5-1948

A Study of the Minnesota Multiphasic Personality Inventory as an Index of Maladjustment in Certain Areas of College Life

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A STUDY OF THE MINNESOTA MULTIPHASIC PERSONALITY INVENTORY AS AN INDEX OF MALADJUSTMENT IN CERTAIN AREAS OF COLLEGE LIFE

by

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A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Psychology

1948

UTAH STATE AGRICULTURAL COLLEGE
Logan, Utah

TABLE OF CONTENTS

INTRODUCTION

It is apparent to college workers that inadequate adjustment to college loses many potential scholars to the world. It is further apparent that many students fall short of realizing their full capabilities because of lack of adjustment. To meet this condition, more and more colleges and universities are instituting and developing counseling services. Because of the increased cost of such service and the extended time involved, it has become apparent that any device which improves the efficiency of counseling is highly desirable.

As this counseling service has grown and expanded, college advisors have realized the service that could be performed if it were possible to anticipate abnormal reactions before they occur. In the past, this has been difficult because of the lack of properly validated predictive devices. Of course, hasty conclusions can be drawn from impressions, but they are as often faulty as valid. Since the signs of latent personality disturbances and, in many cases, even existing maladjustment, are often not revealed in overt behavior, devices which would aid counselors in selecting from a large population the individuals having or who are likely to develop problems of personal and social adjustment would be very useful.

In this investigation, the Minnesota Multiphasic Personality Inventory, a device which has been found valid in other situations, will be evaluated with the intent of discovering how valid this test is in determining maladjustment in college life. Specifically, it will be determined to what extent scores on this inventory earned by students when they enter college will be predictive of maladjustment which may develop later in several aspects of college life.

STATEMENT OF PROBLEM

The Minnesota Multiphasic Personality Inventory, an inventory for measuring personality deviation, is considered to be one of the leading devices of this type (14). It was therefore selected for a study which is an attempt to determine its value as an index of maladjustment in certain areas of college life.

In an effort to measure the ability of the Minnesota Multiphasic Personality Inventory to predict the following, the hypothesis was formulated: Maladjustment as indicated on the Minnesota Multiphasic Personality Inventory may also be revealed in: (a) unsatisfactory interests, in some cases interfering with college achievement, (b) referrals to the Deans of the College for discipline, low scholarship, or commendation, (c) overt manifestations, social participation, extent and nature of adjustment apparent to faculty advisors, (d) extent of participation in social activities, and (e) more frequent withdrawal from college. These corollaries as stated will validate the device in the areas stated if they are confirmed. Failure to find significant differences will not, however, invalidate the device, because, although maladjustment or tendencies toward it may exist in individuals, it may not be manifest in the particular areas which have been selected for investigation in this study.

The Minnesota Multiphasic Personality Inventory was administered to the entering freshmen at the Utah State Agricultural College, Logan, Utah, for the school year 1947-48. Thus this makes up the group upon whom the various corollaries of the hypothesis were tested.

The subjects were examined for differences in the following areas: (a) Interests, range and pattern, as revealed by the Kuder Preference Record. (b) Grade Point Ratio for the academic year 1947-48. (c) Referrals to the Deans of the College for discipline, low scholarship, or commendation. (d) Ratings by institutional advisors using a Rating Scale as a basis. (e) withdrawals from school during the course of any quarter, and (f) a single interview in order to determine social participation, objective in college study, overt manifestations of maladjustment, facility of expression, manner, etc. These areas were selected for three reasons: To the writer it appeared plausible that students with personality disturbances might be expected to reveal their maladjustments in these ways. In at least one area, previous research (13) had indicated it was related to general maladjustment. Finally, data on adjustment in these areas were available to the writer.

The results were then assembled and tabulated and tested for significance.

REVIEW OF LITERATURE

Since the publication of the Minnesota Multiphasic Personality Inventory in 1940 (1), there have been numerous studies and evaluations made of the test. It is not the purpose of this paper to review all such articles but only those which are related to this study. In addition to this, some studies which are of the same general nature will be cited. For a more complete treatment of the subject, it is suggested that the reader consult the bibliography of this study.

The Minnesota Multiphasic Personality Inventory has been widely used in vocational guidance. Harmon and Wiener (15) used it as part of a test battery in vocational diagnosis of disabled veterans. It seemed to reveal personality characteristics of crucial importance in the actual choice of a vocation. In some instances, personality characteristics not otherwise noted were recognized, and in other instances a quantitative confirmation of clinical diagnosis was made. They state its use is well justified and of prime utility.

Schmidt (16) indicates that the Minnesota Multiphasic Personality Inventory does distinguish graphically and with statistical significance between normal soldiers and those diagnosed as abnormal by psychiatric ratings. Further, it presents qualitative differences and hints for further clinical query.

Benton (17) compared clinical psychiatric ratings and test scores and found there was a significant degree of agreement on most of the scales of the test. The chief difficulty encountered here was the

little agreement on terms used in diagnosing abnormalities.

Significant correlations were found by Brower (18) for 48 undergraduates between the Minnesota Multiphasic Personality Scores and Intelligence Quotient. They were as follows: I. Q. and Hypochondriasis -.60, Hysteria and Intelligence Quotient -.65, and Psychopathic Deviate and Intelligence Quotient -.57. He suggests that superior intelligence acts as a limiting value in elaborating symptoms.

Other studies, using different devices have attempted to evaluate collegiate success and the possible factors involved. Finch and Nemzek (19) concerned themselves with determining whether the Bernreuter Personality Inventory would yield traits other than intellectual capacity which contributed to high-school achievement. Their data furnished no evidence that that inventory measured any traits which contributed importantly to successful achievement.

Hill (20), in a study conducted at Wisconsin, found that staff stimulation to participation in extra-curricular activities resulted in improved social adjustment as measured by various psychometric devices. The stimulation group tended also to improve somewhat scholastically.

It may thus be noted that the Minnesota Multiphasic Personality Inventory is of significant value in the uses to which it has been put. There is indication also that there is need for a device to assist in the counseling procedure and in anticipating social adjustment in academic settings.

DESCRIPTION OF THE TEST

The Minnesota Multiphasic Personality Inventory is a test designed to diagnose maladjustment in regard to important personality phases. The authors are Starke R. Hathaway, Ph. D., Associate Professor of Psychology, University of Minnesota, and J. Charnely McKinley, M. D., Ph. D., late Professor of Neuropsychiatry, University of Minnesota. The present form of the test contains 373 items answered True, False, or Cannot Say. The Psychological Corporation of New York City is publisher.

