conformity with high academic achievement have been located in the literature, the correlation of $-.44$ between the H.C.S. Liberalism and Conformity scales suggests that these two traits are related. Gebhart and Hoyt (16) also found that high ability groups scored consistently and significantly higher on the Autonomy

scale in the Edwards Personal Preference Schedule. The Gregariousness scale of H.C.S. and the Autonomy scale of Edwards tend to be closely related. A sociability scale gave a low correlation ($-.25$) with grades for women students (8). Young and Estabrooks (41) found that high achievers tended to be "unsocial."

The results of this and similar studies indicate that personality traits are significantly related to grades. However, an important limitation is the fact that practically all the traits related to grades are also related to intelligence. In several studies, Economic values and intelligence have been found to be negatively related. Pinter (33) found a significant correlation of $-.41$ between these two variables. Schaefer (34) also found a significantly negative relationship between the ACE and Economic values. Duffy (10), in a study of freshmen women, found a negative relationship between economic and political values and intelligence. Hurley (26) found the Edward's Achievement scale to be significantly related to intelligence in both male and female freshmen college students. Moore (29) and Eckert (12) found intelligence to be related to liberalism. The ACE was also found to be related to several of the H.C.S. scales with a group of 40 students in a Psychology of Personality course: conformity ($-.25$), warmth ($-.20$), and sociability ($-.30$). Thus, with the exception of the warmth trait, correlations between traits and grades might be accounted for by the intelligence factor.

Item Method

The significant relationships obtained between the GPA Scale and grade point average indicate that the scale has located some of the aspects of the 22 traits that are most highly related to this type of achievement. The high correlations found in Table VII are consistent with other findings using the same method. Gough (19) obtained correlations of .52, .53, .63, and .54 between his Ac Scale and high school achievement. His Hr Scale (18) was correlated with course grades using four samples. The median r obtained was .47, and the mean r , using the z -transformation, was .48. Stern, et al. (37) found a similarly high correlation of .63 between their 23 items and comprehensive exam averages at the end of one year for 100 freshmen. As with the grade related traits, it is possible that the intelligence variable is related to the GPA Scale. Table VIII suggests that the scale is related to at least three variables (non-conformity, ambition, and unsociability) that have been found to be related to intelligence.

Comparison of the Two Methods

A comparison of the results of the two methods, supports the original hypothesis: the 60 item GPA Scale does predict college grades more effectively than trait scales of comparable length. Even when a multiple correlation of .42 between the six personality traits (180

items) and grades is obtained, the greater effectiveness of the GPA Scale (60 items) is still maintained (mean r between the GPA Scale and grades of .45). From these results and those of other studies (18, 19, 35) using a similar method with different samples and instruments, it seems that some items in each related trait scale are positively related to academic achievement, and some are not. Therefore, the item approach which selects but only the related items produces the most efficient predictor. An additional advantage of the item method is the relative ease of concealment in terms of the purpose of such a scale.

The Item method also has more possibilities for improvement than the trait method. Although the 60 items takes only 10 minutes to complete, the scale might be shortened without loss of predictive value as a result of a new item analysis. It might also be lengthened with a resulting increase in the predictive value. The Item method also would permit for the selection of items which are relatively independent of intelligence.

Specific Research Needs

The GPA Scale, while appearing at this point to offer an effective method for predicting academic achievement, requires further validation in order to determine its predictability with other samples. The next step in the research utilizing the Item method would appear to be the

development of a scale based on items found significantly related to academic achievement from all the studies to date. From these items could be selected those items related to grades but not related to intelligence. If there are such items, then a scale would be available which predicted grades but had no relationship to intelligence.

Implications of the Results

The following are some of the general questions to which the positive relationships found between personality and grades in the present study are related. What implications does differential academic performance attributable to personality characteristics have for admission practices, for classroom procedures, for curriculum planning, and for educational objectives? Do biases exist in selection, teaching, and examining techniques which may provide a greater advantage to certain measurable personality traits over others? How could classroom procedure be altered in order to stimulate individuals who do not possess personality traits associated with successful academic achievement? Of further significance is the problem of the etiological factors behind these findings. How do they develop, and to what extent can they be modified?

SUMMARY AND CONCLUSIONS

The purpose of the study was to compare two methods of predicting academic achievement from personality inventory measures. On the basis of previous studies, the hypothesis was developed that scales composed of items that discriminated between those with high and low grades (the Item Method) would be a more accurate predictor of college grades than scales of comparable length measuring only one general trait of personality (Trait Method).

Measures of 22 personality variables were obtained from a sample of 171 second and third year students in the Colleges of Business and Arts and Sciences at Michigan State University, who were enrolled in three sections of a course in the Psychology of Business and Personnel. Each of the 22 scales consists of 30 True-False statements based on item analysis and equated for social desirability. The tests have internal consistencies in the 70's and stability after six weeks in the 80's. A factor analysis of the scales yielded eleven factors with loadings of .40 or higher and three minor factors. The criterion of academic achievement was the student's over-all college grade point average.

The following traits were significantly related to high academic achievement: low economic values (.29),

ambition (.26), warmth (.20), liberalism (.18), non-conformity (.17), and unsociability (.16). These findings were verified using a small group of honor-college students.

Through item analysis sixty items discriminating high from low grade point average students were obtained. The "GPA Scale" was administered to three groups of students with correlations of .69 (N=35), .55 (N=50), and .32 (N=118) being obtained. The GPA Scale was also administered to a group of honor students; their scores were above the 80th percentile in terms of norms for the GPA Scale.

The findings support the original hypothesis: the 60 item GPA Scale does predict college grades more effectively than trait scales of comparable length. A limitation of the findings is suggested in the relationship between the six traits and intelligence. Potentialities of the Item Method were discussed in relation to the relative ease of concealment, possibilities for increasing the predictive value of the "GPA Scale" by shortening or lengthening the scale through item analysis, and the possibility of controlling the intelligence factor through the selection of items unrelated to intelligence.

The development of an enlarged "GPA Scale" based on previous studies was outlined. The need for controlling the intelligence factor in selection of items was emphasized. Implications for admission practices, for guidance, for classroom procedure, for curriculum planning, and for general educational objectives were discussed.

