

**PERSONALITY PATTERNS
AND BEHAVIORAL UNDERSTANDING
IN COLLEGE WOMEN**

by

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TABLE OF CONTENTS

	Page
Introduction-----	1
Need for the Study and Reveiw of Literature-----	1
Purpose of the Study-----	6
Procedure-----	7
Subjects-----	7
Instruments-----	8
Minnesota Multiphasic Personality Inventory-----	8
Film Test for Understanding Behavior-----	8
Method of Procedure-----	11
Obtaining Cooperation of Subjects-----	11
Administration of Instruments-----	12
Results-----	13
The Multiple Regression Analysis-----	15
Configural Analysis-----	28
Comparison of the Different Approaches to Prediction-----	41
Discussion-----	43
Limitations of the Study-----	48
Summary and Conclusions-----	50
Summary-----	50
Conclusions-----	52
Bibliography-----	53
Appendix A-----	56
Appendix B-----	63
Appendix C-----	65
Appendix D-----	71

LIST OF TABLES

Table	Page
I Prediction Variables Coming From the MMPI, and Their Corresponding b-coefficients	17
II Analysis of Regression of Personality Scores on Film Test Scores of College Women	19
III Summary of Tests of Significance for b-coefficients	23
IV Analysis of Regression Testing the Loss Due to the Elimination of the Variables Except X_4 and X_{11}	25
V Results of Rank Comparisons for High and Low Scoring Groups on the FUB $N = 10$ for each Group	36
VI Results of Rank Comparisons for High and Low Scoring Groups on the FUB $N = 26$ for each Group	40

LIST OF FIGURES

Figure	Page
1 Comparison of R and Standard Error of Estimate When the Prediction Equation is Reduced	26
2 Rank Order Tabulation of Two MMPI Profiles	32
3 Comparison of High Versus Low Scoring Groups on Film Test Scores	34
4 Mean Profiles for the Group Involved in First Application of the Configural Analysis	35
5 Comparison of High Versus Low Scoring Groups on Film Test Scores	38
6 Mean Profiles for the Group Involved in Second Application of the Configural Analysis	39

PERSONALITY PATTERNS AND BEHAVIORAL UNDERSTANDING IN COLLEGE WOMEN

INTRODUCTION

Need for the Study and Review of Literature

Individual differences among parents in their ability to recognize and respond to cues in a child's behavior are easily seen. Quite often these cues are important in the sense that the child's physical or emotional well being may depend on them. Many theoretical formulations (10) (11) (24) also point out the importance of the parent-child relationship, and in doing so, highlight the need for further knowledge concerning the correlates of behavioral understanding.

Beherns, (1) in an attempt to connect mother's character structure to three child-rearing practices and then to child adjustment, found a high relationship between the general mother personality scores and the child adjustment score. She believes that this indicates that the child is highly sensitive and responsive to unconscious attitudes of the mother, and that these attitudes are not revealed in child-rearing practices. Gage and Cronbach (12) lend support to this belief when they suggest that a person's understanding of behavior is heavily dependent on his perceptual ability and in turn, that this ability is heavily dominated by what a person brings to the situation. Clearly then, in order to investigate understanding of behavior, these factors which are brought to the situation and influence a person's

perception, must be identified. Several studies have indicated that these influential factors lie in the area of personality. (5) (8) (18) (26)

While this may be the case, results obtained by Smith (23) indicate that behavioral understanding will be difficult to predict from personality variables. In her study she used the Film Test for Understanding Behavior (FUB) to measure behavioral understanding and the California Psychological Inventory and Taylor Manifest Anxiety Scales, as the measures of personality. She found that the expected relationship between anxiety level and behavioral understanding did not exist in her data, and that the expected positive relationship between Socialization, Maturity and Responsibility (the CPI II scales) with behavioral understanding turned out to be a negative one.

In view of the contrary nature of these data, a further study of the relationship between personality characteristics and behavioral understanding seemed in order. The purpose of the present study was to test the relationship between these two variables using a different approach to personality measurement. The Minnesota Multiphasic Personality Inventory (MMPI) was the instrument used in this study, and rather than merely testing the relationship between the individual scales in this test and behavioral understanding, the scales were also treated by a newly developed configural analysis. (25) The feasibility of this approach to personality measurement

may best be pointed out by a review of the current philosophy and research along these lines.

Social Scientists have long been interested in the integration of human behavior. Year after year they have strived to organize parts into the whole in order to get a clearer picture of the functioning of man and the possible reasons for his functioning as he does. The question of the predictive efficiency of this approach is far from settled but the ever growing list of supporters for the approach cannot be denied. Terms such as configuration, totality, the total self, patterning, etc., literally flood the literature coming from such fields as Psychology, Sociology and Child Development.

In particular, the area of Psychological Testing and Counseling has, in the past few years, placed great emphasis on the measurement of the "total personality structure" by evaluating referrals on the basis of a configuration of scores from many tests. Pointing to this trend some psychologists, particularly Sullivan and Welsh (25), have stated that the one aspect of psychological testing about which clinicians have generally agreed is this necessity for taking a holistic attitude when evaluating cases.

This philosophy has been applied to structured personality tests through the application of configural analysis to test subscales. Previous to this, the emphasis has been on the presence or absence of the traits being measured,

whereas now it is possible to evaluate the traits in terms of patterns, or relationships to one another, and thereby present a "pattern of personality".

On several occasions, which involved direct comparisons of the two techniques of analysis, it has been possible to show that these patterns yield greater predictive possibilities than does the evaluation of the single traits.

(3) (4) (28) This evidence has prompted some investigators to repeat their earlier studies and apply a configural analysis to the data. (14)

Of particular concern for the present study is the application of this holistic approach to the investigation of the different degrees of behavioral understanding evidenced by college women. The importance of knowing some or all of the mitigating factors in the understanding of behavior is evident, and this study will be focused on linking personality variables to the different levels of behavioral understanding.

Considerable practical value would result from knowing that certain patterns of personality would lead to success in various areas of endeavor. For example, in areas which now require extensive training, such as teaching, the possibility that success or failure could be predicted from indications of personality tests is an exciting one. If this were possible, then through selection, much time and effort could be avoided in the inductive process.

Steps already have been taken along these lines. Gough and Pemberton (14) in an attempt to predict success in practice teaching from personality

measures found that single scales of the Minnesota Multiphasic Personality Inventory were of little help but various patterns and indices (of these same scales) revealed considerable promise. In their study, fifteen combinations of scales were devised and tested, and eight of these combinations revealed discriminatory power. Their results with the individual scales confirm earlier findings by Pemberton (21) and in the words of the authors, indicate that, "...any revelant factors on the MMPI would have to be identified by a more configural approach."

Weisgerber (28) used the MMPI in an attempt to predict success in student nursing, and although the results here were less satisfying than Gough's, the trend was again evident that the patterns of personality scales, rather than single scales, provided greater predictive power. Other studies also indicate that the configural analysis of the personality ratings might prove fruitful. (3) (4) (13)

The results of these and other recent studies with the MMPI in predictive studies on college populations (2) (3) (4) (7) (20) suggest clearly the potential of the test for predicting success in certain areas. It was on the basis of data such as these that the present study was undertaken. By combining the MMPI and configural analysis, greater predictive power seemed possible, and it was hoped in this way that personality variables predictive of behavioral understanding could be identified.

Purpose of the Study

The purpose of this study is to investigate the relationship between personality characteristics and behavioral understanding in college women.

PROCEDURE

In this descriptive study, data were collected from 60 Home Economic juniors who were taking their second course in Child Development. The data included measures of behavioral understanding and personality. The instrument used to measure behavioral understanding was the Film Test for Understanding Behavior (FUB), while the Minnesota Multiphasic Personality Inventory (MMPI) was used as the personality measure. The investigation of the relationship between the twelve subscales of the MMPI and the measurement of behavioral understanding involved a multiple regression analysis (22) and a newly developed type of configural analysis (25) which compared groups of high and low scorers on the FUB.

Subjects

The subjects for this study were 60 juniors in Home Economics who had taken the second term of a two term sequence in Child Development at Oregon State College. There had been no time lag between courses for any of the subjects taking the sequence, and they had all taken two terms of General Psychology in addition to the Child Development courses. In these respects then, the groups evidenced a fair amount of homogeneity. The study did not control, however, for other factors which may have influenced the results, for example, number of siblings, position in family, amount of previous

experience with pre-school children, quality of parent-child relations, etc.

The subjects were solicited on a volunteer basis.

Instruments

Minnesota Multiphasic Personality Inventory

The Minnesota Multiphasic Personality Inventory is "... a psychometric instrument designed ultimately to provide, in a single test, scores on all the more important phases of personality." (15) The instrument comprises 550 statements covering a wide range of subject matter from the physical condition to the morale and the social attitudes of the individual being tested.

The subject is asked to sort all the statements into three categories: true, false, and cannot say. After the subject has identified all the items he can, as (mostly) true or (mostly) false, about himself, his responses are counted so as to yield scores on four validity scales and nine clinical scales. Three additional scales were used in this study. Names and descriptions of these scales appear in Appendix B. The group, or booklet, form of the test was used and the test was machine scored.

Measurement of Understanding of Behavior

Because the test was developed only recently and it lacks published norms, the details of the development of the Film Test for Understanding Behavior will be briefly reviewed here. The authors of the Film Test are Dr. Henry D.

Schallock, Oregon State College, and Dr. Jack Edling, Oregon College of Education.

A. Description of the Test. In the words of the authors, the test is

"... a technique for measuring behavioral understanding which attempts to incorporate some of the emotional involvement that is encountered in an interpersonal situation, yet maintains sufficient simplicity to make its administration feasible."

The test is built around ten filmed episodes of behavior of three and four-year-old children in the Nursery School. Each episode runs for approximately one minute. Specific items have been developed around each episode with the response to the items being given in terms of a five point agreement-disagreement continuum: Agree, Agree with hesitation, Uncertain, Disagree with hesitation, and Disagree. The items have been developed with reference to three dimensions of behavioral understanding; sensitivity to the feelings accompanying behavior, knowledge of guidance principles, and a knowledge of general facts and principles of development. Scores for each item range from +2 for the most correct response, to -2 for the least correct response. A copy of the test, including directions, appears in Appendix C.