The general norm group is made up of about 700 individuals who represent a cross section of the general Minnesota population. They were visitors to the University Hospitals. The authors state that the sampling is adequate for both sexes from ages 16 to 55.

The test is constantly being revised and extended. Construction was begun prior to 1940 and copyrighted in 1943. (1, 2, 3, 4, 5, 6, 7, 8, 9)

The Inventory is divided into two areas: 9 Clinical scales and 4 Validating scales. The first three clinical scales, Hypochondriasis, Depression, and Hysteria, are generally thought to be indices of neurosis (4). Psychopathic Deviate, Interest (Masculinity-Feminity), Paranoia, Psychasthenia, Schizophrenia, and Hypomania comprise the other scales of the test. This study is largely concerned with neurosis; therefore, the first three descriptions are more detailed.

The Hypochondriasis Scale (Hs, author's abbreviation) is a measure of amount of abnormal concern about bodily functions. Persons with

high Hs scores are unduly worried over their health. They frequently complain of pains and disorders which are difficult to identify and for which no clear organic basis can be found. It is characteristic of the hypochondriac that he is immature in his approach to adult problems, tending to fail to respond with adequate insight.

Hypochondriacal complaints differ from hysterical complaints of bodily malfunction in that the hypochondriac is often more vague in describing his complaints. He does not show such clear evidence of having avoided unacceptable situations by virtue of his symptoms as does the hysteric. The hypochondriac more frequently has a long history of exaggeration of physical complaints and of seeking sympathy.

With psychological treatment, a high score may often be improved; but the basic personality is unlikely to change radically. Common organic sickness does not raise a person's score appreciably, for the scale detects a difference between the organically sick person and the hypochondriac (4).

The Depression Scale (D, author's abbreviation) measures the depth of the clinically recognized symptom or symptom complex, depression. The depression may be the chief disability of the subject or it may accompany or be a result of other personality problems. A high D score indicates poor morale of the emotional type with a feeling of uselessness and inability to assume a normal optimism with regard to the future. In certain cases, the depression may be well hidden from casual observation. This is the so-called "smiling depression." The depressive undercurrent is revealed in such cases by the subject's specific

discourse and his outlook on the future. Often such persons insist that their attitude is the only realistic one. A high score further suggests a characteristic personality background in that the person who reacts to stress with depression is characterized by lack of self-confidence, tendency to worry, narrowness of interests, and introversion. This scale, together with the Hs and Hy scales, will identify the greater proportion of those persons not under medical care who are commonly called neurotic, as well as individuals so abnormal as to need psychiatric attention.

Some high-scoring persons will change rather rapidly in response to improved environment or to pep talks and psychotherapy, but such individuals will be likely to remain subject to other attacks. The greater number, on the other hand, will not respond readily to treatment, but their scores will slowly tend to approach the normal level with the mere passage of time.

The Hysteria Scale (Hy, author's abbreviation) measures the degree to which the subject is like patients who have developed conversion-type hysteria symptoms. Such symptoms may be general systemic complaints or more specific complaints such as paralyses, contractures, gastric or intestinal complaints, or cardiac symptoms. Subjects with high Hy scores are also especially liable to episodic attacks of weakness, fainting, or even epileptiform convulsions. Definite symptoms may never appear in a person with a high score, but under stress he is likely to become overtly hysterical and solve the problems confronting him by the development of symptoms.

The hysterical cases are more immature, psychologically, than any other group. Although their symptoms can often be "miraculously" alleviated by some conversions of faith or by appropriate therapy, there is always the likelihood that the problem will reappear if the stress continues or recurs. As in the case of hypochondriasis, the subject with a Hy score may have real physical pathology, either as a primary result of concurrent disease, such as diabetes or cancer, or as a secondary result of the long-time presence of the psychological symptoms. For instance, constant fears are a frequent background for the development of demonstrable ulcers of the stomach. This interrelationship is particularly important to the physician who undertakes therapy for the individual (4).

The Psychopathic Deviate Scale (Pd, author's abbreviation) measures the similarity of the subject to a group of persons characterized by the absence of a deep emotional response, the inability to profit from experience, and the disregard of social mores. They are commonly likable and intelligent, although sometimes dangerous to themselves and others. Their most frequent digressions from the social mores are lying stealing, alcohol or drug addiction, and sexual immorality (4).

The Interest Scale (Mf, author's abbreviation) measures the tendency toward masculinity or femininity of interest patterns. A high score indicates a deviation of the interest pattern in the direction of the opposite sex. Males with very high Mf scores have frequently been found to be either overt or repressed sexual inverts. However, homosexuality must not be assumed on the basis of the test results alone. The interpretation of high scores on the female scale cannot

yet be safely assumed to have similar clinical significance, and at the present the interpretation must be limited to the measurement of the general trait (4).

The Paranoia Scale (Pa, author's abbreviation) measures the characteristics of suspiciousness, oversensitivity, and delusions of persecution, with or without egotism. Persons with an excess amount of paranoid suspiciousness are frequently seen and in many situations are not especially handicapped. These persons appear so normal when on guard and yet are so quick to become litigious or to take vengeful action, that it is difficult to protect society from them (4).

The Psychasthenia Scale (Pt, author's abbreviations) measures the similarity of persons to psychiatric patients who are troubled by phobias or compulsive behavior. The compulsive behavior may be explicit, such as excessive hand washing or other ineffectual activity, or implicit, such as the inability to escape useless thinking or obsessive ideas. The phobias include all types of unreasonable fears as well overt reaction to more reasonable stimuli. Many people show minor phobias or compulsive behavior without being greatly incapacitated (4).

The Schizophrenia Scale (Sc, author's abbreviation) measures the similarity of a subject's responses to those patients who are characterized by bizarre and unusual thoughts or behavior. There is splitting of the subjective life from reality so that the observer cannot follow rationally the shifts in mood or behavior.

This scale distinguishes about sixty per cent of the observed cases diagnosed clinically as schizophrenia. Because of the complexity

of the syndrome, a diagnosis of schizophrenia must only be made with other supporting evidence. Schizophrenia will show high on other scales.