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APPENDICES

APPENDIX A
H.C.S. PERSONALITY INVENTORY

Scale	<u>Key</u>	
	Trait	Item Numbers
ASESCLB SCALE	Activity	1 - 30
	Sensory Awareness	31 - 60
	Emotionality	61 - 90
	Sociability	91 - 120
	Warmth	121 - 150
	Dominance	151 - 180
	Breadth of Interests	181 - 240
EPIS - AOEC SCALE	Expressiveness	1 - 30
	Optimism	31 - 60
	Thinking	61 - 90
	Self-Esteem	91 - 120
	Ambition	121 - 150
	Organization	151 - 180
	Emotional Control	181 - 210
ECIS SCALE	Conformity	211 - 240
	Economic Values	1 - 30
	Liberalism	31 - 60
	Self-Insight	61 - 90
	Sexuality	91 - 120
	Scientific Values	121 - 150
	Aesthetic Values	151 - 180
	Religious Values	181 - 210

~~January, 1957~~Directions:

The statements below represent experiences, preferences, ways of doing things, or beliefs that are true of some people but are not true of others.

Read each statement and decide whether or not it is true with respect to yourself. Mark "1" on the separate answer sheet if it is true or mostly true of yourself. Mark "2" if it is not usually true or is not true at all of yourself.

1. I am a restless person.
2. I can sit for a long period without becoming restless.
3. I enjoy carrying on many activities together.
4. I work like a fiend at a problem that interests me.
5. I spend myself freely, since I have plenty of energy.
6. I like to read more than to exercise.
7. I would rather listen to a story than tell one.
8. I am extremely active in my everyday life.
9. I generally talk very quietly.
10. I sometimes like to just sit.
11. I tire rather quickly.
12. I get restless when I have to wait for very long.
13. I prefer quiet games to very active ones.
14. In general, I walk fairly slowly.
15. As a child, I was extremely active.
16. I sometimes relax and loaf.
17. No one has ever called me a lazy person.
18. I sometimes become involved in too many activities.
19. I like activities that require a great deal of energy.
20. I am overweight.
21. I am very intense about the things which interest me.
22. I am very quick in all of my actions.
23. I always play every game very hard.
24. I like long periods of physical exertion.
25. I believe I benefit from daily periods of quiet and rest.
26. I would rather be a good listener than a good talker.
27. I was known as a quiet child.
28. I sometimes like to do nothing but just sit.
29. I am physically more active than most of the people I know.
30. I am careful of the way I spend my physical energy.
31. I quickly notice changes of temperature in a room.
32. My hearing is somewhat above average.
33. I like tasks that require matching colors.
34. I am occasionally not too aware of my physical surroundings.
35. People sometimes call my attention to smells that I haven't noticed.
36. I have occasional difficulty getting the temperature of my bath the way I like it.
37. I am rather sensitive to pain.
38. Even in cold weather my skin never becomes chapped.
39. I can stand pain better than the average person.
40. I am not ticklish at all.
41. I have occasionally been made uncomfortable by the motion of an automobile.
42. I can whirl around many times without becoming dizzy.
43. I have never been seasick, plane sick, or carsick.
44. It wouldn't bother me very much to have to plunge into very cold water.
45. I am sometimes not very sensitive to my physical surroundings.
46. The dress of other people does not make much of an impression on me.
47. It is easy for me to notice the difference in odor of flowers.

48. I am generally very conscious of changes in the weather.
49. I detect slight odors such as gas or perfume very quickly.
50. I have occasionally eaten things that upset my stomach.
51. I can sleep well on any kind of bed.
52. It doesn't bother me to work in noisy surroundings.
53. Peeling onions very quickly brings tears to my eyes.
54. I enjoy a ride in a roller coaster immensely.
55. I can always tell when my brow is wrinkled.
56. My skin is insensitive to the sun.
57. I am never aware of my heart beating.
58. I almost never notice minor physical injuries.
59. I frequently become so lost in my thoughts that I don't notice my surroundings.
60. I seldom notice the ads in a magazine when I'm reading a story that interests me.
61. My feelings and emotions are very easily aroused.
62. I am considered rather emotional by my friends.
63. I am rather easily stirred up.
64. I have strong likes and dislikes.
65. I am a rather placid person.
66. I am extremely moderate in my tastes and sentiments.
67. It takes a great deal to make me emotional
68. I am considered rather unemotional by my friends.
69. I find that my life moves along at an even tenor without many ups and downs.
70. I generally do things in a leisurely sort of way, seldom getting excited.
71. My emotional life is marked by great moderation.
72. I am rarely very excited or thrilled.
73. I have been so emotional that I was almost sick.
74. I believe I am less emotional than most people.
75. I have occasional headaches.
76. Sometimes when embarrassed, I break out into a sweat.
77. I rather frequently find myself getting emotional about something.
78. I have occasionally had to make an effort not to cry.
79. I feel emotional about something or someone quite frequently.
80. Sometimes I become so emotional that I find it a little hard to get to sleep.
81. I am a rather emotional person.
82. I become emotional fairly easily.
83. I experience rather frequent pleasant and unpleasant moods.
84. Quite a few things make me emotional.
85. I am always cool and calm.
86. I am much less emotional than other people.
87. I rarely feel anything that could be called an emotional thrill.
88. I have few interests that I get really excited about.
89. I am a rather objective and matter-of-fact person.
90. I can't say that I have ever been very amazed at anything.
91. I am in my element when I am in a crowd of people.
92. I accept almost any social invitation rather than stay at home alone.
93. When I'm alone, I frequently turn on the radio or TV just to hear and see people.
94. I enjoy big parties and social gatherings more than almost anything.
95. I have sometimes crossed the street to avoid meeting unpleasant acquaintances.
96. I enjoy it immensely when I am left alone with my own thoughts.
97. I feel that other people have not been the most important thing in my life.
98. I hate to eat alone.
99. I would dislike intensely any work which would take me into isolation for weeks at a time.
100. I like nothing better than parties and dances.
101. People are much more stimulating to me than anything else.
102. I always prefer to work with others.