B. Development of the Test. Episodes of behavior which occur frequently in the Nursery School, which seem to have high interest value to student observers, and which seem to offer particular value as learning

situations were selected for inclusion in the test. The episodes include a child simply sitting and watching that which is occurring around him, a child playing in paint, a child taking part in rhythms, a child dressing, a child painting leaves outside, a child eating, a situation in which two children confiscate the property of another child with its attending consequences, a motor development sequence, a sequence involving aggression, and an episode enabling comparative judgements of mental ability.

After the episodes were selected, items were developed to tap the major kinds of understanding which could be related to the behavior observed in the particular episode. These included questions over how the child was feeling in the situation, the kinds of guidance that could be offered the child in the situation, and questions relating to general information about the development and behavior of children of this age. The items were submitted to a number of judges outside the field of psychology and human development for an evaluation of their clarity and readability and then, after necessary revisions were completed, an initial item pool of 130 items was established.

The response weights for each item were assigned jointly by a group of five persons holding advanced degrees in psychology and the child development-nursery school education field. The procedure followed in this process was to have the experts respond individually to the items, spelling out in detail in writing the basis for their answer, i. e., the behavioral cues that they

used in making their response, the rationale or assumptions underlying their interpretation of the meaning of these cues, etc. The individual responses were then compared within the group, and an order of answers was laid out which was acceptable to all. Often times this involved several viewings of the episode and considerable reference to the literature. The original item pool was administered to three groups of students who differed in amount of background in psychology and child development, and then an extensive item analysis, involving basically the Likert method, was applied in an effort to maximize the quality of the test.

Coming from this analysis were two forms of the test, each form having in it 36 items. One form of the test was developed for persons having little or no background in child development and psychology, while the other form of the test was developed for people having considerable academic work in these areas. The latter form of the test was used in this study.

A more complete description of the development of the test, and the workings of the item analysis may be obtained from Dr. Henry D. Schalock, Family Life Department, Oregon State College.

Method of Procedure

Obtaining Cooperation of Subjects

The 60 subjects came from two sections of a Child Development course,

Family Life 312. The instructor of these classes arranged for class time to be used by the writer to explain the plan of the study and to request the cooperation of the students in carrying out that plan. To enhance motivation, the students were approached on the basis of their being particularly desirable as a group in a study such as this, and that the findings could possibly be used as an aid to advisors in the area of child study, particularly in the school of Home Economics.

Administration of Instruments

Special sessions for the administration of the MMPI were set up at the convenience of the subjects. The average time for taking the test was 55 minutes. The measure of understanding of behavior, the FUB, was administered during one of the last class periods of Winter term.

RESULTS

The purpose of this study was to investigate the relationship between personality characteristics and behavioral understanding in college women. The real impetus to the study came, however, from a desire to predict behavioral understanding from the personality variables measured by the MMPI.

With this being the case, the problem of analysis became one of finding an appropriate technique to determine the accuracy with which behavioral understanding scores could be predicted, for this group of subjects, from their personality scores. Two techniques were selected for this purpose, each involving totally different approaches to the problem of prediction.

The first technique was that of Multiple Regression. This is a highly sensitive statistical technique which has been used generally in studies attempting to predict one characteristic of individuals from a number of other characteristics. Since this study involved the prediction of an individual's Film Test score from his scores on the MMPI, the technique seemed a logical choice.

In essence the regression analysis involves the development of an equation for the prediction of the criterion from known values of the prediction variables. In this study the Film Test scores were called the criterion and the personality scores were designated as the prediction variables. The

development of the prediction equation requires familiarity with the "method of least squares". (22) The mechanics of this method are quite detailed, and consequently will not be presented in the thesis, but the concept underlying the method is quite simple. The equation or mathematical model which is postulated describes the relationship between the criterion characteristic and the several factors which may influence the measured value of that characteristic for an individual. Since it is impossible to specify all the factors which act upon a measurement, only those which can be specified are included in the equation, and the remainder are lumped together in a single term, called the residual or error term. The method of least squares is then used to obtain values for the specified factors in such a way that the sum of squares of the residuals, or errors, is at a minimum. Another way of looking at the residual term is that it represents the sum of the squared values of the deviations of the predicted score from the actual score. The details of this analysis appear under the heading, the Multiple Regression Analysis.

Despite the suitability of regression analysis to the problem at hand, the expectations were, on the basis of other studies, that far more help would come from another technique of analysis which Sullivan and Welsh call a "configural analysis". (25) The application of this technique represents the second approach to the prediction problem. In the words of the authors,

"...the essence of the method is the comparison of the ranks of the clinical scales of the MMPI's obtained from two groups of individuals." (pp. 384)

A more detailed discussion of this technique appears under the special heading, Configural Analysis.

The Multiple Regression Analysis

In the multiple regression analysis the mathematical model or equation that was postulated was:

$$Y = B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_6X_6 + \dots + B_{12}X_{12} + E$$

where:

Y = Film Test Scores

✓ B's = Proportionality constants

X's = Scores from the Personality Variables

E = Unexplained random error

This equation, however, applies to a population, or the total number of people for whom we might like to predict Film Test Scores. Since we are dealing with only a small number of these people, actually a sample of them, the equation must be changed slightly to indicate this. In terms of the sample estimate then, the regression equation becomes:

$$Y = b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + \dots + b_{12}X_{12} + e$$

As can be seen by this change, the parameter B's associated with the population are estimated by the b's found in the sample. This estimation is accomplished by the method of least squares, and the result, the b's may be

obtained by the solution of a system of linear equations. When the equation is presented in terms of the sample estimate, it may be used as a prediction equation by simply omitting the "e" term. As indicated earlier, this "e" term represents all of the unspecified factors influencing the predicted measure of the criterion characteristic. This does not mean, however, that the error term is disregarded in the analysis, for it serves an important function in the later stages of the analysis when the degree of relationship between the two sets of scores is determined. The actual numerical value of this error term may be found in Table II of this section.

Since the X-values in the prediction equation will always be known before predictions are attempted, the only quantities in the prediction equation which remain unknown at this point are the values of the b-coefficients. The solution of the linear equations for the data provided by this sample yielded the b-values listed in Table I below.

TABLE I

Prediction Variables Coming From the MMPI,
And Their Corresponding b-coefficients

Prediction Variable		b-coefficient
X ₁	Hypochondriasis (Hs)	0.16351491
X ₂	Depression (D)	-0.66940402
X ₃	Hysteria (Hy)	0.09829954
X ₄	Psychopathic Deviate (Pd)	-2.21325440
X ₅	Masculinity-Femininity (Mf)	0.36746114
X ₆	Paranoia (Pa)	-1.13877540
X ₇	Psychasthenia (Pt)	0.47392472
X ₈	Schizophrenia (Sc)	0.14791578
X ₉	Hypomania (Ma)	0.62820196
X ₁₀	Social Introversion (Si)	0.40870022
X ₁₁	Denial of Hysteria (HyD)	2.64519190
X ₁₂	Ego Strength (PgB)	0.13817419

After identifying the numerical values of these b-coefficients, they were substituted into the prediction equation as constant multipliers for the prediction variables. The algebraic sum of the products of these twelve b-coefficients and their appropriate X-variable score provided the predicted FUB

score. Since these b-coefficients are constants, they are substituted into the prediction equation as permanent members. Since the X-values change from one prediction of a FUB score to another they are still represented by X's. The completed equation, written in the form just described, is presented below.

$$\begin{aligned}
 Y = & (0.16351491)X_1 + (-0.66940402)X_2 + (0.09829954)X_3 \\
 & + (-2.2132544)X_4 + (0.36746114)X_5 + (-1.1387754)X_6 \\
 & + (0.47392472)X_7 + (0.14791578)X_8 + (0.62820196)X_9 \\
 & + (0.40870022)X_{10} + (2.6451919)X_{11} + (0.13817419)X_{12}
 \end{aligned}$$

To illustrate how this equation is used, FUB scores for two of the subjects in the study will be predicted from their actual MMPI scores. Both subjects had a score of 36 on the Film Test. Their scores on the MMPI were:

	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si	HyD	PgB
Subject 19	15	22	24	19	40	11	39	34	23	29	12	37
Subject 29	15	09	20	18	44	14	26	26	15	25	13	53

Now, to obtain a predicted Film Test score for subject 19, the MMPI scores were substituted into the prediction equation in the order of their appearance above, since this order corresponds to the designated X's in the equation, i. e., X_1 , X_2 , X_3 , X_4 , X_5 , ..., X_{12} . Thus, 15 is substituted into the prediction equation for X_1 , 22 is substituted for X_2 , 24 for X_3 ,

19 for X_4 , etc., with each X-value being multiplied by its appropriate b-value. For subject 19, the algebraic sum of the products of the b-coefficients and the X-values listed above yields a predicted Film Test score of 36.30. Following the same procedure for subject 29, that is, substituting 15 for X_1 , 09 for X_2 , 20 for X_3 , 18 for X_4 , etc., and multiplying by the appropriate b-values, the predicted Film Test score becomes 36.87.

While the predicted Film Test scores in the examples cited above were very close to the actual scores, the crucial question with respect to the overall analysis is how accurate generally were the predictions? The indications of this accuracy come from the analysis of regression which is summarized in Table II. These computations are presented in the usual analysis of variance form.

TABLE II

Analysis of Regression of Personality Scores on
Film Test Scores of College Women

Source of Variation	SS	df	MS	F
Regression	63,068.74	12	5,255.73	121.27**
Residual or Error	2,080.26	48	43.34	
Total	65,149.00	60		

**Significant beyond the 1 percent level of confidence

In testing the significance of the regression, i. e., the extent of the relationship between the two sets of scores, the resulting F-value was 121.17, with 12 and 48 degrees of freedom. This value is significant beyond the 1 per cent level of confidence and points out very clearly that a high degree of relationship exists between the two sets of scores. In terms of the forgoing discussion of regression analysis, this highly significant F-value indicates that the values in one distribution of test scores may be predicted with accuracy, significantly beyond chance, from known values in the other distribution of test scores.