The Hypomania Scale (Ma, author's abbreviation) measures the personality factor of marked overproductivity in thought and action. The principal difficulty in the development of the scale was the problem of differentiating between the clinically hypomanic and those who were merely ambitious, vigorous, and full of plans.

The hypomanic person usually gets into difficulty by undertaking too many things. He is active and enthusiastic. Contrary to common expectations, he may also be subject to depression. It is difficult to diagnose borderline scores in this scale without other evidence (4).

The four validating scales are as follows:

The Question Score (?, author's abbreviation) consists of simply the total number of items put in the Cannot Say category. Large question scores invalidate all others. High scores have often been observed to occur in psychasthenic and retarded depression patients (4). Whenever the question score was high, the subject was not allowed to become part of the experimental or control group.

The Lie Score (L, author's abbreviation) affords a measure of the degree to which the subject may be attempting to falsify his scores by always choosing the response that places him in the most acceptable light socially (4). No subjects were selected from the population where the L score was unduly high.

The Validity Score (F, author's abbreviation) serves as a check on the validity of the whole record. If the F score is high, the other scales are likely to be invalid because the subject was careless or failed to comprehend the items (4). No high F subjects are included in this study.

The K Scale (K, author's abbreviation) was developed for the purpose of correction, and is not known to have much clinical significance. It increases the discriminatory power of the test and validates five of the nine scales where an attempt is made to appear in a better light. It might be classed as a variable of attitude toward personality test items. Individuals motivated toward getting a good score will tend to get higher K scores, and those desiring poor scores will obtain lower values. The correction to the clinical scales is made by adding .5K to Hs, .4K to Pd, 1K to Pt and Sc, and .2K to Ma. This then gives a corrected score which allows the test to escape much criticism regarding validity, which the question-answer type inventory is prone to receive. For all scores in this study, the K factor was included and appropriate correction made (5).

PROCEDURE, GENERAL

Administration of the test: Inasmuch as the test was given to a large group of entering freshmen, the group form was selected. The subjects were 842 males and 317 females, 80% of the entering class at Utah State Agricultural College. The Inventory was part of a battery of five tests given over a period of two days prior to registration September 11 and 12, 1947. The United States Armed Forces Institute Readings in Natural Science, Utah State Agricultural College Mathematics Ability Test, and Kuder Preference Record made up the remainder of the battery.

During the administration of the test, the subjects were cautioned to make their own responses. Monitors were constantly checking to enforce these instructions.

The tests were machine scored by an International Business Machine Scoring Machine. Scores were then checked for invalidating L, F, K, and ? scores. Those falling into this group were then not used for the purpose of this study.

It should be noted that possibly the scores were somewhat affected by the group administration, frustration of registration, or fatigue of prolonged testing. However, the validating scores and the apparent permanency of the trait should have offset this tendency.

Evidence that the college population deviates regarding personality factors from the normal population has recently been cited in an investigation by Dobson (10). Thus, if a college norm group had been

used as a basis for selection, the significance of many areas studied might have been somewhat changed. West (11) also indicated, in a companion study, that there is evidence of instability in the traits studied, in the Minnesota Multiphasic Personality Inventory as a device, or that the registration testing period--frustrating as it seems to be--may temporarily alter responses.

Selection of Group: 52 male and 11 female subjects were found to deviate 2 sigmas above the mean on the Hypochondriasis, Depression, and Hysteria Scales. These subjects were selected for an experimental group to test the corollaries of the hypothesis previously cited. Due to disqualifying validity scores, nonavailability of subjects, withdrawal from school prior to the setting up of the problem, the group was reduced to 29 males and 8 females.

This experimental group was matched subject for subject with 29 males and 8 females whose scores fell within the normal range as defined by the authors. Criteria for equating were as follows: same age, sex, class rank in college, and equivalent scores on the United States Armed Forces Institute tests of Effective Usage of English and Readings in Natural Science. Tests of significance of the equating were made and are shown on Table 1.

Table 1. Frequency Distribution of Equating Tests, U. S. A. F. I. Efficiency of English and Readings in Natural Science

NATURAL SCIENCE			EFFECTIVE ENGLISH		
	Frequency			Frequency	
Raw Score	Exp.	Control	Raw Score	Exp.	Control
60-65	3	2	85-89	3	0
55-59	5	6	80-84	3	4
50-54	4	5	75-79	0	2
45-49	4	3	70-74	9	4
40-44	5	6	65-69	7	10
35-39	6	5	60-64	2	4
30-34	3	5	55-59	4	5
25-29	4	3	50-54	2	3
20-24	3	2	45-49	3	4
N =	37	37	40-44	2	0
Mean	42.08	42.50	35-39	2	0
Sigma	11.95	11.35	N =	37	37
S.E. of Mean	1.96	1.80	Mean	64.20	65.00
Critical Ratio	.017 Not significant		Sigma	13.70	11.10
			S.E. of Mean	2.25	1.82
			Critical Ratio	.027 Not significant	

Critical Ratios of .027 for the Effective Usage of English Test and .017 for the Readings in Natural Science indicate that the groups are from the same population and that differences between the experimental and control in quality of adjustment in various aspects of personality and college life will not be related to age, sex, class