103. When I am in low spirits, I always try to find someone to cheer me up.
104. I could become so absorbed in work that greatly interested me that I would not notice the absence of a social life.
105. I always like to be with people rather than alone.
106. I enjoy taking part in any large social affair.
107. Books have sometimes been more entertaining to me than companions.
108. I usually enjoy spending an evening alone.
109. I sometimes find people not very stimulating.
110. I like to have people around me practically all the time.
111. I frequently enjoy making things more than being with people.
112. I usually enjoy spending an evening alone.
113. I don't enjoy being in a crowd just to be with people
114. I am inclined to limit my friends to a few.
115. I enjoy eating alone occasionally.
116. I prefer to have a few close friends rather than many acquaintances.
117. I sometimes enjoy reading more than social gatherings.
118. I am unhappy if I am alone for very long.
119. I would rather live alone than have a not too congenial roommate.
120. I dislike it when I am with people constantly.
121. I am somewhat intolerant of people who bore me.
122. I get annoyed when people take up my time for no purpose.
123. I am critical of people whose ideas are not very good.
124. I sometimes ignore people I dislike.
125. I take great pains not to hurt the feelings of even unpleasant people.
126. I always feel even the minor interests of others as if they were my own.
127. I am considered, by some of my friends, as too good-natured.
128. I always try to praise people who are discouraged by their failures.
129. I genuinely like everyone I get to know.
130. I am as helpful as possible with everyone I meet.
131. When a friend of mine does something that bothers me, I tell him about it.
132. I avoid making people angry at considerable sacrifice of my own interests.
133. I generally try to get things done the way I think is right even when it is an inconvenience to others.
134. I never blame other people even when they seem to be at fault.
135. I enjoy helping people with their personal problems.
136. I ignore the personal feelings of other people when it is necessary.
137. I generally criticize my acquaintances when I disapprove of their behavior.
138. I have sometimes used threats of force to accomplish desirable goals.
139. I treat a domineering person in the same way he treats me.
140. I say what I think about important things even if it hurts the feelings of some people.
141. I generally criticize people who do things that are wrong.
142. I insist on being able to come and go as I want.
143. When I disagree with people, I tell them so.
144. I believe that everyone's intentions are good.
145. I sometimes tell people frankly what I think of them.
146. I almost always forgive people who hurt me.
147. I am very generous with my acquaintances.
148. I approve of the things that all the other members of my family do.
149. I like everyone I meet, even those with different interests and goals from mine.
150. I have always been very close to my parents.
151. I enjoy organizing or directing the activities of other people.
152. I assert myself with energy on almost any occasion.
153. I enjoy being a leader of people.
154. I enjoy putting myself in the background and working with zest for another person.
155. People seldom come to me for advice.

156. I enjoy taking the full responsibility for introducing people at a party.
157. I am always taking on added social responsibilities.
158. I am always a leader of the people I know.
159. I have frequently asserted my leadership of a group.
160. I am seldom the center of attention in a group.
161. I have often been successful in telling other people what to do.
162. I always argue for my point of view when it is attacked by others.
163. When I am with a group of people, I often make the decisions about what they are going to do.
164. I am often called upon to settle arguments between people.
165. I hesitate to tell other people how to do a job even when I am sure I could be of help.
166. I am almost always regarded by others as a leader.
167. If a student in class discussion makes a statement that I think is erroneous, I frequently question it.
168. I frequently speak out in a group to start discussion.
169. Others influence me more than I influence them.
170. I sometimes find it difficult to lead people and maintain them in order.
171. I rather dislike directing the activities of people.
172. I generally try to get my own way in a group even if I have to work hard for it.
173. I always avoid getting into serious arguments.
174. I sometimes complain to a waiter when I am served inferior or poorly prepared food.
175. I enjoy making a speech before a large crowd of people.
176. I have criticized workmen who failed to have work done for me on time.
177. I am seldom very good at formulating and explaining goals to a group.
178. I never argue with older people whom I respect.
179. I generally keep in the background at social functions.
180. I have no great desire to have the responsibilities of group leadership.

For the following occupations, school subjects, amusements, activities, and kinds of people indicate your likes and dislikes. Mark "1" if you like it, "2", if you are indifferent, and "3" if you dislike it. Work rapidly, recording your first impressions.

- | | |
|---|----------------------------|
| 181. Advertiser | 201. Economics |
| 182. Athletic Director | 202. English Composition |
| 183. Cartoonist | 203. Literature |
| 184. Consul | 204. Music |
| 185. Editor | 205. Nature Study |
| 186. Foreign Correspondent | 206. Public Speaking |
| 187. Governor of a State | 207. Sociology |
| 188. Hotel Keeper or Manager | 208. Tennis |
| 189. Inventor | 209. Amusement parks |
| 190. Lawyer, Criminal | 210. Smokers |
| 191. Magazine Writer | 211. Conventions |
| 192. Musician | 212. Art galleries |
| 193. Physician | 213. Museums |
| 194. Playground Director | 214. Vaudeville |
| 195. Reporter | 215. Pet monkeys |
| 196. Secret Service Man | 216. Detective stories |
| 197. Ship Officer | 217. "American Magazine" |
| 198. Surgeon | 218. "Atlantic Monthly" |
| 199. Wholesaler | 219. Social problem movies |
| 200. Worker in Y.M.C.A., K. of C., etc. | 220. Handling horses |

- 221. Giving "first aid" assistance
- 222. Interviewing clients
- 223. Opening conversation with a stranger
- 224. Calling friends by nicknames
- 225. Being called by a nickname
- 226. Entertaining others
- 227. Looking at shop windows
- 228. Buying merchandise for a store
- 229. Continually changing activities
- 230. Raising money for a charity
- 231. Optimists
- 232. Talkative people
- 233. Religious people
- 234. Sick people
- 235. Cripples
- 236. Blind people
- 237. Fashionably dressed people
- 238. Athletic men
- 239. Manufacturer
- 240. Animal Zoos

Directions: There are no right or wrong answers to the following statements. Indicate your answers on the separate sheet. If you think the statement is "true" or more true than false as far as you are concerned, answer "1" opposite the number of the question. If you think the statement is "false" or more false than true as far as you are concerned, answer "2" opposite the number of the question. Please try to answer all questions.