A considerably clearer picture of the accuracy of the prediction equation can be pieced together, however, by combining a more direct indication of the correlation between the two sets of scores and a measure of the error involved in predicting from the prediction equation. The direct indication of the correlation existing between the scores on the twelve personality variables and the score on the Film Test comes from a multiple correlation coefficient. This coefficient of correlation, signified by R , may be computed by extracting the square root of the ratio of the regression sum of squares to the total sum of squares. These figures are available in Table II. The ratio for this set of data yields an R of +0.984, again pointing out the extremely high relationship between the two sets of scores. The measure of the error to be expected when using the prediction equation is, quite

appropriately, designated as the standard error of estimate and can be found by extracting the square root of the residual mean square. For this set of data, the standard error of estimate is 6.59 points.

These results may be summarized by saying that by using the prediction equation developed in this study, which used measures of personality to predict Film Test scores, one can have confidence that the Film Test scores for the subjects in the sample can be predicted within 6.59 points of their actual score approximately 98 per cent of the time.

The remainder of the discussion on Multiple Regression focuses on the question of the relative importance of each of the prediction variables and the tangential problem of the feasibility of reducing the number of variables used in the prediction equation.

It should be noted here that in a study such as this, where a number of variables are used to predict a criterion, the relative influence of any one prediction variable with respect to another cannot be inferred from a direct comparison of the size of the corresponding b-coefficients. If information about the relative importance of the variables in the prediction of a criterion is desired, it must come from a test of significance of the regression sum of squares associated with the different variables in question. In a sense, this can be viewed as a test of how well a single variable predicts the criterion.

Since the mechanics of these tests of significance become quite involved, one always looks for some indication as to which are the more important of the prediction variables, that is, which variables seem to be contributing more to the variance in the criterion measurement. By selecting only these variables for the tests of significance, much computation time can be saved.

A convenient method of determining the more important prediction variables is to test the significance of their corresponding b-coefficients. This was done for these data, and a summary of the F-values resulting from these tests of significance appears in Table III.

TABLE III

Summary of Tests of Significance for b-coefficients

	Prediction Variable	b-coefficient	F-value
X ₁	Hypochondriasis (Hs)	0.1635149	0.1289
X ₂	Depression (D)	-0.6694040	5.1407*
X ₃	Hysteria (Hy)	0.0982995	0.0388
X ₄	Psychopathic Deviate (Pd)	-2.2132544	49.4712**
X ₅	Masculinity-Femininity (Mf)	0.3674611	4.0386*
X ₆	Paranoia (Pa)	-1.1387754	8.3624**
X ₇	Psychasthenia (Pt)	0.4739247	2.0572
X ₈	Schizophrenia (Sc)	0.1479157	0.1889
X ₉	Hypomania (Ma)	0.6282019	6.2961*
X ₁₀	Social Introversion (Si)	0.4087002	6.0517*
X ₁₁	Denial of Hysteria (HyD)	2.6451919	27.0152**
X ₁₂	Ego Strength (PgB)	0.1381742	0.9858

* Significant at 5% Level

**Significant at 1% Level

This summary indicates that the personality variables which are contributing most to the prediction of Film Test scores are X₂, X₄, X₅, X₆, X₉, X₁₀, and X₁₁. Psychopathic Deviate and Denial of Hysteria respectively, do the

bulk of the work in the prediction equation. This brings the question of the reduction of the prediction equation into sharp focus, for one would expect that the regression for these two variables alone on the Film Test scores would indicate a high predictive ability. In other words, the relatively large contribution of these two variables to the over-all prediction equation focuses the question of whether or not the Film Test scores can be predicted adequately from these two variables alone. Table IV contains a summary of the analysis which was completed to help answer this question.

TABLE IV

Analysis of Regression Testing the Loss Due to
the Elimination of all Variables Except X_4 and X_{11}

Source of Variation	Sum of Squares	df	Mean Square	F
Regression due to X_4	55,764.04	1	55,764.04	1,286.66**
Additional Regression due to X_{11}	2,810.50	1	2,810.50	64.85**
Additional Regression due to remaining X's	4,494.20	10	449.42	10.37**
Residual or Error	2,080.26	48	43.34	
Total	65,149.00	60		

**Significant at 1% Level

After separating the regression due to variables X_4 and X_{11} it can be seen that indeed they do predict the Film Test scores with a good deal of adequacy. As in the analysis involving all twelve variables, the degree of relationship between the scores on variables X_4 and X_{11} , and the Film Test scores, is pointed out to be the size of the F-values coming from the tests of significance of regression, and also by the size of the multiple correlation coefficient, R. In this case the F-values were both significant beyond the 1 per cent level and the multiple correlation coefficient was +0.947. This R, indicates that these two variables alone, X_4 and X_{11} , are accounting for approximately 90 per cent of the variance in the distribution of the Film Test scores. The standard error of estimate associated with prediction from these two variables is 10.65 points. Figure 1 compares the relationship between personality variables and Film Test scores, for this study, when twelve variables are considered and when the two most significant of these twelve variables are considered.

COMPARISON OF R AND STANDARD ERROR
OF ESTIMATE WHEN THE PREDICTION EQUATION IS REDUCED

Conditions	R	Std. Error of Est.
Considering twelve variables X_1 through X_{12}	+0.984	6.59
Considering two variables X_4 and X_{11}	+0.947	10.65

Figure 1

Even though the difference in the R coming from the two prediction equations is small, the remainder of the analysis, presented in Table IV, points out that the difference evidenced is a significant one, and that the two variable prediction equation, therefore, should not be used. This may be seen more easily if the focus of the explanation is shifted slightly.

Suppose that the prediction equation contained only one variable, X_4 . A test of the regression of X_4 on Film Test scores (F-value 1,286.66) indicates that knowledge of scores on variable X_4 alone will yield a good deal of knowledge of Film Test scores. Suppose now, that another variable, X_{11} , is added to the equation. A similar test of regression (F-value 64.85) indicates that a great deal of accuracy is gained if this variable is added to the prediction equation. Now, can the equation stop here, or should more variables be added? To find this out, the regression of the other variables, i. e., all except X_4 and X_{11} , is tested, and the indication is (F-value 10.37) that it is worth while to add these other variables.

The conclusion which was reached, therefore, on the basis of this analysis, was that the prediction equation should not be reduced.

Perhaps a note of explanation is due here as to why this type of analysis was not extended to include the third most important variable, X_6 . While it was true that X_6 was significant at the 1 per cent level, the magnitude of the F-value (Table III) is not nearly so far removed from the other variables

as that of X_4 or X_{11} . Also, while the F-test on the regression mean square of the ten variables was significant, this represented the total regression for the ten remaining variables, which included not only X_6 , but also four other variables, which were significant at the 5 per cent level. Since X_6 was not far removed from these other variables, the likelihood was great that it alone would not have contributed significantly.

Configural Analysis

When the present study was first conceived, it was thought that the regression analysis would not likely contribute much to our understanding of the relationship between personality and behavioral understanding. This attitude was taken not because of any apparent inadequacy in the multiple regression technique, but more because of the consistently low order relationships which investigators had found between personality variables, treated independently or in profile, and behavioral or other criteria. For this reason, another approach to handling the data in attempting prediction was added to the study, that of configural analysis. In light of the remarkable results coming from the regression analysis, it seemed rather inconsequential to undertake the configural analysis, but for purposes of further testing this relatively new approach to the analysis of MMPI scales, the configural analysis was pursued.

Configural analysis, as an objective method of analysing MMPI

profiles, was devised by P. L. Sullivan and G. S. Welsh (25). Before outlining the steps in the configural analysis however, a word about the MMPI profiles. The profiles are the result of the systematic plotting on prepared profile sheets of a subject's scores on the nine clinical scales of the MMPI. Having the data arranged in this manner greatly facilitates its use. For example, it makes possible a quick, overall view of the peaks and depressions existing for any individual with respect to these scales, and it provides a means for the rapid transformation of raw scores into T-score, or standard score, values. While both are important for the over-all use of the MMPI, the latter is particularly important at this point in the discussion of the configural analysis, since the rank comparisons involved in the analysis are made on the basis of T-score, rather than raw score values. A photograph of a profile sheet appears as Figure 4 in this section.

Now, as to a description of the configural analysis, Sullivan and Welsh state that in essence the technique consists of the comparison of the ranks of the clinical scales of the MMPI's for two groups of individuals. For the purposes of this study, an arbitrary cutting point was chosen in the distribution of Film Test scores in order to get a high scoring group and a low scoring group for the analysis.

Before any comparisons can be made for these groups, however, the data must be manipulated in various ways. In order to best explain this

procedure, a brief step by step description is offered, then each step will be discussed in turn. These steps include:

- 1) Assigning number codes to all of the clinical scales of the MMPI, and then ordering these according to the decreasing magnitude of the scale scores as these appear on the profile sheets. The result of this is a nine number profile code.¹
- 2) Inspecting the profile codes and assigning plus, minus and equal signs to the various rank comparisons to be tested. This is done for each individual with the signs being totaled by groups for each rank comparison.
- 3) Testing, by use of the phi-coefficient, for significance of difference between the totals for the two groups.
- 4) Inspecting the results of these tests for the rank comparisons, or "signs", which uniquely identify a particular group.

The first step in the analysis is to convert the T-scores of all the individual records to the coding system developed by Welsh. (29) Since his coding system is quite elaborate, only that part of the methodology which facilitates the analysis will be discussed, i. e., that procedure which prepares the data for rank comparisons. The system involves assigning one-digit numbers (1 through 9) to the clinical scales of the MMPI. The order of this numbering corresponds to the left-right order of those scales on the clinical profile. This profile is pictured in Figure 4 of this section. An illustration of this ordering and appropriate numbers to be assigned, is given below.

¹See Appendix D for modification.

Code Number	1	2	3	4	5	6	7	8	9
Scale Name	Hy	D	Hs	Pd	Mf	Pa	Pt	Sc	Ma

An example may further clarify this portion of the method. Subject 01 of this study had a coded profile which read 439518762. The highest point on her profile was on the Pd scale and consequently a 4 is recorded as the first number in her code. The next highest point was at scale Hs, and so a 3 is recorded in the second position of her code, and so on, until the complete picture of her profile is changed to the profile code number above. The underscoring of scales 3 and 9 in the profile code indicates that these scales are within one T-score point of each other and may therefore be considered equal.