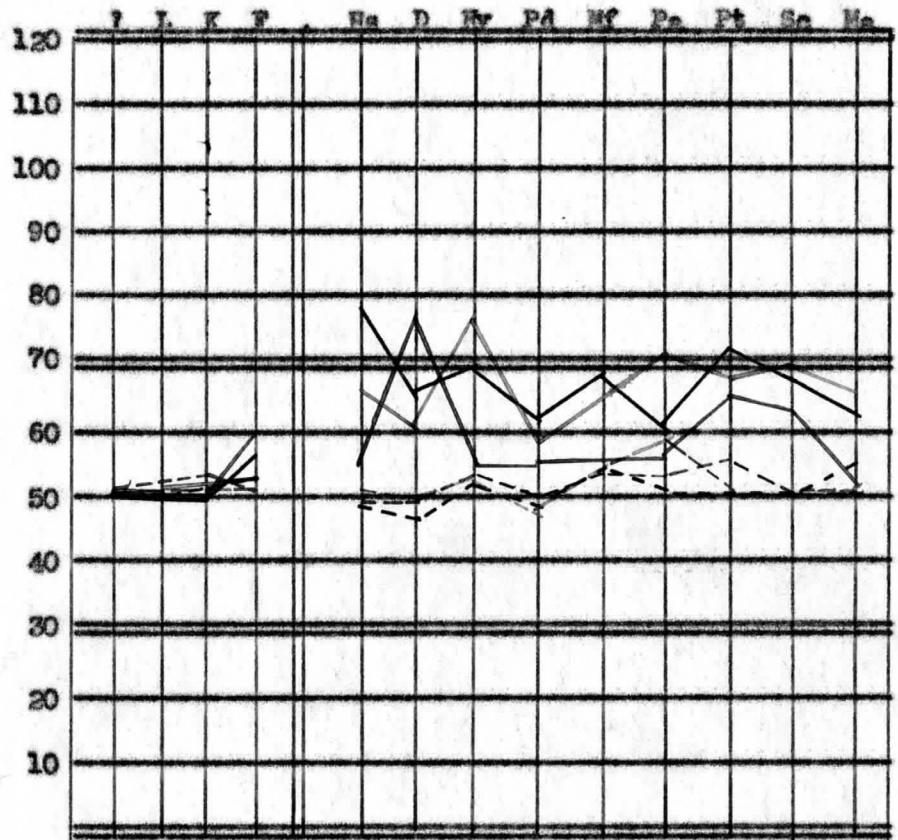
rank or academic aptitude. Such differences as are found we shall therefore assume are related to differences found on the Minnesota Multiphasic Personality Inventory.

The three areas of the Multiphasic scale used as selectors of the experimental group were Hypochondriasis, Depression, and Hysteria. The distribution of the subjects and their mean score are shown on Figure 1.

For the purposes of comparison, the groups were segregated to their fields of abnormality. Sex differences were eliminated in order to make the table more clear. The double lines at 30 and 70 indicate the normal range as fixed by the authors. Beyond 70 is considered abnormal, and the degree of abnormality increases as the score rises.

It is apparent from this table that differences between the groups are in the field of personality variations. In each case the experimental group showed marked deviation from the mean in the chosen area and also in others. The control group in each case follows the mean very closely.

The various corollaries of the hypothesis previously formulated are treated separately in the following section. An attempt was made at clarity, and it was felt that this procedure would contribute to it. For each area, procedure and results are presented, with a summation of results following.



		?	L	K	F	Hs +.5K	D	Hy	Pd +.4K	Mf	Pa	Pt +1K	Sc +1K	Ma +.2K
Hypochondriasis	(Exp.——	50	50	49	56	78	66	70	61	69	60	71	68	63
	(Cont.----	50	50	52	54	48	46	52	49	55	51	50	50	55
Depression	(Exp.——	50	49	49	60	52	76	55	54	56	56	66	64	51
	(Cont.----	50	51	54	50	49	49	53	50	53	53	55	51	51
Hysteria	(Exp.——	50	50	52	54	66	60	77	58	65	71	68	70	66
	(Cont.----	50	50	51	51	51	49	54	47	54	58	50	50	50

Figure 1. Distribution and Mean Scores of Subjects on the Minnesota Multiphasic Personality Inventory

PROCEDURE, SPECIFIC

A. Interests. As the individual matures and develops, it is desirable that his interests develop and keep pace with his growth. There is desirability in wide interests with marked areas; and yet, integration of the areas to a meaningful whole will contribute to the selection of a field of work and adequate adult adjustment. Therefore, the interests of the subject were studied in an effort to determine their contribution or retardation of adjustment.

The Kuder Preference Record and a phase of the interview regarding college objective and stability of interest were used to determine interests, their range, and effective usage.

The Kuder Preference Record was authored by G. Frederic Kuder. It is published by Science Research Associates of Chicago, Illinois and copyrighted in 1944 (12). It a question-type inventory which is widely used in counseling. Ratings are given in nine areas: Mechanical, Computational, Scientific, Persuasive, Artistic, Literary, Musical, Social Service, and Clerical.

The record was administered in the battery given prior to registration. This device was used to determine the fitness of the stated college objective with measured interest and also the relative flatness or peakness of the interests.

In determining the fitness of the objective with measured interest, the present objective was compared with suggested occupations for specified interest patterns. The Kuder Preference Record manual with the suggested occupations was used as the criteria (12). Arbitrary

numerical values were assigned as follows:

5 Close relation

4 Good relation

3 Fair relation

2 Poor relation

1 No relation

The results were tabulated and tested for significance as shown in the following table.

Table 2. Fitness of College Objective Compared with Kuder Preference Record

RAW SCORE	FREQUENCY	
	Exp.	Control
5	6	11
4	8	9
3	10	13
2	10	4
1	3	0
N	37	37
Mean	3.10	3.72
Sigma	1.20	1.01
S.E. of Mean	.19	.16
Critical Ratio	2.81 Significant at .01 Level	

It will be noted that a Critical Ratio of 2.81 is yielded. This indicates that there is a highly significant difference, inasmuch as the Critical Ratio falls below the .01 level, in the selection of the objective.

This might indicate that the maladjusted individual is unable to examine himself objectively and thus selects an objective which is not in keeping with his actual interests. It might also be thought that the maladjusted is disturbed to the extent that objective selection is delegated a minor role. Further, the explanation may lie in the fact that the objective is selected by a parent, friend, or other influential person. Finally, the explanation may lie in the area of "hero worship" or some such device. The individual may wish to see himself as someone else and thus sets up inappropriate goals.

Sight must not be lost as to cause and effect. The fact that the individual sets up inappropriate goals for himself might well be a causal factor in maladjustment. It could be well thought of as a continuing factor whether it be all cause or effect.

Berdie (13) postulates that the neurotic person's interest is relatively flat when plotted vertically as opposed to the number of peaks shown for well adjusted individuals. The nine Kuder Preference Record percentile scales were plotted on a Kuder psychograph. They were then assigned a numerical value as they deviated from the Mean. This value increased at the rate of 1 point for each 5 percentile points. Values were ruled as positive in negative or positive deviation, inasmuch as they indicate either positive or negative

peaks. The type of peak was not thought to be significant in this study. A total score for peakness and flatness was thus obtained. Results of this determination are indicated in Table 3.