1. I enjoy talking at social gatherings more than listening.
2. I usually prefer to keep my feelings to myself.
3. I find it difficult to talk about my feelings.
4. I like to discuss my emotions with others.
5. I am rather silent in most social gatherings.
6. I like having someone with whom I can talk about my emotional problems.
7. Casual acquaintances generally think of me as being rather secretive.
8. I am a rather reserved person.
9. I enjoy discussing my emotional reactions with my close friends.
10. I keep my private feelings behind a wall of reserve.
11. I can usually inhibit an emotion which I do not wish to feel.
12. I sometimes speak on the spur of the moment without stopping to think.
13. I am rather spontaneous in speech and action.
14. I sometimes say things that I regret later.
15. I think much and speak little.
16. I suppress my emotions more often than I express them.
17. I usually express myself objectively, with considerable caution and restraint.
18. I feel much but speak little.
19. I am rather spontaneous in speech and action.
20. I express my resentment freely when a friend does something of which I disapprove.
21. I sometimes act on the spur of the moment without thinking things through.
22. I have sometimes actually screamed with joy.
23. I am easily moved to laughter or tears.
24. I talk with my friends about my personal reactions to people a good deal.
25. I consider most matters from every standpoint before I form an opinion.
26. I talk rather freely about myself when I am with friends.
27. I am a fairly impulsive person.
28. It is often rather difficult for me to express my strongest emotions to others.
29. I generally prefer to keep my opinions and feelings to myself.
30. I never complain about my sufferings and hardships.
31. I look forward to the future with great enthusiasm.
32. Some people I know can look forward to a happier life than I can.
33. I am very optimistic.
34. I see my future as being almost always happy and pleasant.
35. I am sometimes so discouraged about my activities that I cannot do my best.
36. I sometimes feel pessimistic about the future for good reasons.
37. The future sometimes looks rather dark to me.
38. I sometimes feel that the solution of my problems will be extremely difficult.
39. I think a good deal about my troubles.
40. I have quite a few fears about my future.
41. I enjoy much more than I fear a hazardous undertaking.
42. I am a rather adventurous person.
43. Life sometimes seems gray to me.
44. I rather often find myself worrying about something.
45. I have sometimes felt that my difficulties were piling up so that I was unlikely to overcome them.
46. I have fewer fears than my friends.
47. I am a little more of a pessimist than an optimist.
48. I more often feel tense than relaxed.

49. I remember my successes much more often than my failures.
50. I proceed on the assumption that things almost always turn out all right.
51. I feel that I am extremely lucky.
52. It seems to me that the world is becoming a much better place to live.
53. I am generally extremely carefree and relaxed.
54. I sometimes become melancholy without very good reasons.
55. I am inclined to trust almost everyone.
56. I am a nervous person.
57. I almost always feel that people approve of me.
58. I am a rather carefree person.
59. I have often been much more hopeful about my chances than the facts warranted.
60. I have a vague fear of the future.
61. I would rather see a good movie than read a book.
62. I like to associate with emotional people.
63. I like abstract painting.
64. I have a vivid imagination.
65. I am only interested in ideas that are thoroughly practical.
66. Athletics generally interest me somewhat more than very intellectual affairs.
67. I don't particularly care for psychological novels.
68. I can deal much better with actual situations than with ideas.
69. I am an extremely practical person.
70. I spend a lot of time philosophizing with myself.
71. I sometimes think more about my ideas than about the routine demands of daily life.
72. I often think for a long time about a single idea.
73. I would rather grow inwardly than be a success in practical affairs.
74. I like to discuss abstract questions with my friends.
75. My relations with other people are simple and uncomplicated.
76. I like to spend a great deal of time reviewing in my mind the impressions that things have made on me.
77. My daydreams are a mildly important part of my life.
78. I accept the verdict of my own feelings as the surest guide to what is right.
79. Some of my friends think that my ideas are impractical.
80. I judge people in terms of their tangible accomplishments.
81. I only work for tangible and clearly-defined results.
82. I act on the principle that a man's first duty is to adjust himself completely to his immediate environment.
83. I adopt an extremely matter-of-fact attitude towards life.
84. I am only interested in ideas that are thoroughly practical.
85. When I think out a problem I keep very close to the facts that I have seen and observed.
86. I accept the world as it is and do not try to imagine how it might be.
87. My head is always full of all kinds of ideas.
88. I am more apt to take an individual's side against a group than vice-versa.
89. My inner ideals are all-powerful motivating forces for me.
90. I always keep my feet very solidly on the ground.
91. I sometimes feel the need to explain my behavior.
92. I am occasionally lacking in self-confidence.
93. I seldom worry about what people will say about what I do.
94. I feel somewhat inferior as a person to a few of my friends.
95. I am occasionally discouraged by my own inadequacies.
96. I sometimes lack self-confidence when I have to compete against people who are at least as good as I am.
97. When I meet a stranger, I sometimes think he is a better man than I am.
98. I am occasionally discouraged when the opinions of others differ markedly from my own.
99. I am affected by the praise or blame of many people.
100. I am somewhat more shy than the average person.
101. I sometimes worry over extremely humiliating experiences.

102. Jeers bother me even when I know I am right.
103. I have some feelings of inferiority.
104. I occasionally feel self-conscious in the presence of very important superiors.
105. I am cautious about undertaking anything which may lead to humiliating experiences.
106. I am disturbed when people severely criticize my way of life.
107. I am pretty satisfied with the way I am.
108. Jeers never humiliate me when I think I am right.
109. I am extremely self-confident.
110. I'm always eager to take a chance alone in a situation of doubtful outcome.
111. I enjoy speaking in public.
112. Criticism never bothers me.
113. I enjoy people who are blunt in their speech.
114. It is of little importance to me whether people agree with my ideas or not.
115. I am almost never embarrassed.
116. I seldom feel despairing even when I fail.
117. I feel that my ideas are always worthwhile.
118. I never feel ashamed when I spend considerable time or money on recreation.
119. I feel that I have a tremendous amount to contribute to other people.
120. Personal criticism never upsets me.
121. I particularly like to work at tasks that require great effort.
122. I see life as a constant series of problems which must be solved.
123. I can become so absorbed in solving a problem that I forget everything.
124. I am driven to ever greater efforts by the challenge of unsolved social problems.
125. I feel that nothing in life is a substitute for the solving of great social problems.
126. I feel that my future place and self-respect depend upon my solving some important problem.
127. I set very difficult goals for myself.
128. I generally seek whatever makes me feel most cheerful here and now.
129. I cultivate an easy-going attitude toward life.
130. I prefer the company of fun-loving people.
131. I believe that I have the disposition of a "man of pleasure".
132. I am extremely ambitious.
133. I enjoy work more than play.
134. I believe that when a man is no longer seriously trying to do better he is half dead already.
135. No one can demand from me as much as I demand from myself.
136. I am guided in most of my decisions by strong ambitions.
137. I feel that friendship is more important in life than anything else.
138. I like to be with people who don't take life too seriously.
139. When I am in a group discussion, my mind sometimes wanders from the problem at hand.
140. Most of my spare money is used for pleasure.
141. I believe in getting as much fun as I can out of life.
142. I'd give up a great many things rather than miss a wonderful party.
143. I greatly enjoy studying the history of social problems to find out what has been done about them in the past.
144. I would really work hard to find out why children resemble their parents in some ways, yet are different in others.
145. I enjoy taking examinations.
146. In meetings I think it is generally better to go along with a chairman's decision rather than to start a fuss.
147. I would rather see a musical comedy than a documentary film.
148. I would rather read a best seller than a book of an academic nature.
149. I don't especially care for serious people.
150. I occasionally neglect serious things in order to have a good time.
151. I am not particularly methodical in my daily life.