When these profile codes are completed for each individual they can be used directly in making the tabulations of the rank comparisons of the scales. The total number of comparisons made for each individual is 36, and each comparison is assigned a plus, minus or equal sign, depending on how the profile scores read for the individual being considered. For instance, the first comparison to be made is 1-2. If scale 1 is higher than scale 2, a plus sign is assigned, and if the two scales are equal, or within one T-score point of each other, an equal sign is assigned.

This tabulation is illustrated in Figure 2. Only two subjects have been filled in but in actual practice the tabulations were made for all subjects in

the sample; it then becomes an easy matter to read from left to right on any rank comparison to total the number of pluses, the number of minuses and the number of equal signs for the group.

RANK ORDER TABULATION OF TWO MMPI PROFILES*

Scaled Pairs	Subjects				Scaled Pairs	Subjects			
	01	02	03	... n		01	02	03	... n
1-2.....	+	+			2-5.....	-	-		
1-3.....	-	+			2-6.....	-	-		
1-4.....	-	+			2-7.....	-	-		
1-5.....	=	+			2-8.....	-	-		
1-6.....	+	+			2-9.....	-	-		
1-7.....	+	+			3-4.....	=	+		
1-8.....	=	+			3-5.....	+	+		
1-9.....	-	-			.				
2-3.....	-	-			.				
2-4.....	-	+			8-9.....	-	-		

*Subject 01's profile code is 439518762; subject 02's is 913865724.

Figure 2

The total number of comparisons for the MMPI is 36. This is evident in that scale 1 is compared with scales 2, 3, 4, 5, 6, 7, 8, and 9; scale 2 is compared with scales 3, 4, 5, 6, 7, 8, and 9; scale 3 is compared with scales 4, 5, 6, 7, 8, and 9, etc.. If a check on accuracy is desired, all 72 of the possible pairs can be made, but the second occurrence of each combination will show the signs reversed. Thus, if Hs is higher than D, the 1-2 comparison will be \oplus , while the 2-1 comparison will be \ominus . All 36 scale comparisons are made for each individual profile and then, as high and low groups are designated, the sums of the pluses and the minuses are totaled for each group,

and tests of significance of difference are applied to these totals.

It is theoretically possible, by this rank comparison technique, to isolate particular rankings or patterns of rankings which are peculiar to a group. When this can be done, the particular ranking, or pattern of rankings, is considered as a "sign" related to that particular group. For example, it might be that one group being compared, Group A, has a large number of people who score plus on the 1-2 ranking and the other group, Group B, has a large number of people who score minus on the same ranking. If it were found that magnitude of difference for these two groups on this particular sign was statistically significant, then one could from simply looking at an individual's profile, say with some confidence, which particular group he would be in. To be widely useful, of course, any "signs" that were found between two groups would have to be cross-validated, but if in the end the significance of the signs was demonstrated in enough groups, then group assignment, or prediction could be made on the basis of profile inspection alone. The economy of this approach to analysis, in terms of time and energy, in comparison with the multiple regression approach makes it worthy of study.

The configural analysis actually was computed twice during the course of the study. The first time through the analysis, the high scoring group consisted of the ten highest scorers on the Film Test, and the low scoring

group consisted of the ten lowest scorers on the Film Test. The next time through the analysis, the high scoring group involved the twenty-six highest scoring individuals on the FUB and the low scoring group consisted of the twenty-six lowest scoring individuals. The findings of these two analyses will be discussed separately.

A description, in terms of the scores on the Film Test, of the groups used in the first run of the configural analysis, appears in Figure 3.

**COMPARISON OF HIGH VERSUS LOW SCORING GROUPS
ON FILM TEST SCORES**

	High Scoring Group	Low Scoring Group
Range	41 through 55	07 through 20
Mean	45.3	15.8
S. D.	4.47	4.26
N	10	10

Figure 3

A further description, in terms of MMPI profiles, is presented in Figure 4, which shows the mean values of the groups on each of the clinical scales.

MEAN PROFILES FOR THE GROUPS INVOLVED
IN FIRST APPLICATION OF THE CONFIGURAL ANALYSIS

35

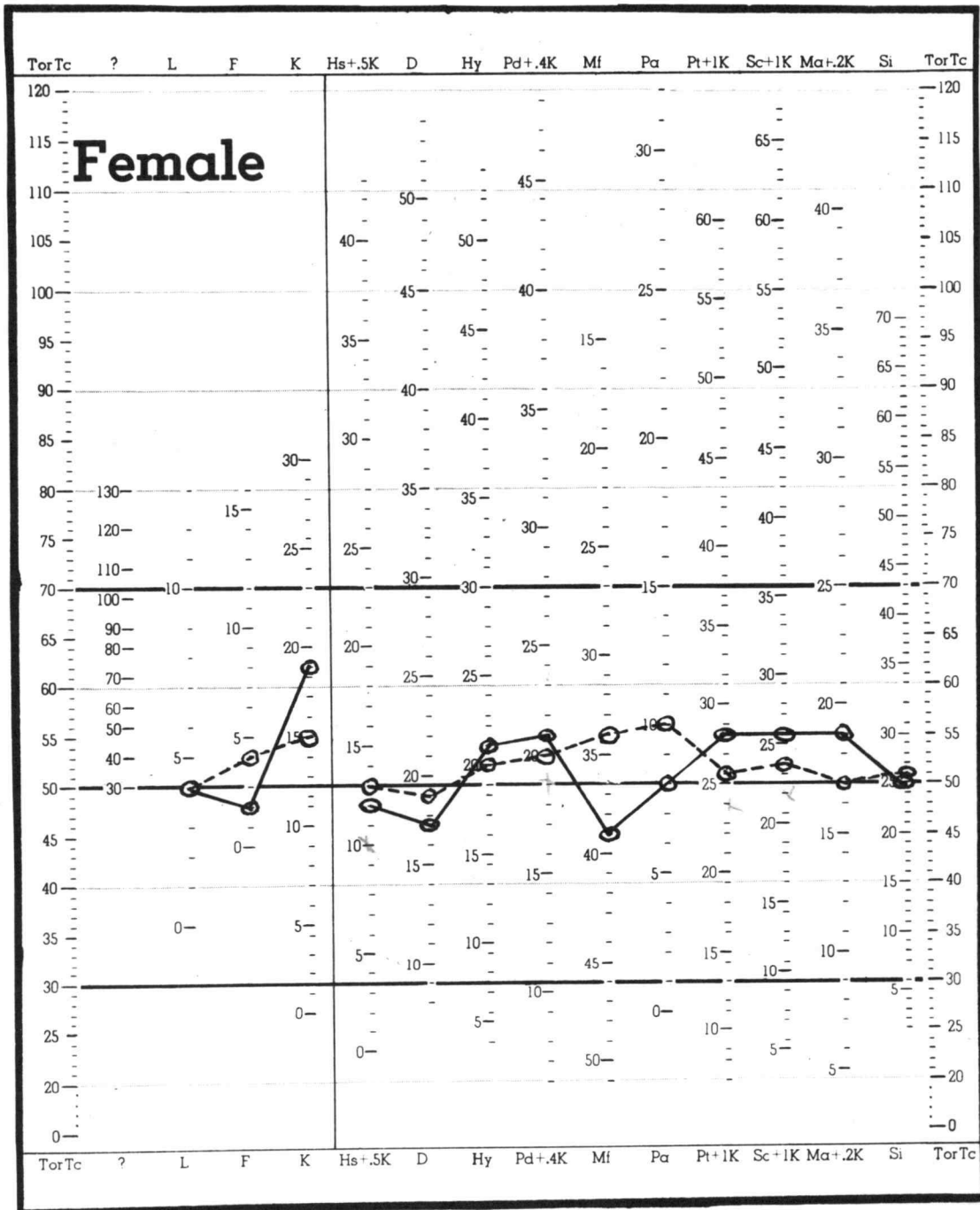


Figure 4

As suggested by the originators of this technique, the phi-coefficient was used to complete the analysis of the rank comparisons for the groups. The results of these tests are presented in Table V.

Table V
Results of Rank Comparisons
For High and Low Scoring Groups on the FUB
N = 10 for each Group

Rank Comparisons Investigated	ϕ Coefficients Assigned
1-2	0.16736
1-3	-0.54470*
1-4	-0.44376
1-5	0.54935*
1-6	0.05976
1-7	-0.20000
1-8	-----
1-9	-0.14907
2-3	-0.18185
2-4	-0.12172
2-5	0.48416*
2-6	-0.02621
2-7	-0.28577
2-8	-0.41079
2-9	-----
3-4	-0.04303
3-5	0.40825
3-6	0.34370
3-7	-----
3-8	0.07043
3-9	0.29013
4-5	0.47140*
4-6	0.25844
4-7	0.07043
4-8	0.15555
4-9	0.40825

Table V continued

Rank Comparisons Investigated	ϕ Coefficients Assigned
5-6	0.07906
5-7	-0.21820
5-8	-0.28753
5-9	-0.36804
6-7	-0.22361
6-8	-0.34370
6-9	-0.05555
7-8	0.16265
7-9	-----
8-9	0.33333

*Significant at 5% Level

An examination of these phi-coefficients shows that four of them are significant at the 5 per cent level. Since all of these rank comparisons were oriented towards identifying the high scorers, the presence of a negative sign with the phi-coefficient indicates that the rank comparison being considered must be reversed in order to describe that group. For instance the relationship 1 (Hs) higher than 3 (Hy) carries a negative sign; therefore, in order to describe the high scoring group by this relationship, the order must be reversed to read 3 (Hy) higher than 1 (Hs). Thus we have the following four relationships separating the high scorers from the low scorers.

1. 3 (Hy) higher than 1 (Hs)
2. 1 (Hs) higher than 5 (Mf)
3. 2 (D) higher than 5 (Mf)
4. 4 (Pd) higher than 5 (Mf)

The second application of the configural analysis was directed toward the two groups which consisted of the 26 highest versus the 26 lowest scorers on the Film Test. These groups are compared below in terms of their Film Test scores.