Table 3. Peakness and Flatness of Interests as Revealed by the Kuder Preference Record Psychograph

RAW SCORE	FREQUENCY	
	Exp.	Control
85-89	1	0
80-84	0	0
75-79	0	0
70-74	2	1
65-69	2	1
60-64	7	10
55-59	5	5
50-54	8	6
45-49	8	6
40-44	2	5
35-39	0	1
30-34	1	1
N =	36	36
Mean	53.41	55.41
Sigma	9.05	10.10
S.E. of Mean	1.50	1.68
Critical Ratio	.88 Not significant	

The Critical Ratio here escapes significance but nevertheless indicates a tendency in the direction which Berdie indicated.

The explanation of this tendency may lie in the fact that maladjusted individuals are too concerned with their disturbances to develop significant interests. And yet, lack of strong interest might be a factor contributing to and extending maladjustment.

At the time of the interview, both experimental and control subjects were questioned as to their present college objective, previous objective if changes had been made, and their plans for college objective made prior to entering school. The results of these questions were then tabulated and given a numerical value. It was hoped that such determination would indicate the stability of the interests of the subject. The following criteria and arbitrary numerical values were used: 1, Undecided, erratic, and major changes; 2, General changes; 3, General change; 4, Minor change; and 5, No change.

Such changes as from Forestry to Business Administration to Animal Husbandry to undecided would be considered as meeting criterion of 1. From Home Economics to Chemistry to Education was considered as meeting the conditions of 2. A change from English to Sociology would meet 3. From Psychology to Education would be classed as 4. Where the objective showed no deviation prior to and upon entering college, it would be classed as 5.

The tabulated results of this phase showed no differences. The range for experimental and control was from 1 to 5, and the

mean for each group was found to be the same, 3.64. The interpretation of this measure is, then, that there is no difference in the stability of interests of experimental and control groups.

B. Grade Point Ratio. Adjustment to college life and the various demands made upon the individual by successful college work are no doubt reflected in scholastic achievement. Where energies are called upon, as in neurotic behavior, achievement in other areas may be jeopardized. To substantiate this and also to test the corollary of the hypothesis concerned, a check of grade-point ratio was made. All of the subjects have at least two quarters of college work. In most cases, the check is for three quarters' work. The data obtained were from the records of the Registrar of the Utah State Agricultural College and were derived in the usual manner for computing grade points: 3 grade points are given for each credit hour of A grade, 2 for each B, 1 for each C, 0 for each D, and 1 grade point is subtracted for each hour of F. The total credit hours completed are divided by the total grade points and a ratio is derived. Table 4 shows a compilation of these data.

Table 4. Grade-point ratio for academic year 1947-48

RAW SCORE	FREQUENCY	
	Control	Exp.
2.75-2.99	1	0
2.50-2.74	2	0
2.00-2.49	8	6
1.50-1.99	12	12
1.00-1.49	9	10
.50-.99	0	0
.00-.49	3	9
-.50--.01	1	0
-1.00--.49	0	0
-1.50--1.01	0	0
-2.00--1.49	0	0
-2.50--1.99	1	0
N =	37	37
Mean	1.74	1.25
Md	.32	
σd	1.08	
t	1.77 Not significant	

A "t" score of 1.77 is derived. This fails to be significant at the .05 level but may indicate a trend of lower scholastic achievement for the experimental group. It is possible that this difference would be intensified to significance after more college work. However, as it stands it indicates lower academic standing for a group which is of essentially the same intelligence and aptitude as the control group, which has a higher academic standing.

In an effort to explain this difference, one must be cognizant of social participation and of the demands of maladjustment. The students who are less apt socially may place themselves at a disadvantage in their student-teacher relationships. Also, the maladjusted person utilizes much energy neurotically which could be directed otherwise if the condition were corrected.

Thus, while no statistical significance can be attached to the results, we do see indications of a trend.

C. Referrals to Deans. It was stated in the hypothesis of the problem that maladjusted students would be referred to the Deans most often for discipline or low scholarship. This would be expected inasmuch as maladjusted individuals are unable, because of their disability, to make adequate adjustments in their relations with peers and authorities in various fields of endeavor. To test this premise, the Deans of the College were contacted regarding each subject registered in his school. A form letter requesting this information was mailed through the Campus mail (See Appendix).

No significant difference was obtained from this source. Each

of the Deans indicated that none of the subjects, control or experimental, had been referred for discipline or low scholarship.

One subject only was listed as being referred to a Dean. This subject had been referred for high scholarship. Notation from the Dean stated his scholarship was highest for all Sears Scholarship winners for the year 1947-48. The subject was part of the experimental group.

Thus this part of the hypothesis was not validated. It is thought that because of the college low-scholarship program validation of this hypothesis could only be obtained after students had completed more than one year of academic work. Failing students are referred after having failed to make an academic average for four quarters. Naturally, none of these subjects could fall into that group, inasmuch as they are all freshmen.

It is likely also that because of greatly increased college enrollment, disciplinary action is minimized. To properly validate this statement, a study would need to be made during so-called normal college times.

D. Ratings of Institutional Advisors. Inasmuch as the Institutional Advisors are most likely to have information both about a student's aptitude for college and also his personality pattern, they were consulted regarding the subjects. To facilitate this information gathering and in order to preserve as much objectivity as possible, a rating sheet was devised. This rating sheet is typical of inventories of this type and is patterned after the Haggerty-Olsen-Wickman Behavior Scale and the Utah State Agricultural College

High School Record Form (See Appendix).

Each advisor was provided with this form for each subject he advised. They were sent through Campus Mail with an introductory letter which explained briefly the purposes of the study (See Appendix).

Fifty-six per cent of the control subjects and forty per cent of the experimental subjects were rated by their advisors. It is felt that this in itself is significant. Possibly it can be explained in the inability of maladjusted students to achieve a relationship with their assigned advisors. This might be due to disturbances, commonly associated with neurotic persons, which would have prevented the desirable relationship. One must not lose sight of the possibility of advisor interference. Without a study in that direction, however, it can be expected that due to chance, as many inadequate advisors would be assigned one group as the other.