152. Whenever I have to undertake a job I make out a careful plan of procedure.
153. I have arranged my life so that it runs very smoothly..
154. I sometimes find it difficult to pin myself down to one line of thought for a long time.
155. I sometimes make useless moves as I go about my work.
156. I generally go from one thing to another in my daily life without a great deal of planning.
157. My desires are occasionally at war with one another.
158. I am extremely systematic in caring for my personal property.
159. Some of my tastes change rather rapidly.
160. I am guided in all my conduct by firm principles.
161. I find that a well-ordered mode of life with regular hours and an established routine is most congenial to me.
162. I sometimes start new projects without waiting to finish up everything that I have been doing.
163. I find it rather hard to keep to a rigid routine.
164. I find that my minor likes and dislikes change rather frequently.
165. I am quick to discard the old and accept the new! New fashions, new methods, new ideas.
166. If I start working on a puzzle, I always stick to it until it is solved.
167. I always finish one task before taking on others.
168. Once I begin any task, I always finish it.
169. It is occasionally difficult for me to keep my mind on one thing for a long time.
170. I find it difficult to keep my mind on one detail for very long.
171. I am very insistent on having all my written work extremely neat and well organized.
172. I keep my workplace extremely neat and very orderly.
173. I like to keep all my letters and other papers neatly arranged and filed.
174. I like to have my meals organized and a definite time set aside for eating.
175. I like to have my life so arranged that it runs smoothly and without much change in plans.
176. I like to make a very careful plan before starting in to do anything.
177. If I take a trip, I like to consider it as an adventure rather than to have everything planned in advance.
178. I have some difficulty in concentrating my thoughts on one thing for long.
179. My minor interests change rather rapidly.
180. I can always give good reasons for my actions.
181. When I am very frightened, I occasionally lose some self-control.
182. I always keep my head in dangerous situations.
183. I have said tactless things when I was in a very heated argument.
184. I always keep complete control of myself in an emergency situation.
185. I never lose my head.
186. Even when I'm very excited, I always keep a tight control on myself.
187. Even when I'm angry I always conceal it if it is necessary in order to get something done.
188. Regardless of how I feel at the moment, I always manage to go through with a job that needs to be done.
189. My emotions never get in the way of my doing what I should do.
190. When I'm emotionally disturbed, I have difficulty doing some kinds of things.
191. I can always do a good job even when I'm very excited.
192. I control my emotions in practically all situations.
193. I am sometimes influenced in minor decisions by how I happen to be feeling at the moment.
194. I frequently obey whatever impulse is strongest.
195. I am occasionally carried away by an emotional impulse.
196. In difficult situations, I sometimes become too excited.
197. Even when I'm in low spirits, I always do what is best for the long run.

198. I am considered extremely "steady" by my friends rather than "excitable".
199. Failures tend to have a rather depressive effect on me.
200. I can always control my temper.
201. My moods tend to influence my work.
202. I have almost cried in situations where I did not want to.
203. I always carry out minor responsibilities even when I feel very miserable.
204. In critical periods, I am occasionally irritated and angered by the activities of uninformed acquaintances.
205. The necessity for very careful and precise thinking about a critical problem occasionally upsets me.
206. When I'm faced with several critical demands at the same time, I always maintain complete self-control.
207. Once I have decided something is wrong, I always resist the temptation to do it.
208. I am sometimes a little discourteous when I'm very excited.
209. I'm occasionally disorganized if I am called on suddenly to make a few remarks.
210. Unfair criticism sometimes interferes with my work.
211. I seldom do anything for which anyone could reproach me.
212. I control my sexual impulses by instituting prohibitions and restrictions.
213. I carry a very strict conscience about with me wherever I go.
214. I have an extremely strong sense of responsibility about my duties.
215. I think that I have a more rigorous standard of right and wrong than most people.
216. I almost always feel that people approve of me.
217. I generally accept suggestions rather than insist on working things out in my own way.
218. In matters of conduct I conform very closely to custom.
219. Let a man keep the law, any law, and his way will be strewn with satisfaction.
220. We acquire the highest form of freedom when our wishes conform to the will of society.
221. I sometimes express unconventional opinions to people who are likely to disapprove of them.
222. Before I do something I am apt to consider whether my friends will blame me for it.
223. I take pains not to incur the disapproval of others.
224. I consider the close observance of social customs and manners an essential aspect of life.
225. I occasionally act contrary to custom.
226. I go my own way somewhat regardless of the opinions of others.
227. I sometimes disregard minor rules and regulations that hamper my freedom.
228. I am apt to criticize those who are in authority.
229. I believe that the individualist is the man who is most likely to discover the best road to a new future.
230. I am strongly opposed to accepting anything just because an authority says it is so.
231. Sometimes I rather enjoy doing things I'm not supposed to do.
232. At times I have been so entertained by the cleverness of a crook that I have hoped he would get by with it.
233. Compared to your own self-respect, the respect of others means very little.
234. I am a little careless about my manner of dress.
235. I am in favor of strict enforcement of all laws.
236. The trouble with many people is that they don't take things seriously enough.
237. I like to work on some problems even when there is no clear-cut and unambiguous answer.
238. Science should have as much to say about moral values as religion does.
239. Some of my friends think that my ideas are impractical, if not a bit wild.
240. I avoid situations where I am expected to conform very closely to conventional standards.

Directions: There are no right or wrong answers to the following statements. Indicate your answers on the separate sheet. If you think the statement is "true" or more true than false as far as you are concerned, answer "1" opposite the number of the question. If you think the statement is "false" or more false than true as far as you are concerned, answer "2" opposite the number of the question. Please try to answer all questions.