**COMPARISON OF HIGH VERSUS LOW SCORING GROUPS
ON FILM TEST SCORES**

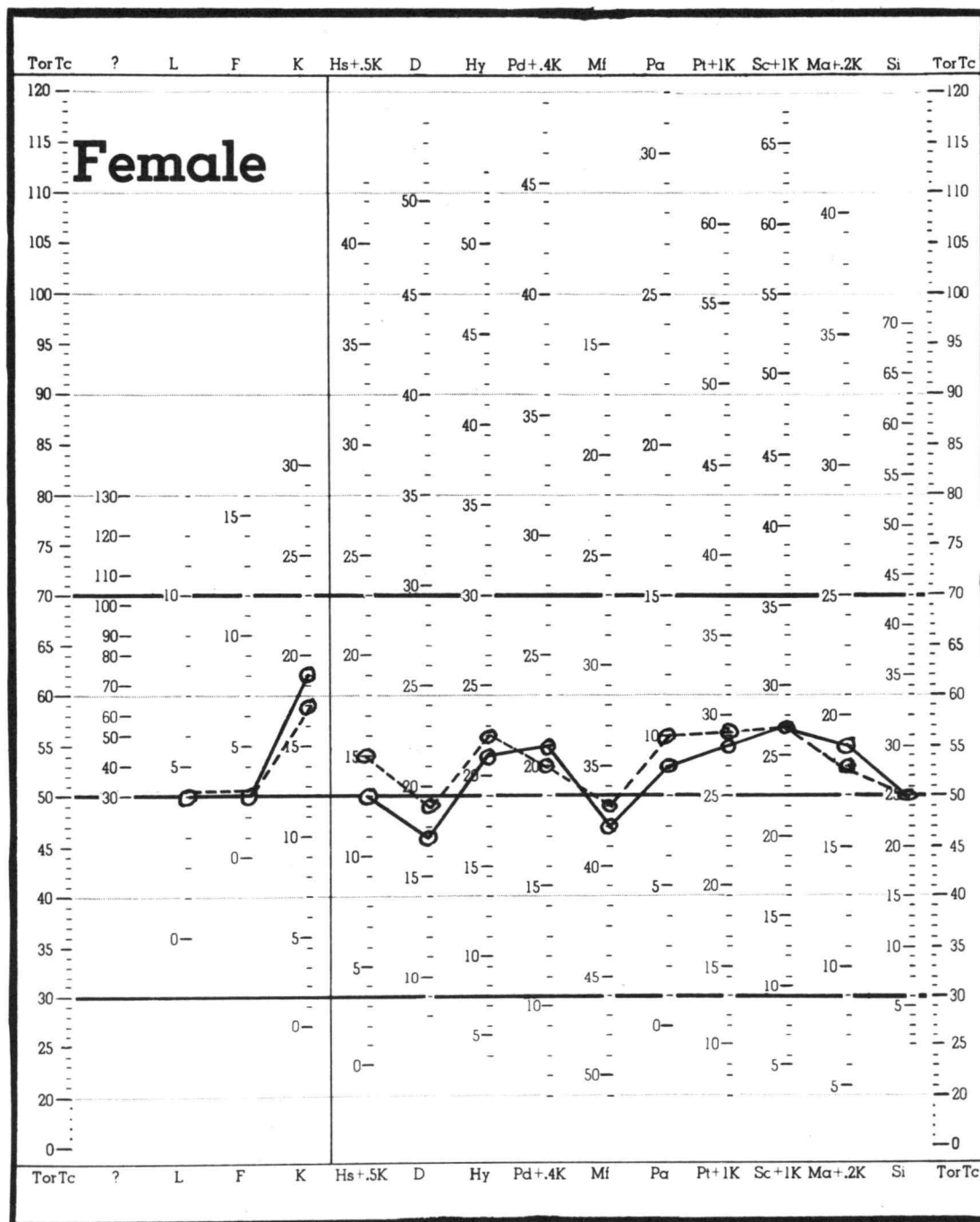
	High Scoring Group	Low Scoring Group
Range	34 through 55	07 through 31
Mean	39.9	22.8
S. D.	5.34	6.63
N	26	26

Figure 5

In Figure 6 the groups are compared again on the basis of their MMPI scores. This figure presents the mean profile of each group.

MEAN PROFILES FOR THE GROUPS INVOLVED IN SECOND APPLICATION OF THE CONFIGURAL ANALYSIS

39



—— high scoring group, N = 26
 - - - - low scoring group, N = 26

Figure 6

Table VI summarizes the results of the rank comparisons for these groups. Only one of the signs reached the 5 per cent level of significance. These data point out clearly that as the size of the groups increase, the number of discriminating "signs" drops, from four in this case of 10 subjects per group, to one when there were 26 subjects per group. Also, the sign that was significant for the larger groups was one that was not significant for the smaller groups.

Table VI

Results of Rank Comparisons
For High and Low Scoring Groups on the FUB
N = 26 for each Group

Rank Comparisons Investigated	ϕ Coefficients Assigned
1-2	0.201295
1-3	-0.079475
1-4	0.061932
1-5	0.17647
1-6	-0.016145
1-7	-0.19832
1-8	-0.15209
1-9	0.05873
2-3	0.01576
2-4	0.23591
2-5	0.08357
2-6	0.02560
2-7	-0.08247
2-8	-0.19999
2-9	-0.09623
3-4	-0.21009
3-5	0.08331
3-6	0.08362
3-7	0.01688

Table VI continued

Rank Comparisons Investigated	ϕ Coefficients Assigned
3-8	0.019139
3-9	0.04364
4-5	0.24696
4-6	0.27777*
4-7	-----
4-8	-0.01685
4-9	0.19870
5-6	0.10207
5-7	-0.08333
5-8	0.08909
5-9	-0.10327
6-7	-0.14753
6-8	0.269607
6-9	-0.04013
7-8	-0.03517
7-9	0.00375
8-9	0.13595

*Significant at 5% Level

Although there were several other "signs" which approached significance when the groups had an N of 26, 1-2, 2-4, 3-4, 4-5, and 6-8, the only clear relationship which separated the high scoring group from the low scoring group was, 4 (Pd) higher than 6 (Pa). This relationship does show up in the mean profile comparisons presented in Figure 6, but it is not readily apparent.

Comparisons of the Different Approaches to Prediction

With regard to the productivity of the two types of analysis, the findings were quite the opposite of what was expected. The multiple regression analysis produced evidence that very significant relationships exist between the scores on the personality variables and the scores on the Film Test. The

prediction equation which evolved from this analysis has a standard error of estimate equal to 6.59 points and will predict Film Test scores, within this margin of error, 98 per cent of the time. Because these results are so far removed from the findings of similar studies, i. e. studies attempting to relate personality characteristics to other behavioral patterns, the raw data from this study are included as Appendix A.

On the other hand, the configural analysis, on which so much hope was pinned, proved to be a disappointment. Even though this technique was developed around the scales of the MMPI and has been successful in previous attempts to isolate groups, it could afford no broad basis for prediction with the data in this study. One of the possible reasons for this failure is that the subjects as a whole were too similar with respect to the measurements afforded by the MMPI. This possibility is strengthened by the picture presented by the mean profile comparisons of both the groups compared. (Figure 4 and Figure 6) The fluctuations in the scales for the two groups is almost identical. In Figure 4, where the groups have only ten people each, there are some "out of phase" fluctuations, and there were some significant results from the configural analysis. However, when the groups were increased to 26 individuals, the out of phase fluctuations disappeared almost entirely and so did the significant results coming from the configural analysis. This is the reason for labeling the configural technique a "disappointment" rather than a "failure".

DISCUSSION

The purpose of this study was to investigate the relationship between personality characteristics and behavioral understanding. Two methods of analysis, multiple regression analysis and configural analysis, were selected to facilitate this investigation. The discussion will center around some of the implications coming from these two types of analysis. Before discussing the implications of the results however, it should be pointed out that even though the relationship between personality and level of behavioral understanding was high, further investigations may show that the correlation was an isolated phenomenon for this particular study. Because of the magnitude of the correlation, the need for replication and cross-validation of the study cannot be stressed too much.

The results of the multiple regression analysis provide rather important implications for the area of student guidance and selection for training. The possibility of a longitudinal study with this frame of reference is entirely feasible. Theoretically, one's personality is a product of the younger years (11), and therefore, be it desirable or undesirable, it is fairly stable by the time he reaches college age. If this is true, then guidance and selection for training could be made on individual yet stable characteristics, which, if the results of this study hold up under further investigation, are associated with success in understanding the behavior of preschool children. Also, the design of such a study would lend itself to the investigation of the correlates

of success in areas other than behavioral understanding. For instance, if the MMPI were administered to freshman women with the main purpose of selecting those who will benefit most from the plan of study offered by the Family Life department here at Oregon State College, the data could also be used to investigate ultimate success in other departments throughout the campus.

It is interesting to note also how the results of the study supported relationships between personality traits and behavioral understanding which one would expect on the basis of theory. The most notable of these were the negative correlations found between understanding and scales 4 (Pd) and 6 (Pa), both of which were highly significant contributors to the multiple correlation. These scales provide measures of Psycopathic Deviancy and Paranoid tendencies respectively. High scores on these scales identify people who lack the ability to make deep emotional response, who disregard social mores, and are suspicious and oversensitive. Logically one would expect this kind of person to have poor interpersonal relations. The validity of this thinking is supported by the definite association between high scores on these personality scales (Pd and Pa) and low scores on the Film Test for Understanding Behavior.

These results open an avenue for future research which could result in the development of a general and very useful tool for the psychologist interested in guidance and counseling work. At present, the profile analysis for

any particular client consists, more or less, of a visual check of the scores on the clinical scales of the MMPI plotted on profile sheets. Indications of trouble stemming from personality make-up come from an evaluation of the amount and position of gross deviations of certain scales from the average scores for these scales. If a negative association between both scale 4 (Pd) and scale 6 (Pa) and behavioral understanding scores is repeatedly demonstrated, it may be possible to evolve an index which would provide the psychologist with an optimal cutting point for scores on these scales. Such an index would facilitate profile scanning and provide quick clues as to one's level of behavioral understanding in much the same way as the neurotic triad and the psychotic triad are now used by clinicians. (6 p. 70) However, there is another point to consider in this search for the above mentioned index, and that is the observed symptoms of some classifications of paranoia. (17)

There is reason to believe that people having paranoid tendencies range from states of acute sensitivity to people and things to a seemingly oblivious kind of a reaction, depending on the situation and area of the person's conflicts. Therefore, the inclusion of the Paranoia scale of the MMPI in any proposed index of capacity to understand behavior will bring with it the possibility that the accuracy of the prediction or estimate of behavioral understanding will be lowered, in the sense that the person scoring high on the Pa scale may be more sensitive to behavior in some areas, than his score on the Pa scale would indicate. In this sense, the Pa scale may act as a "suppressor variable" in

the index.