The fact that about half of the advisors felt unqualified because of lack of acquaintance with the subjects, to fill out the rating sheet indicates needs for opportunities and procedures by which advisors can become more adequately informed about their students. All those not rated were returned unchecked with the following explanations:

a. I do not have any information on this student.

b. I do not recall ever knowing this person sufficiently well to answer the enclosed questions any more than by guess, and now have no recollection even of who she is.

c. Don't know him.

d. Sorry, but I don't know _____ well enough to fill out your form.

e. I don't think I know this _____. Sorry!

f. The above student is one of a class of 107. I will not be able to get well enough acquainted with him to answer the questions asked.

g. Regarding the enclosed questionnaire, I am sorry to be of so little help in the appraisement of _____. He has taken two classes from me, one of which contained more than 100 students; consequently I do not know him personally well enough to give an intelligent answer on most of the questions.

h. I'm sorry I won't be of much help with these ratings. I registered both in the fall.

i. I don't know these students well enough to answer your questions.

j. I don't know _____--I may have registered him but I certainly haven't advised and guided him.

k. It would be impossible to give these men a rating on these critical complex attributes and traits with less than an exhaustive study. I'm sorry that I don't have time to make such a study.

l. I'd like to help on this problem but my answers I gave would be meaningless. I don't know these students well enough. My acquaintance consists of helping them plan their registration for this year's work. The only impressions that remain with me from that brief acquaintance is that they gave evidence of being just average normal students. Sorry I can't be of more help.

m. I regret that I am not well enough acquainted with the students whose names appear on the attached questionnaires to give you the data which you have requested.

These are actual quotations from letters received in answer to the rating sheets which were sent out.

Two factors must be taken into consideration in this regard. First, many advisors are assigned such a large number of advisees that it precludes close acquaintanceship. This is offset to a large

degree during the ensuing student years as the number becomes smaller at the sophomore, junior, and senior levels. Second, two and three quarters is a short time for a very close acquaintanceship to be developed. However, the rating sheets were filled out late in the school year in an attempt to minimize this factor.

One must also realize the danger of subjectivity in a rating sheet of this type. The raters were cautioned in this direction, and it is hoped that the completeness of the form also reduces this possibility.

After the rating sheets had been returned, they were given a numerical value as indicated in the Appendix as cited above. The results of the tabulation are given in Table 5. The value given was in the direction of lower numbers for more desirable scores and higher if less desirable.

Table 5. Numerical Values of Rating Scales by Faculty Advisors

RAW SCORE	FREQUENCY	
	Exp.	Control
33-35	2	0
30-32	0	0
27-29	1	1
24-26	0	1
21-23	2	3
18-20	2	3
15-17	7	4
12-14	1	7
9-11	0	2
N =	15	21
Mean	20.20	16.61
Sigma	7.08	4.80
S.E. of Mean	1.97	1.07
Critical Ratio	1.46 Not significant	

The Critical Ratio of 1.46, while not statistically significant, certainly indicates a trend. It would appear then that the advisor is aware of more desirable traits in the adjusted individual. Also, it is apparent to him that adjustment is a criteria for successful college work. It also would indicate that the Control group has more adequately met standards of adjustment than the Experimental group. Had this rating been completed at the completion of two or three years of college work, the results may have been much more

significant and again possibly less so. Again, had the ratings been completed for all the subjects in both groups, the results might have been appreciably changed.

E. Withdrawals from school. Another area of the study that is concomitant with college adjustment is withdrawal from college prior to the completion of an objective. It is recognized that there are circumstances which force this action, but on many occasions lack of adjustment is the precipitating factor. In order to determine differences which might be significant in this area, a study of withdrawals during the course of any one quarter was made.

Due to circumstances which are not controllable, many students withdrew between quarters. Some subjects fell into this group. They were excluded from this phase of the study because it was impossible to ascertain the reasons for withdrawal. Students withdrawing during the course of a quarter are required to state a reason for their action.

Four subjects withdrew during the quarter's work. They were evenly divided--two experimental and two control. Thus there was no validation of this phase of the hypothesis. The reasons given were:

a. (Control) Appendectomy--prolonged illness.

b. (Control) Living conditions not suitable. Believe I can utilize my time to better advantage by on the job training.

c. (Experimental) Dropping from school.

d. (Experimental) To go to work.

It is quite probable that the reason given is not the true cause of the action, but there is no practical way, for the purposes of this

study, to determine this.

If a study of this sort were carried over a longer period of time, it is possible that more significant differences in this area would be revealed.

F. Interview. Another phase of the experiment was to conduct a short well-controlled interview with each of the subjects. The attempt was made to determine the extend of social participation of the subject in the college and community. For this purpose, a form was devised which contributed to the objectivity of the situation. A copy of the form, with the criteria for the numerical rating, is found in the Appendix.

The first phase of the interview with the results of the tabulation has already been cited in Table 3.

After the form was prepared, appointments were made with each subject. In nearly all cases, the author had no knowledge of whether the subject was experimental or control. No notation was made upon the form, and they were scheduled in a random order. It was felt that this would facilitate objectivity. The subject was then asked about the extent of participation in each of the areas listed. The numerical values assigned were commensurate with the proposed values listed on the interview form found in the Appendix. The results of this treatment are listed in Table 6.

Table 6. Numerical values of social participation and extent as revealed by interview

RAW SCORE	FREQUENCY	
	Exp.	Control
100-104	1	0
95-99	1	1
90-94	4	6
85-89	2	7
80-84	10	8
75-79	9	8
70-74	8	6
65-69	1	1
60-64	0	0
55-59	1	0
N =	37	37
Mean	79.94	84.32
Sigma	8.60	7.35
S.E. of Mean	1.25	1.21
Critical Ratio	2.53 Significant at .05 level	

It will be noted that the differences are found to be significant at the .05 level. This indicates that groups of better adjusted individuals participate more socially. Experimental subjects are much more apt to remain away from social contacts.

The reason for this difference could be well thought as a factor

in cause as well as effect. Individuals who refrain from social participation may have less opportunity to spend their energies in areas thought to be socially acceptable. They are possibly less influenced by social stimuli and may thus, to a degree, become atypical. The disturbed individual may avoid the social because of shyness or guilt feelings. The factor may well be continuing and self-stimulating so that the individual who avoids the social becomes increasingly apprehensive of contact.

Point must also be made of the fact that the subjects were freshmen and thus had had no great opportunity to participate socially. The element of community participation was therefore inserted to offset this as much as possible and is considered along with college social participation.

In addition to objective and stability of objective, extend and nature of social participation, the subjects were rated on facility of expression, appearance, attitude, and overt signs of maladjustment. The tabulation and results are found in Table 7.