1. I believe that our modern industrial age has attained a much greater degree of culture than that ever attained by any previous civilization.
2. Under similar circumstances, I would choose to write about the personality of some close friend rather than about the best way to distribute one's income.
3. I don't particularly like reading about business trends.
4. I have little interest in taking economics courses.
5. I enjoy reading about how leaders of industry achieved success as much as anything.
6. I would be very much interested in a job which required that I develop more efficient office methods for a business concern.
7. I believe that the first goal of work is to make money.
8. Money matters give me a good deal of concern.
9. I believe that ruthless competition is a necessary and desirable part of our economic life.
10. I believe that the most successful person in life is one who knows what he wants in a material way and sets out to get it.
11. I believe that life necessarily involves a strenuous competitive struggle for survival.
12. I am primarily interested in what is useful.
13. I would rather be an artist than a salesman.
14. I would rather be a newspaper reporter than a factory manager.
15. I would enjoy being a purchasing agent for a store.
16. I think there are few more important things in life than making money.
17. I would rather meet people who have made a success in business than almost anyone else.
18. I spend very little time thinking about money matters.
19. I am much more interested in activities which I can enjoy for their own sake than in activities which produce a tangible return.
20. I would rather have an interesting job with a very small income than an uninteresting job with a large income.
21. I would be unlikely to read a newspaper article with the heading: "Great Improvements in Market Conditions."
22. I would rather read "Atlantic Monthly" than "Business Week."
23. Since a man's position depends mainly upon his push and ability, I believe that it is just that a small proportion of the population should be very rich.
24. I prefer the friends of my own sex to be very efficient and of a practical turn of mind.
25. I believe that one should develop his chief loyalties toward his business organization and its associates.
26. I would rather be a reporter than a stock broker.
27. The main object of scientific research should be the discovery of abstract truth.
28. I have little interest in having my children take vocational training courses in high school.
29. I think that the pollution of streams by factories is becoming a major social problem.
30. I would rather read an article about a famous musician than about a famous financier.

31. Three meals a day will always be the best rule.
32. The metric system of weights and measures should be substituted for our present system.
33. Cleanliness is a much more valuable human trait than curiosity.
34. The proposal to change the present calendar to one having 13 months of 28 days is completely unsound.
35. Our courts should probably be in the hands of sociologists rather than lawyers.
36. Cat meat is out of the question for the human diet under any circumstances.
37. The theory of evolution should be taught in our schools.
38. Cremation is as good a method for burial as any.
39. Conservative people are more intelligent than radical people.
40. Trial by jury always will be the best way of securing justice.
41. Our spelling system should be simplified.
42. The average person needs more caution than daring.
43. It is unlikely that wood ever will be converted into humanly edible food.
44. Radical agitators should be allowed to speak publicly in certain parks and streets.
45. We owe our progress to radicals more than to "middle of the road" people.
46. Professors should not put forth their own radical views in the class room.
47. The tendency among women to wear less clothing should be encouraged, especially in warm weather or climates.
48. The world might benefit from having a new kind of religion.
49. Women should have as much right to propose dates to men as men to women.
50. Radical foreigners who wish to visit the United States should not be admitted.
51. Censorship of speech, press and entertainment should be lessened.
52. No individual, no matter what the circumstances is justified in committing suicide.
53. We should make our immigration restrictions with regard to the desirability of an individual, and abolish the practice of a fixed quota for each nationality.
54. Divorce by mutual consent would be a better system than our present one.
55. Aristocracies of worth should replace those of wealth.
56. The Continental attitude towards mistresses is more sensible than ours.
57. It is bad for a married man to take another man's wife to the movies under any circumstances.
58. The best way to remedy the modern divorce situation would be to make divorce more difficult.
59. The four year presidential term of office should never be changed.
60. Criminals retard our moral progress as much as all other people combined.
61. I rather often do worse at things than I expected to do.
62. I have difficulty laughing at serious mistakes that I make.
63. My marks on examinations are rather often lower than I really expected.
64. I have discovered that some of my best friends have the same bad traits as I do.
65. I have difficulty recalling the details of experiences which were humiliating for me.
66. People have frequently said I was too modest.
67. I usually do about as well as I expected in competitions.
68. I think I understand myself extremely well.
69. I sometimes have had dreams that I refused to talk about.
70. Some ideas we have about ourselves are best forgotten.
71. Other people have been more responsible for my failures than I have been myself.
72. I often interpret the remarks of others in a personal way.
73. I feel that I am temperamentally quite different from most people.
74. When I enter a room, I rather often feel that the eyes of others are upon me.
75. I have sometimes corrected others only because they irritated me.
76. If it were not for the fear of disapproval I would probably violate certain social conventions.
77. In general I believe that people have found fault with me more often than I deserved.
78. I am inclined to think about myself rather often.

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79. Personal criticism generally bothers me a little.
80. Occasionally, when I have failed at something, I've become angry at some one who really had nothing to do with my failure.
81. There are some things about myself on which I am rather touchy.
82. I rather often compare myself with other people.
83. People have very seldom criticized me unfairly.
84. I have occasionally been late for important appointments.
85. I really enjoy sharing the credit of my achievements with others.
86. I believe that my personality is rather difficult for other people to understand.
87. I dislike working with a group unless I know that my efforts are recognized and appreciated by those present.
88. I talk a good deal about my personal experiences and my own ideas.
89. I would rather work with others on a common task than do almost anything else.
90. As a child, I sometimes became angry with my parents.
91. I would rather go out with attractive persons of the opposite sex than do almost anything else.
92. I like to become sexually excited.
93. It is extremely important to me that I be regarded as physically attractive by those of the opposite sex.
94. I like to participate in discussions about sex and sexual activities.
95. I like to listen to jokes concerning sex.
96. I occasionally spend time thinking about sexual matters.
97. I feel that my sexual desires are almost as strong as my ambition.
98. I occasionally have sexual daydreams.
99. I have had considerable sex experience.
100. I always prefer to spend my social evenings with members of the opposite sex rather than my own sex.
101. I am rather modest about sexual matters.
102. I am somewhat indifferent concerning sexual matters.
103. In my first years of high school, I went out frequently with members of the opposite sex.
104. I never engaged in petting during high school.
105. I believe I am a rather passionate person.
106. I have frequently refused to engage in petting and kissing when a member of the opposite sex wanted to.
107. I think that obtaining sexual satisfaction is not a very important thing in my life.
108. I had my first date after I was 15.
109. I seldom asked questions about sex when I was a child.
110. My first sex curiosity arose sometime after I was 12.
111. I become sexually excited a little less than the average person of my sex.
112. I seldom become sexually excited.
113. I very rarely tell jokes in which sex plays a major part.
114. I think that the importance of sex is often overemphasized in our society.
115. I am extremely particular about the members of the opposite sex with whom I associate.
116. I enjoy the company of almost all members of the opposite sex.
117. I think that it is much more important to learn to control sexual impulses than to express them.
118. I believe that everybody would be happier if both men and women had more sexual freedom.
119. The control of my sex desires is a fairly difficult problem for me.
120. I will have no difficulty controlling my sex desires until I am married.
121. I seldom visit scientific museums.
122. I greatly enjoy visiting exhibits of laboratory equipment.
123. If I were able, I would be interested in making a chemical analysis of a new toothpaste.
124. I have no particular interest in doing chemical research.