The Denial of Hysteria scale, which correlated positively with the Film Test scores, was the other scale on the MMPI which contributed significantly to the prediction of the FUB scores. While the theoretical expectations for the contribution of this scale were not as great as those for the Pd and Pa scales, the results seem reasonable. Persons who score high on the HyD scale are persons who in effect say, "I am free from conversion type hysteria symptoms." If they are accurate in their report, that is to say, if they are free of symptoms at both the observable behavior level and the psychological level, then one could logically expect that such freedom would facilitate behavioral understanding. On the other hand, it might be that a high score on the Denial of Hysteria scale represents in itself a defense against the symptoms of hysteria. If this were the case, a logical explanation of the high positive relationship between Denial of Hysteria scores and scores on the Film Test would be difficult to put forth. One theoretical position, however, does provide some groundwork from which to speculate. (17) Leary views the individual who scores high on the Denial of Hysteria scale as the result of defensiveness, as one who seems to be comfortable when he is "evoking 'good Feelings' and establishing harmonious, amicable relations with others". (17 p. 303) From this point of view the high positive correlation between HyD and behavioral understanding is still understandable, even though it does represent a defense against hysteria.

One phase of research which should be started in the immediate future involves work on the Film Test itself. At this point it is necessary to investigate the theoretical properties of the test and to determine just what the FUB is measuring. Is it a trait measure? If so, then how consistent is it? How closely does it relate to the quality of one's behavior as a teacher or as a parent? These are some of the directions which future research could take concerning the Film Test.

In addition to the question of what the FUB scores mean, the data raise other equally interesting questions regarding the factors relating to the development of the capacity to understand behavior. Does this capacity result from the quality of the relationships the child has had with significant others, or is it relatively free of environmental influences and related instead more closely to the child's biologic individuality? If the development of this capacity is heavily weighted by experience, then is there a critical period in the child's life for its development? What is the relationship between this quality and Erickson's notion of basic trust? These are extremely significant questions for developmental theory, and suggest another direction which research needs to take.

The configural analysis, relying heavily on qualitative measures, offered no clear cut differentiations between groups who scored high of the Film Test and groups who scored low. A look at the plotted mean profiles for the groups investigated offers a partial explanation of the failure encountered here. The

deviations of the group around the mean fluctuate in the same direction and at almost the same rate; therefore, in the configural analysis they cancel out and no significant differences are found. This in itself is interesting, however, because while these subjects are all Home Economics majors, they represent diversified interests in many areas throughout the school. This suggests that perhaps there may be a personality pattern peculiar to Home Economics majors. If this is true there is a good possibility that these people could be separated, on the basis of profiles coming from the MMPI, from other groups of women enrolled in other majors, i. e., physical education, secretarial science, etc. This in itself would be a great aid to advisors and counsellors.

It is interesting to note also the ambiguous picture presented by the mean profile of these groups. Certainly there is no indication from the profiles that these people could be separated, with any accuracy, on the basis of their personality scores, yet the multiple regression analysis points out that they can be separated quite accurately.

Limitations of the Study

Probably the most serious limitation of this study comes from a failure to control for various family and home life factors, such as position in family, number of siblings, amount of previous experience in handling children, etc. In an effort to overcome this limitation, the study is at present being extended

to include many of the relevant factors pertaining to the home and family life experiences of the subjects involved in this study. Supplementary data is being collected by use of a questionnaire and at the time of this writing, the data collection is almost complete. The analysis of this supplementary data should be completed in the Fall of 1960.

SUMMARY AND CONCLUSIONS

Summary

The purpose of this study was to investigate the relationship between personality characteristics and behavioral understanding in college women. The Minnesota Multiphasic Personality Inventory (MMPI) was used as the personality measure and the Film Test for Understanding Behavior (FUB) was used as the measure of behavioral understanding. Scoring on the MMPI consisted of the nine clinical scales plus three additional scales which included Social Introversion (Si), Barron's Ego Strength scale (PgB), and Denial of Hysteria (HyD).

Sixty Home Economics juniors participated in the study. The FUB was administered in group settings while the MMPI was taken individually, at the convenience of the subject. Two different types of analyses were then used to investigate the relationship between the two sets of scores.

The multiple regression analysis considered the correlation of all twelve of the personality characteristics with the Film Test scores, the development of a prediction equation involving these twelve personality characteristics, and the relative importance of the variables in this prediction equation. Results of this analysis indicate an extremely high relationship (a multiple correlation of +0.984) between the scores on the personality variables and the scores on the Film Test for Understanding Behavior.

The three variables which contributed most significantly to the prediction of Film Test scores were, Psychopathic Deviate (Pd), Denial of Hysteria (HyD), and Paranoia (Pa), in that order with the Pd and Pa scales correlating negatively with understanding. The theoretical relationship between Film Test scores and the negative correlation between both the Psychopathic Deviate scale and the Paranoia scale is readily apparent. Leary's theoretical orientation regarding the Denial of Hysteria scale facilitates the interpretation of the positive correlation between the scale and the Film Test scores.

A newly developed type of configural analysis was also applied to the data. This analysis considered the rank comparisons of all combinations of the scales used on the MMPI, and it was applied to arbitrarily selected groups of high scorers and low scorers on the Film Test. When the groups being considered were comprised of the extreme high scorers and the extreme low scorers on the Film Test, $N = 10$ for each group, the configural analysis provided four "signs", i. e., rank comparisons, which identified people who scored high on the Film Test. However, when the size of the groups was increased to 26 per group, these "signs" did not hold and only one new rank comparison reached significance. In general, the results of this analysis indicate that it could not be used for predictive purposes. The most likely reason for the failure of this analysis to clearly differentiate between groups is that the groups were too homogeneous with respect to personality characteristics to allow a measure based on rank comparisons to function

adequately.

Implications of the data for theory and for future research were discussed.

Conclusion

A multiple correlation coefficient of $+0.984$ was obtained between personality characteristics and behavioral understanding. When the results of the multiple regression analysis and the configural analysis were compared the following conclusion seemed warranted: The differences in personality patterns of the subjects in this study were small, hence the failure of the configural analysis to differentiate the groups; however, these differences were extremely consistent, hence the high relationship resulting from the multiple regression analysis.

BIBLIOGRAPHY

1. Beherns, Marjorie L. Child rearing and the character structure of the mother. *Child Development* 25:225-238. 1954.
2. Black, J. D. MMPI results for fifteen groups of college women. In: *Basic readings on the MMPI in psychology and medicine*. Minneapolis, University of Minnesota Press, 1956. p. 562-573.
3. Clark, J. H. Grade achievement of female college students in relation to non-intellective factors: MMPI items. *Journal of Social Psychology* 37:275-281. 1953.
4. _____ The interpretation of the MMPI profiles of college students: a comparison by college major subject. *Journal of Clinical Psychology* 9:382-384. 1953.
5. Cline, Victor B. Ability to judge personality assessed with a stress interview and sound-film technique. *Journal of abnormal and Social Psychology* 50:183-187. 1955.
6. Cottle, W. C. The MMPI: a review. Lawrence, University of Kansas, 1953. 82p. (Kansas University School of Education Publication vol. 3, no. 5)
7. Drake, L. E. and W. B. Thiede. Further validation of the social I. E. scale for the MMPI. *Journal of Educational Research* 41:551-596. 1952.
8. Dymond, Rosalind F. Personality and empathy. *Journal of Consulting Psychology* 14:343-350. 1950.
9. Edwards, Allen L. *Statistical methods for the behavioral sciences*. New York, Rinehart, 1954. 542p.
10. Erikson, Erik H. *Childhood and society*. New York, Norton, 1950. 397p.
11. Freud, Sigmund. Freud's psychoanalytic theory. In: *Theories of Personality*. New York, Wiley & Sons, 1957. p. 29-75.

12. Gage, N. L. and Lee J. Coonbach. Conceptual and methodological problems in interpersonal perception. *Psychological Review* 62:411-422. 1955.
13. Gough, H. G. Predicting social participation. *Journal of Social Psychology* 35:227-233. 1952.
14. Gough, H. G. and W. H. Pemberton. Personality characteristics related to success in practice teaching. *Journal of Applied Psychology* 36:307-309. 1952.
15. Hathaway, S. R. and L. C. McKinley. Minnesota multiphasic personality inventory. Revised 1951. The Psychological Corporation, New York, 1951.
16. Karuven, Malathi M. The effect of course work in child development and psychology on understanding the behavior of preschool children. Master's thesis. Corvallis, Oregon State College, 1960. 92 numb. leaves.
17. Learey, Timothy. Interpersonal diagnosis of personality. New York, Ronald Press, 1957. 518p.
18. Marshall, Helen R. Personality characteristics of college students and accuracy of their judgments of children's social acceptance. *Journal of Home Economics* 50:207-212. 1958.
19. Michaelis, J. U. The prediction of success in student teaching from personality and attitude inventories. Berkeley, University of California, 1954. 69p. (University of California Publications in Education Vol. 11.)
20. Norman, R. D. MMPI personality patterns for various college major groups. *Journal of Applied Psychology* 36:404-409. 1952.
21. Pemberton, W. H. Test characteristics of student teachers rated at the extremes of teaching ability. PhD thesis. Berkeley, University of California, 1950. 145 numb. leaves.
22. Petersen, Roger G. Statistics notes. Class notes from Statistics 525, Corvallis, Oregon State College. 1960.
- X 23. Smith, Marilyn M. Correlates of college students' understanding of children's behavior. Master's thesis. Corvallis, Oregon State College, 1960. 61 numb. leaves.