Table 7. Numerical value of objective social impression as revealed by interview

RAW SCORE	FREQUENCY	
	Exp.	Control
30-31	1	1
28-29	1	5
26-27	5	8
24-25	4	4
22-23	2	4
20-21	9	6
18-19	9	3
16-17	4	1
14-15	1	5
12-13	0	0
10-11	0	0
8-9	1	0
N =	37	37
Mean	20.91	22.64
Sigma	4.30	4.68
S.E. of Mean	.70	.76
Critical Ratio	1.69 Not significant	

The Critical Ratio in this phase of the study, while not significant, points in the direction of differences between the two groups. The control group was superior in their facility of expression, attitude toward the study, appearance and manner, and cooperativeness in

giving information concerning themselves.

It can be well thought that the differences are due to the composure of the Control group, their better adjustment socially, and their lack of marked egocentric interests. They, the Control group, are probably better at considering themselves objectively and evaluating the importance of their relationships with others.

CONCLUSIONS

A tabulation of all results is given in Table 8 in order to summarize and integrate the data previously presented.

Table 8. Summary of Data

Area Measured	Mean Exp.	Mean Cont.	Crit. Ratio	Level of Sign.	Dir. of Diff.
Fitness of college objective compared with Kuder Preference Record, Table 2	3.10	3.72	2.81	.01	Cont.
Peakness and flatness of Interests as revealed by Kuder Pref. Record Table 3	53.41	55.41	.88	Not	"
Grade Point Ratio Table 4	1.25	1.74	1.77	Not	"
Numerical Values of Rating Scales Table 5	20.20	16.61	1.46	Not	"
Numerical Values of Social Participation Table 6	79.94	84.32	2.53	.05	"
Numerical Values of Social Impression Table 7	20.91	22.64	1.69	Not	"

In two of the six instances, a significant critical ratio was found. The first criterion, that the Control group would select objectives more in keeping with their measured interests, was met. The difference here was significant at the 1 per cent level. In the fifth criterion, that Control subjects participated more socially, a difference, significant at the 5 per cent level, was found. There exists a real difference between the groups in these two areas. The importance of these two areas to college adjustment, where the differences are significant, is indicated by Finch and Nemzek (19) and

by Hill (20) who concerned themselves with social adjustment because of the weight attached to this element of college life. It is also evident that a properly selected objective that is closely related to contemporary interests will assist in adjustment to the college situation. Subjects during this period are keenly aware of the problems of selecting studies which will lead to a satisfying and secure life objective. Therefore, this corollary should have much weight in the prediction of adjustment.

In the remaining four areas where differences were computed, it was found that the difference in each case failed to reach statistical significance. It should be noted, however, that the trend in all of the corollaries was in favor of the Control group. Possibly, had other areas of study been selected, difference in quality of adjustment might have been revealed more sharply. Failure to find differences of statistical significance in certain areas does not necessarily invalidate the device; it may lead one to the question as to whether these corollaries were appropriate.

It is justifiable to conclude, then, that some differences between the groups exist and that this device will predict these differences in at least two important areas. As was previously stated, in the matching of the groups, these differences are assumed to be, to a large extent, attributable to differences which are measured by the Minnesota Multiphasic Personality Inventory. This indicates the value of using the Minnesota Multiphasic Personality Inventory as an index of college maladjustment. Its use in counseling

and orientation as a measuring and predictive device is justified in the light of differences found to exist between the Control and Experimental subjects.

The value of the instrument in instances of large college enrollment is seen. Students who are shown by the Minnesota Multiphasic Personality Inventory as maladjusted might well be assigned to an advisor skilled in counseling. This would more adequately utilize the services offered and make a guidance program more effective because stress is laid where it apparently is needed most.

Some limitations to this study are recognized: Three areas only of the Minnesota Multiphasic Personality Inventory were used as indicators of maladjustment. General population norm groups were used on college students. The student was measured upon entering college and possibly at this time the problems are intensified. The complete study occupied only the space of one academic year. Other problems became apparent which require extended or separate studies.

Probably the most significant conclusions of the study are:

1. The Minnesota Multiphasic Personality Inventory is a valuable device for predicting personality maladjustments among college students. Its use is justified in the interest of economy and efficiency.

2. There is a need, at the college level, for both vocational and personal adjustment counseling.

3. Problems of maladjustment are apparent, to a limited extent, to untrained observers, and this is reflected in their evaluation of

students found maladjusted by the Minnesota Multiphasic Personality Inventory.

SUMMARY

The problem of predicting college maladjustment is important in the interest of economy and efficiency of counseling services. There are several psychometric devices which could be utilized. The Minnesota Multiphasic Personality Inventory is recognized as a leading diagnostic personality device. This study was conducted in order to validate its use as a predictive device for determining which students in a large student population are likely to have or to develop personality disturbances which may later be revealed in certain areas of college life.

An experimental group, measured as maladjusted by the Minnesota Multiphasic Personality Inventory, was equated with a control group found to be normal by the same test. These groups were equated on the basis of sex, class rank, age, and scores on the United States Armed Forces Institute Test of Effective Usage of English and Readings in Natural Science. These groups were then studied for differences in the following areas: 1. Interests, range and pattern, as revealed by the Kuder Preference Record; 2. Grade Point Ratio; 3. Referrals to the Deans of the College for discipline, low scholarship, or commendation; 4. Ratings by Institutional advisors using a rating scale as a basis; 5. Withdrawals from the school with reason for such action; 6. A single interview in order to determine social participation, objective in college, facility of expression, manner, attitude, and interest.

The results of the study were treated statistically, and significant differences were discovered in the areas of social participation and selection of vocational objective.

It is concluded that the Minnesota Multiphasic Personality Inventory is a valuable device for revealing maladjustment among college students. Its use is well justified in the interest of economy and efficiency. It is well adapted as a guide in selecting students with probable personality maladjustment and thereby makes possible the earlier use of corrective measures.

It is further concluded that there exists a very definite need for efficient and systematic procedures in counseling college students, both with respect to educational and vocational guidance and to problems of personal adjustment.

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APPENDIX

LETTER TO ADVISOR

Dear Faculty Member:

The student(s) listed below are the subjects of a study being made regarding the effectiveness of the guidance and testing program. It would be deeply appreciated if you would fill an attached questionnaire for each student listed. Your complete cooperation is earnestly solicited. If there are questions which are not answered on the questionnaire, the undersigned will be very happy to answer at Main #175 or college extension #5.

As soon as the forms are completed, will you please return them in the attached envelope through Campus Mail. It is hoped that this will receive your immediate attention so that the study can be completed as expeditiously as possible.