125. I would enjoy conducting research on the causes of earthquakes.
126. I like to perform laboratory experiments.
127. I would rather be a social worker than a chemist.
128. I would rather be a salesman than a scientific research worker.
129. I like modern languages more than physics.
130. I would like buying merchandise for a store more than doing research work.
131. I would rather have been J. P. Morgan than Thomas Edison.
132. I believe few things in life are more important than increasing our scientific information.
133. Einstein did the world a greater service than George Washington.
134. If I were a university professor and had the necessary ability I would rather teach literature than physics.
135. I would rather interview people for jobs than do research work.
136. If I had the ability, I would enjoy working as an inventor as much as anything.
137. I would very much enjoy the kind of work that a scientific research worker does.
138. I like chemistry.
139. Mathematics is among my few most favorite subjects.
140. I haven't a great deal of interest in either geology or astronomy.
141. I would enjoy making observations of stars with a telescope.
142. In the long run, science provides the best hope for solving the world's problems.
143. I like to read scientific articles in popular magazines.
144. Every member of our society should be carefully taught the tremendous value of science.
145. There is much that is dangerous about modern science.
146. In the long run, I think science might do more harm than good.
147. The scientific approach needs to remain central in our efforts to solve national problems.
148. I think I can lead a full life without knowing much about science.
149. It might be desirable for scientific activity to slow down so that we could catch up with it.
150. I would rather read novels than science-fiction.
151. Even if I had the ability, I wouldn't enjoy teaching poetry at a University.
152. I don't think I would enjoy hearing a popular lecture on contemporary painters.
153. Magazines such as Arts and Decorations bore me.
154. I think the public schools should give more thought to promoting the study and performance of drama.
155. I prefer friends who have a well developed artistic taste.
156. I don't like ballet or similar imaginative performances.
157. If I had unlimited leisure and money, I would enjoy making a collection of fine sculptures or paintings.
158. In a discussion, I tend to lose interest if we talk about serious literature.
159. I have extremely strong loyalties toward my ideals of beauty.
160. Even if I had the ability I wouldn't enjoy being an actor very much.
161. I would probably dislike being an interior decorator.
162. I would like being a sculptor, even if I were not particularly good.
163. I have seldom really enjoyed an art course.
164. I enjoy going to art galleries very much.
165. I don't like to read poetry.
166. I'd dislike having to decorate a room with flowers.
167. I get an intense pleasure from just looking at beautiful buildings.
168. Artistic experiences are not of great importance in my life.
169. I think the enjoyment of beauty is the greatest pleasure in my life.
170. I am inclined to agree with the poet who said that "Beauty is truth."
171. I like to visit exhibits of famous paintings.
172. I have never read a book on modern art that interested me.
173. I have never tried to collect pictures of paintings I like.
174. I have never had more than a casual interest in drawing.
175. I like to read articles about famous singers.

176. I have seldom been to an art museum.
177. I would like to take a course in the modern novel.
178. I will take firm steps to develop any artistic interests my children have.
179. There is nothing I would rather be able to do than to make something beautiful.
180. I believe that a "thing of beauty is a joy forever."
181. I have always been unalterably convinced of the reality of God.
182. The thought of God gives me an absolutely complete sense of security.
183. I completely trust in God to support the right and condemn the wrong.
184. The idea of God means more to me than anything else.
185. There may be better ways of explaining the working of the world than to assume a God.
186. I haven't yet reached any final opinion about the nature of God.
187. My faith in God is absolutely complete for "though he slay me, yet will I trust him."
188. The different ideas of God have sometimes been confusing to me.
189. I have occasionally doubted the reality of God.
190. The Church has sometimes encouraged intolerance.
191. The notion of divine inspiration may be mistaken.
192. It is possible that there is no such thing as divine inspiration.
193. The supernatural idea ought to play only a minor part in religious thought.
194. We, as individuals, are immortal beings.
195. It is absolutely necessary to retain the belief that God exists as a personal Being.
196. The idea of God must remain absolutely central to the whole plan of human purpose in the world.
197. Divine inspiration is the one real and infallible source of truth.
198. The idea of divine inspiration may be a form of wish fulfilment arising from suggestibility.
199. Religion should be mainly a matter of orientation to life on earth.
200. Religion should be a set of practices concerning our relation to the supernatural.
201. The idea of God is not absolutely necessary for the development of good human beings.
202. No purpose could exist in the world without the idea of God.
203. The idea of personal immortality sometimes leads to disillusionment.
204. Religion should emphasize the supernatural.
205. I think it is more important for a person to be reverent than to be sympathetic.
206. It is not absolutely vital to assume that there is a God behind the universe.
207. A man who works in business for his living all the week can best spend Sunday in hearing a sermon.
208. A person should develop his greatest loyalty toward his religious faith.
209. It is not absolutely necessary to believe in existence of God in order to lead a good life.
210. Divine inspiration is certainly not the most important source of truth.

APPENDIX B

INTERCORRELATIONS BETWEEN TRAITS IN THE H.C.S. PERSONALITY INVENTORY*

Trait	Intercorrelation with Trait Number																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1.Activity	X	-01	19	-01	16	15	22	25	24							04	-02	23	44	07	47	12
		-01		25	10	40	09	23	35	01	20	17	-08	00	02	11	03	03	25	09	37	03
2.Sens. Aw..		X	-21	30	-27	29	-27	09	-21							-02	-12	-35	23	01	03	-01
			-21	20	-04	08	05	36	-25	08	18	14	-01	25	-44	03	00	-11	20	02	04	17
3.Sexuality			X	03	10	26	-03	15	24	20	09	08	00	-16	36	-14	-30	-07	16	-25	39	-37
4.Emotion					-35	50	-46	13	-16							10	-39	-57	04	-08	09	-27
				X	-26	21	-20	13	-34	-30	-08	16	33	13	-19	00	-28	-51	16	01	00	02
5.Optimism						-17	16	-13	39							-14	04	37	-05	03	02	05
					X	24	10	14	51	23	05	01	06	10	07	07	33	52	17	17	34	05
6.Express.							-22	27	-01							-09	-28	-37	27	-02	38	-19
						X	-12	24	27	10	07	12	-01	00	10	12	-13	-20	20	06	46	-23
7.Thinking								-16	-02							-23	39	36	24	20	-01	55
							X	-27	-03	16	34	-43	15	09	-19	-18	30	17	03	-16	-13	29
8.Interests									-07							-07	-12	-01	42	35	44	01
								X	02	-10	02	52	-03	-19	-07	11	-14	04	20	21	27	01

*Intercorrelations based on two analysis: top row (15 variables; N=75); bottom row (22 variables; N=75).