24. Sullivan, H. S. The interpersonal theory of psychiatry. New York, Norton, 1953. 393p.
25. Sullivan, P. L. and G. S. Welsh. A technique for objective configural analysis of MMPI profiles. Journal of consulting Psychology 16:383-388. 1952.
26. Taft, Ronald. The ability to judge people. Psychological Bulletin 52:1-23. 1955.
27. Tyler, F. T. The prediction of student teaching success from personality inventories. Berkeley, University of California, 1954. 81p. (University of California Publications in Education Vol. 11.)
28. Weisgerber, C. A. The predictive value of the MMPI with student nurses. Journal of Social Psychology 33:3-11. 1951.
29. Welsh, G. S. An extension of Hathaway's MMPI profile coding system. Journal of Consulting Psychology 12:343-344. 1948.
30. Welsh, G. S. and W. Grant Dahlstrom. Basic readings on the MMPI in psychology and medicine. Minneapolis, University of Minnesota Press, 1956. 656p.
31. Wert, J. E., Charles O. Neidt and J. Stanley Ahmann. Statistical methods in educational and psychological research. New York, Appleton-Century-Crofts, 1954. 435p.

APPENDICES

APPENDIX A

Tabulation of Scores Earned by the Subjects on the MMPI Variables and the FUB

Subject	Scale												FUB score
	1(Hs)	2(D)	3(Hy)	4(Pd)	5(Mf)	6(Pa)	7(Pt)	8(Sc)	9(Ma)	10(Si)	11(HyD)	12(PgB)	
01	14	10	24	23	35	07	25	24	20	13	17	51	44
03	18	17	22	15	36	09	24	25	28	16	11	47	31
04	11	16	18	19	36	09	29	28	26	22	13	48	42
06	14	19	25	25	36	08	29	26	14	29	18	47	30
07	12	19	23	17	44	10	27	25	17	37	13	50	55
09	14	12	22	16	42	14	29	24	16	30	12	46	40
10	16	16	25	19	30	11	29	30	16	29	15	52	38
12	11	15	18	13	33	05	23	20	10	26	13	55	35
13	16	20	22	18	37	11	27	25	19	34	14	45	27
14	13	23	18	18	38	06	28	21	11	38	10	49	36
15	11	21	20	20	40	11	26	25	19	29	14	48	49
16	12	16	22	31	33	09	29	26	21	13	16	53	34
17	14	18	25	23	46	07	28	26	18	16	18	51	47
18	13	19	24	22	35	08	30	24	14	29	16	46	41
19	15	22	24	19	40	11	39	34	23	29	12	37	36
20	15	20	24	24	38	09	29	30	19	15	18	56	34
21	08	11	12	18	34	05	19	20	18	27	08	46	12
22	18	20	19	20	30	15	46	47	19	32	09	38	12
23	17	25	22	19	31	12	34	27	21	24	13	46	20
24	16	21	24	20	37	09	31	27	21	27	12	49	34
25	18	21	27	23	46	12	31	27	13	18	19	46	22
26	10	14	15	22	43	09	26	25	17	22	12	53	41
27	10	13	17	24	43	08	34	33	22	27	11	38	36
28	10	14	21	22	33	13	22	26	20	14	17	43	33
29	15	09	20	18	44	14	26	26	15	25	13	53	36

Raw + K

Appendix A continued

Subject	Scale												FUB
	1(Hs)	2(D)	3(Hy)	4(Pd)	5(Mf)	6(Pa)	7(Pt)	8(Sc)	9(Ma)	10(Si)	11(HyD)	12(PgB)	score
30	18	16	19	14	42	09	31	28	19	19	09	45	30
31	15	22	23	16	36	09	40	31	20	33	11	49	27
32	17	16	26	23	44	12	28	28	18	14	17	52	31
34	10	18	19	16	40	11	23	21	18	29	12	51	32
35	15	21	26	23	41	12	25	22	22	21	18	43	32
36	11	18	18	16	35	12	26	24	21	34	13	54	33
37	12	21	19	22	39	07	30	25	17	26	13	49	44
38	13	15	18	23	42	13	27	25	18	21	12	52	32
39	12	16	20	17	36	13	25	22	19	13	16	51	38
40	10	14	20	20	44	07	28	29	27	29	13	45	40
41	16	15	23	20	29	06	26	27	18	18	16	50	48
42	12	17	20	23	27	08	26	24	17	22	18	51	42
43	15	25	22	20	43	11	43	32	20	39	11	38	31
45	14	14	22	22	36	11	24	26	19	12	17	54	21
46	20	20	27	24	37	08	32	33	27	24	12	48	18
47	15	22	19	21	41	12	30	38	19	31	09	43	35
48	11	17	24	23	38	08	26	23	22	21	15	49	20
51	24	23	32	25	34	10	33	31	25	40	10	43	33
52	11	17	22	21	37	10	23	24	20	21	16	47	15
53	10	21	20	22	37	11	25	20	15	29	11	49	18
54	15	16	25	22	41	08	21	22	18	23	16	52	25
57	10	19	20	19	40	11	28	21	16	19	14	45	21
58	18	15	22	21	44	12	27	25	21	30	11	43	37
59	09	24	21	21	42	07	35	31	16	41	12	42	32
60	13	15	23	13	39	07	23	23	15	21	12	48	25

Appendix A continued

Subject	Scale												FUB score
	1(Hs)	2(D)	3(Hy)	4(Pd)	5(Mf)	6(Pa)	7(Pt)	8(Sc)	9(Ma)	10(Si)	11(HyD)	12(PgB)	
61	17	20	22	22	30	08	21	27	24	11	14	58	17
62	18	24	25	21	39	11	32	31	16	30	18	42	27
63	16	25	25	21	31	11	33	30	25	22	10	50	31
64	08	24	15	12	30	10	28	22	13	35	07	43	07
65	14	21	25	19	39	09	27	26	15	31	14	48	38
66	17	17	24	24	42	08	27	28	18	22	17	46	37
67	23	27	29	26	36	11	34	28	14	31	14	37	33
68	14	21	27	21	35	12	27	26	09	22	18	48	26
70	14	19	20	14	32	07	27	26	17	34	06	43	29
71	12	15	16	18	37	12	30	26	15	32	08	49	19
	840	1101	1311	1213	2255	586	1709	1596	1110	1521	804	2850	1889

12

16

Appendix A Continued

Symmetric Matrix Yielded by Scores
Of Subjects on MMPI Variables

12428	15670	18858	17156	31540	8303	24303	22751	15709	21279	11307	39720
15670	21133	24359	22322	41235	10805	31965	29590	20324	28686	14675	51880
18858	24359	29413	26838	49321	12851	37560	35065	24347	33074	17909	62189
17156	22322	26838	25269	45667	11852	34682	32478	22596	30286	16598	57624
31540	41235	49321	45667	86019	22102	64306	59962	41686	57305	30292	106936
8303	10805	12851	11852	22102	6042	16869	15753	10844	14875	7862	27714
24303	31965	37560	34682	64306	16869	50189	46517	31767	44302	22671	80380
22751	29590	35065	32478	59962	15753	46517	43694	29873	40869	21239	75243
15709	20324	24347	22596	41686	10844	31767	29873	21488	27775	14780	52645
21279	28686	33074	30286	57305	14875	44302	40869	27775	41981	19599	71223
11307	14675	17909	16598	30292	7862	22671	21239	14780	19599	11366	38462
39720	51880	62189	57624	106936	27714	80380	75243	52645	71223	38462	136700
26406	34258	41524	37539	71627	18240	53733	50128	35010	47947	25789	90110

Appendix A continued

Matrix Inverse

.00478665	5.5810977 -05	-.00389019	5.7718984 -05
0.9749655 -04	-.00061950	3.8153016 -05	-.00093314
.00025357	.00045149	.00226742	-0.9690434 -04
5.5802726 -05	.00201126	-.00083687	-.00013463
.00028239	-.00013474	-.00079430	.00037870
-0.8617470 -05	-.00037552	0.6455949 -04	-0.962268 8 -04
-.00389019	-.00083688	.00574722	-.00024478
-.00012850	.00046898	-4.7908281 -05	.00058774
-.00061128	-.00049025	-.00362193	.00015658
5.7721632 -05	-.00013463	-.00024478	.00228466
-.00013201	.00030853	-.00010572	-.00040580
-.00033297	6.0415763 -05	-.00132094	-2.2716259 -05
0.9749581 -04	.00028239	-.00012850	-.00013201
.00077144	-.00033984	-.00024950	.00012489
-.00016481	-.00023967	-.00031711	-.00020043
-.00061950	-.00013474	.00046898	.00030853
-.00033984	.00357812	-.00025614	-.00033994
3.0840771 -05	1.5425676 -05	-.00061627	-0.8063462 -04
3.8172640 -05	-.00079430	-4.7923123 -05	-.00010572
-.00024950	-.00025614	.00251920	-.00181049
.00012917	-.00025011	.00011740	.00016661
-.00093316	.00037870	.00058775	-.00040580
.00012489	-.00033993	-.00181048	.00267246
-.00059740	-0.7982528 -04	-.00024611	-0.6320382 -04
.00025357	-0.8617089 -05	-.00061128	-.00033297
-.00016481	3.0840589 -05	.00012917	-.00059740
.00142363	.00025992	.00105257	-.00025625
.00045149	-.00037552	-.00049025	6.0415450 -05
-.00023967	1.5425607 -05	-.00025011	-0.7982386 -04
.00025992	.00063686	.00092699	-.00010847
.00226743	0.6456347 -04	-.00362193	-.00132094
-.00031712	-.00061627	.00011739	-.00024610
.00105257	.00092699	.00597609	-.00060910
-0.9690588 -04	-0.9622711 -04	.00015658	-2.2716039 -05
-.00020043	-0.8063468 -04	.00016661	-0.6320372 -04
-.00025625	-.00010847	-.00060910	.00044688

* In this print out system each column of the inverse is printed out as a group of 12 numbers. Elements one through four of the column are printed from left to right in the first row of the group of 12 numbers. Elements five through eight are printed in the second row of the group, etc.