Sincerely yours,

FACULTY ADVISOR RATING SHEET

To be filled out by Faculty Advisor:

You will greatly assist the experimental work being done regarding the Guidance program if you will give a rating with respect to each question by placing a check mark on the appropriate horizontal line at any point which represents your candid valuation. Please check only one answer for each question.

1.	How does his manner and appearance affect others?	(5) Avoided by others	(3) Little noticed by others	(1) Well liked by others
		(2) Sought by others	(4) Tolerated by others	
2.	Does he need constant prodding or does he go ahead with work without being told?	(4) Needs much prodding in assignments	(2) Does ordinary assignments of his own accord	(1) Completes suggested supplementary
		(3) Resentful of assistance	(5) Refuses assistance	
3.	Does he get others to do what he wishes?	(4) Probably unable to lead	(2) Lets others lead	(1) Displays leadership
		(3) Is resentful of others leading	(5) Is bossy and forces	
4.	How does he control his emotions?	(5) Easily moved to anger or depression	(3) Tends to be over emotional	(1) Well balanced
		(2) Tends to be unresponsive	(4) Unresponsive, apathetic	

5.	Has a program with definite purposes in terms of which he distributes his energy?	(5) Aimless trifler	(3) Seems satisfied just to get by	(1) Directs energies well
		(2) Attempts too much	(4) Constantly starting major projects--loses interest	
6.	Intellectual Ability: Does he have ability to assimilate knowledge and solve problems?	(5) Able to grasp only very simple concepts	(3) A slow learner	(1) An alert student
		(2) Acquires only superficial	(4) Overbearing on details	
7.	Is he easily discouraged or is he persistent?	(5) Melts before slight obstacles	(3) Gives up before adequate trial	(1) Gives everything a fair trial
		(2) Persists until convinced of mistake	(4) Never gives in; obstinate	
8.	Is he always overly concerned or is he easy going?	(5) Constantly worried and concerned	(3) Apprehensive	(1) Is not concerned without cause
		(2) Easy going	(4) Never concerned	
9.	Is he negativistic or suggestible?	(5) Negativistic, contrary	(3) Complies slowly	(1) Is generally open-minded
		(2) Rather easily persuaded	(4) Follows any suggestion	

10.	What are his social habits?	(5) Lives almost entirely to himself	(3) Follows few social activities	(1) Pursues usual social
		(2) Actively seeks social	(4) Prefers social to all else	
11.	Does he act impulsively or cautiously?	(5) Impulsive. acts on spur of moment	(4) Frequently unreflective & imprudent	(1) Acts with reasonable care
		(2) Deliberate	(3) Very cautious and calculating	

LETTER TO DEAN

May 3, 1948

Dean
School of
C a m p u s

Dear Dean:

The attached list of students registered with you are subjects of a study being made regarding the effectiveness of the Guidance and Testing program.

Would you please note in the space provided whether any of the subjects have been referred to you for commendation or discipline. Any other information regarding any one of the subjects will be greatly appreciated and will aid the research.

Sincerely.

INTERVIEW QUESTIONNAIRE

NAME_____ E___ C___

I. Objective in College_____
   A. Past Objectives_____

	1	2	3	4	5	
B. Sustained interest						
II. Social participation						
A. Social Organizations						
B. College Functions						
1. Dances						
2. Lyceums						
3. Assemblies						
4. Programs						
5. Plays						
C. Non-College Functions						
1. Movies						
2. Dances						
3. Bowling						
4. Pool						
5. Civic Music						
6. Service Clubs						
7. Other						
D. Church						
1. Sunday School						
2. M. I. A.						
3. Other						
E. Sports						
1. Football						
2. Basketball						
3. Tennis						
4. Track						
5. Swimming						
6. Intra-Mural						
7. Ski						
8. Skate						
9. Ride						
10. Hunt						
11. Fish						
12. Golf						
13. Shoot						
14. Other						

III.		1	2	3	4	5	
A.	Appearance and Manner						
B.	Voice and Speech						
C.	Alertness						
D.	Facility of Response						
E.	Interest manifested by energy and industry						
F.	Self-Confidence						
G.	Friendliness and Tact						

Overt manifestations of maladjustment:

KEY TO QUESTIONNAIRE

I.

A.	Various Objectives				Present Objective
B.	1	2	3	4	5
	Undecided, erratic Major changes	General Changes	General Change	Minor Change	No Change

II.

A.	Oppose organization	No organization	Club	Lay frat member, 2 clubs	Frat officers Many clubs
B. 1					
2					
3	Oppose	0 to 1/3	1/3 to 1/2	Most	Never miss
4					
5					
C.					
1	Never	Rarely	½ to 1 per wk.	2 per wk.	Every change
2	"	"	1 per mo.	1 per wk.	Never miss
3	"	"	"	"	2 per week
4	"	"	"	"	"
5	"	"	2 " yr.	1 per mo.	Everyone
6	Oppose	None	1	2	Many
7					
D.					
1	Never	Rarely	2 per mo.	3-4 per mo.	Active Off. & Tea.
2	"	"	"	"	
3	"				
E.					
1	Never	Rarely	Many	Nearly all	All & participated or participate
2	"	"	"	"	
3	"	"	"	"	
4	"	"	"	"	"
5	"	"	"	"	"
6	"	"	"	"	"
7	"	"	Occasionally	Often	Every chance
8	"	"	"	"	"
9	"	"	"	"	"
10	"	"	"	"	"
11	"	"	"	"	"
12	"	"	"	"	"
13	"	"	"	"	"
14	"	"	"	"	"
15					

	1	2	3	4	5
III.					
A.	Unkempt	Fair	Neat	Very neat	Fastidious
B.	Hesitant & poor choice of words	"	Average	Better than average	V. pleasant & good grammar
C.	Apathetic	Dull	Alert	Very alert	Unusually alert
D.	V.slow to res.	Slow to res.	Responsive	V. responsive	Unusually alert
E.	V. slow, very uninterested	Slow uninterested	Shows int. & energy	Keen, shows much interest	Very keen " industrious
F.	Lacks confidence Unsure	Weak confidence	Shows confidence	Quite sure of self	Very confident
G.	Tactless Belligerent	Uncooperative little tact	Cooperative Shows tact	Very cooperative, much tact	Diplomatic V. friendly