APPENDIX B (Continued)

Trait	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
9.Self.Conf.									X	22	09	04	19	-18	30	18	20	49	-09	-22	49	-20
10.Self-Ins.									X	03	-04	07	07	07	17	-01	26	14	00	05	20	-06
11.Economic									X	-22	22	27	-17	-09	-01	00	25	-13	14	12		
12.Artistic									X	-26	-05	24	13	-15	-07	08	19	19	19	-12		
13.Scientific									X	01	15	07	23	19	13	22	09	03				
14.Religious									X	-56	-01	25	-07	21	25	-07	51					
15.Liberal.									X	-08	-14	01	-20	-16	41	-44						
16.Ambition													46	28	-29	-01	14	13				
													X	25	22	-10	40	02	21			
17.Organ.																63	-17	23	-05	50		
															X	49	02	28	-09	42		
18.Emot.Cnt.																-07	29	12	35			
															X	-01	07	11	25			
19.Greg.																		40	27	29		
															X	27	16	10				
20.Warmth																		-16	51			
															X	-14	28					
21.Dominance																		-24				
																		X	24			
22.Conformity																				X		

Date _____

PERSONALITY PROFILE
(Norms based on 130 Midwestern College Students)

[illegible]

APPENDIX D
GPA SCALE KEY*

Item Number	r With Grades	Response	Item Number	r With Grades	Response
1.	.30	F	31.	.25	F
2.	.33	F	32.	.21	F
3.	.37	F	33.	.21	F
4.	.34	F	34.	.21	T
5.	.30	T	35.	.22	T
6.	.45	F	36.	.21	F
7.	.34	F	37.	.20	F
8.	.29	F	38.	.21	F
9.	.31	F	39.	.20	F
10.	.30	F	40.	.20	F
11.	.30	T	41.	.24	T
12.	.38	T	42.	.20	T
13.	.29	F	43.	.20	F
14.	.26	F	44.	.20	T
15.	.21	T	45.	.27	F
16.	.20	T	46.	.30	F
17.	.26	F	47.	.26	T
18.	.30	T	48.	.35	F
19.	.24	F	49.	.28	F
20.	.24	T	50.	.26	T
21.	.24	F	51.	.26	T
22.	.23	T	52.	.24	T
23.	.27	F	53.	.25	T
24.	.27	F	54.	.21	F
25.	.24	F	55.	.27	F
26.	.25	F	56.	.27	F
27.	.24	F	57.	.21	T
28.	.27	T	58.	.21	F
29.	.24	F	59.	.20	F
30.	.23	T	60.	.23	F

*Items Keyed in terms of high academic achiever's response.

1. I believe in getting as much fun as I can out of life.
2. I sometimes like to do nothing but just sit.
3. I rather often do worse at things than I expected to do.
4. I have often been much more hopeful about my chances than the facts warranted.
5. We should make our immigration restrictions with regard to the desirability of an individual and abolish the practice of a fixed quota for each nationality.
6. My marks on examinations are rather often lower than I really expected.
7. I believe that ruthless competition is a necessary and desirable part of our economic life.
8. I have sometimes felt that my difficulties were piling up so that I was unlikely to overcome them.
9. I sometimes find it difficult to pin myself down to one line of thought for a long time.
10. Sometimes I rather enjoy doing things I'm not supposed to do.
11. I am occasionally not too aware of my physical surroundings.
12. I enjoy taking examinations.
13. I am considered, by some of my friends, as too good-natured.
14. I like activities that require a great deal of energy.
15. I often interpret the remarks of others in a personal way.
16. I am a rather reserved person.
17. I am never aware of my heart beating.
18. In matters of conduct I conform very closely to custom.
19. I have quite a few fears about my future.
20. I only work for tangible and clearly-defined results.
21. As a child, I was extremely active.
22. I particularly like to work at tasks that require great effort.
23. I believe that I have the disposition of a "man of pleasure."
24. I find it difficult to keep my mind on one detail for very long.
25. I sometimes like to just sit.
26. When a friend of mine does something that bothers me, I tell him about it.
27. I believe that the most successful person in life is one who knows what he wants in a material way and sets out to get it.

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28. Our courts should probably be in the hands of sociologists rather than lawyers.
29. I have criticized workmen who failed to have work done for me on time.
30. I like to read more than to exercise.
31. Science should have as much to say about moral values as religion does.
32. I believe that our modern industrial age has attained a much greater degree of culture than that ever attained by any previous civilization.
33. I am extremely active in my everyday life.
34. I like to have my life so arranged that it runs smoothly and without much change in plans.
35. I keep my private feelings behind a wall of reserve.
36. Some of my friends think that my ideas are impractical, if not a bit wild.
37. The necessity for very careful and precise thinking about a critical problem occasionally upsets me.
38. I insist on being able to come and go as I want.
39. I talk with my friends about my personal reactions to people a good deal.
40. I am a rather carefree person.
41. Peeling onions very quickly brings tears to my eyes.
42. I think that the importance of sex is often overemphasized in our society.
43. I feel that my future place and self-respect depend upon my solving some important problem.
44. I rather often compare myself with other people.
45. I am very quick in all of my actions.
46. I am overweight.
47. The metric system of weights and measures should be substituted for our present system.
48. I say what I think about important things even if it hurts the feelings of some people.
49. I prefer the company of fun-loving people.
50. I judge people in terms of their tangible accomplishments.

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51. I like chemistry.
52. Under similar circumstances, I would choose to write about the personality of some close friend rather than about the best way to distribute one's income.
53. I usually express myself objectively, with considerable caution and restraint.
54. I am a fairly impulsive person.
55. My skin is insensitive to the sun.
56. I have some difficulty in concentrating my thoughts on one thing for long.
57. I would rather read "Atlantic Monthly" than "Business Week."
58. I am generally extremely carefree and relaxed.
59. I never feel ashamed when I spend considerable time or money on recreation.
60. I feel that friendship is more important in life than anything else.

JM
3/7/58

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