Appendix A continued

Inverse Matrix X Original Matrix Check

.99998855	-4.3697655 -06	1.1965633 -05	-4.1881576 -06
-6.7800285 -07	3.6545102 -06	1.1250375 -06	7.3015690 -06
2.2053721 -06	-1.2256204 -06	-0.9089709 -05	1.2964009 -06
-1.3507904 -05	.99999374	1.4580787 -05	-5.6140125 -06
-0.9834765 -06	4.6864152 -06	1.7136333 -06	0.9030104 -05
3.0994419 -06	-1.5161930 -06	-1.0818244 -05	1.6689299 -06
-1.4889986 -05	-6.6943467 -06	1.0000158	-6.8265945 -06
-1.2293456 -06	5.1632524 -06	1.7136333 -06	1.0874123 -05
3.8743019 -06	-1.5534459 -06	-1.1801720 -05	1.8179415 -06
-1.1682511 -05	-6.1877072 -06	1.2934209 -05	.99999344
-1.1771916 -06	4.7124922 -06	1.6838310 -06	0.9663404 -05
3.8146973 -06	-1.1958180 -06	-0.9447337 -05	1.6838310 -06
-2.1383167 -05	-1.1414290 -05	2.3856760 -05	-1.1874364 -05
.99999827	0.8746982 -05	2.6971105 -06	1.8008054 -05
7.1823597 -06	-2.1159651 -06	-1.6629696 -05	2.7418140 -06
-5.2079559 -06	-3.0249361 -06	5.9492886 -06	-3.0365776 -06
-5.3271652 -07	1.0000021	7.7858569 -07	4.6547502 -06
1.7732380 -06	-5.5320562 -07	-4.4107437 -06	8.7171795 -07
-1.0676683 -05	-0.9208918 -05	1.4320017 -05	-0.8802861 -05
-1.4156101 -06	5.9828162 -06	1.0000023	1.2502075 -05
5.5432320 -06	-1.2516974 -06	-1.1086465 -05	2.3543837 -06
-1.7911196 -05	-0.86374453 -05	1.9282103 -05	-0.8223579 -05
-1.4901159 -06	6.6161156 -06	2.1755698 -06	1.0000132
4.8279762 -06	-1.8030403 -06	-1.3649465 -05	2.2947791 -06
-1.2218953 -05	-5.5953860 -06	1.29578912 -05	-5.8431179 -06
-0.9611248 -06	4.4815242 -06	1.4305113 -06	0.9067357 -05
1.0000035	-1.2703238 -06	-0.9477139 -05	1.5795229 -06
-1.4998020 -05	-0.8493662 -05	1.47315150 -05	-0.7791445 -05
-1.2516974 -06	6.0945750 -06	2.0265581 -06	1.1943282 -05
4.5001507 -06	.99999815	-1.2874604 -05	2.2053721 -06
-0.8780510 -05	-4.0344894 -06	0.9164215 -05	-4.3371692 -06
-0.9611248 -06	3.1217936 -06	1.2069939 -06	6.5602362 -06
2.4884942 -06	-8.5309149 -07	.99999362	1.2964009 -06
-3.3602113 -05	-1.4543534 -05	3.5464758 -05	-1.48788111 -05
-2.8908256 -06	1.1637808 -05	3.8743019 -06	2.3618341 -05
0.8463860 -05	-3.4421686 -06	-2.5391579 -05	1.0000040

Appendix A continued

Original Matrix X Inverse Matrix Check

1.0000230	3.1504775 -05	3.8202846 -05	3.5472208 -05
0.6577372 -04	1.6998500 -05	4.9300484 -05	4.5984976 -05
3.1974161 -05	4.3742352 -05	2.3294241 -05	0.8387863 -04
1.1213122 -06	1.0000034	4.6603382 -06	4.3250620 -06
0.8352101 -05	2.1494927 -06	5.9679151 -06	5.4538250 -06
3.9674342 -06	5.1632524 -06	2.8423968 -06	1.0073186 -05
-3.6537641 -05	-4.8264853 -05	.99994111	-5.4500988 -05
-.00010085	-2.6218594 -05	-0.7553398 -04	-0.7051229 -04
-4.9538902 -05	-0.6605684 -04	-3.6485487 -05	-.00012934
-1.1067838 -05	-1.5393831 -05	-1.8368475 -05	.99998265
-3.1447033 -05	-0.8122996 -05	-2.3931265 -05	-2.2340566 -05
-1.5596859 -05	-2.0993874 -05	-1.1461788 -05	-4.0076666 -05
6.4074993 -06	0.8665026 -05	1.0326505 -05	0.9588898 -05
1.0000178	4.6417117 -06	1.3425947 -05	1.2531877 -05
0.8687377 -05	1.2025238 -05	6.3702464 -06	2.1547079 -05
-3.2261018 -06	-5.0961971 -06	-6.1541796 -06	-5.7704747 -06
-1.0445715 -05	.99999725	-0.7987023 -05	-7.3909760 -06
-5.1818788 -06	-6.9811941 -06	-3.7513678 -06	-1.2695790 -05
-2.4363401 -06	-0.9045005 -05	-1.0415912 -05	-0.9842218 -05
-1.8432737 -05	-4.7646463 -06	.99998599	-1.2934209 -05
-0.8933247 -05	-1.2651087 -05	-6.3776970 -06	-2.2441149 -05
0.9112061 -05	1.6558916 -05	1.9185245 -05	1.7907471 -05
3.3259386 -05	0.8722768 -05	2.5764108 -05	1.0000238
1.6372651 -05	2.2985042 -05	1.1757017 -05	4.0873878 -05
1.18861325 -05	1.5035273 -05	1.8209219 -05	1.6897917 -05
3.1113619 -05	0.8054078 -05	2.3335219 -05	2.1934510 -05
1.0000156	2.0295382 -05	1.1309982 -05	3.9994710 -05
3.0174855 -06	4.2170286 -06	5.2787364 -06	4.9024820 -06
0.8903444 -05	2.3171308 -06	6.5118075 -06	6.1616302 -06
4.4815242 -06	1.0000054	3.3825640 -06	1.2025238 -05
4.3034547 -05	5.46594601 -05	0.6827711 -04	0.6350874 -04
.00011664	3.0428172 -05	0.8809566 -04	0.8225440 -04
5.7905903 -05	0.7688999 -04	1.0000426	.00015103
-0.9536744 -05	-1.2293459 -05	-1.4826657 -05	-1.3723970 -05
-2.5451184 -05	-6.5937639 -06	-1.9043684 -05	-1.7821789 -05
-1.2516976 -05	-1.6748905 -05	-0.9253622 -05	.99996781

APPENDIX B

THE MMPI: A REVIEW

Table from Wm. C. Cottle

MMPI	Variable	Test Authors Description
?	Cannot Say category	Includes items which subject can answer neither true nor false.
L	Lie Factor	Falsify scores by choosing most socially acceptable response.
F	Validity	Check on validity of test-rationale and pertinent responses, did subject understand them (items).
K	Correction Factor	Acts as suppressor variable to increase discriminatory power of five clinical scales.
Hs	Hypochondriasis	Amount of abnormal concern about bodily functions.
D	Depression	Depth of clinically recognized symptom complex, depression.
Hy	Hysteria	Conversion-type hysteria symptoms.
Pd	Psychopathic Deviate	Absence of deep emotional response, inability to profit from experience, disregard of social mores.
Mf	Masculinity-Femininity	Tendency towards masculine or feminine interests.
Pa	Paranoia	Suspiciousness, over-sensitivity, delusions of persecution.
Pt	Psychasthenia	Phobias of compulsive behavior.

Appendix B continued

MMPI	Variable	Test Authors Description
Sc	Schizophrenia	Bizarre and unusual thoughts of behavior.
Ma	Hypomania	Marked over-productivity in thought and action.

Additional Scales Used in This Study

Si	Social Introversion ^a	High score indicates social introversion.
PgB	Ego Strength ^b	Appears to measure the various aspects of effective personal functioning which are usually subsumed under the term "ego strength".
HyD	Denial of Hysteria ^c	Denial of conversion type hysteria symptoms.

^aL. E. Drake, (7)

^bF. Barron, p. 226-234 in (30)

^cLittle and Fisher, Fort Miley, V A Hospital, San Francisco, California

APPENDIX C

THE FILM TEST FOR UNDERSTANDING BEHAVIOR

The statements in this booklet are statements about the episodes of behavior you will observe in the film. Some of these statements have to do with how a child feels; some with ways of handling what is happening; and some with general principles of development and behavior.

After observing an episode of behavior, you are to respond to the items pertaining to that episode. Generally speaking, you are to indicate whether you agree with an item, you disagree with it, or whether you are uncertain as to your agreement or disagreement about it. Specifically, your response to each item will be made in terms of one of five categories.

A	Ah	U	Dh	D
Agree	Agree, but with some hesitation	Uncertain	Disagree, but with some hesitation	Disagree

Thus, if you clearly agree with a statement, you select A for your response. If you generally agree with a statement, but realize that it is likely that there will be exceptions to it, you select Ah for your response. The reverse is true for indicating disagreement. If there is insufficient evidence presented in the film for making an agreement-disagreement decision, or if you feel that the knowledge available in the field of human development and behavior is insufficient to permit an agreement-disagreement decision, you select U for your response.

In all cases your response to an item is to depend only on what you see in the film, coupled with what you know generally about the behavior and development of children. Insufficient knowledge of a particular child and his background should not be considered a basis for your response to any item.

You are to indicate your response to each item by blackening the appropriate space on the accompanying answer sheet. Do not write on this booklet.

DO NOT READ THE STATEMENT ABOUT THE EPISODE BEFORE OBSERVING THE EPISODE. Be sure to read, however, "Information Needed in observing Episode 1, 2, etc.", which appears at the bottom of each page preceding the statements which go with a particular episode.

EPISODE 1

1. If an adult had helped the child take part in the activities around him, rather than just letting him sit and watch, the child would have adjusted to the situation more quickly.
2. An adult should have suggested that the child move to a place where he was less distracted.
3. Although the child was interested in the activity around him, he really wasn't ready to take a more active part in it.
4. One of the things this child will gain from going to nursery school is more confidence in himself when he enters a new situation.
5. Within a week or so it is likely that the child will play freely with other children.
6. One would judge this child's adjustment to be more adequate had he entered the situation with less hesitation.
7. It is likely that this child hadn't played with many children before entering nursery school.

8. An adult at least should have talked to the child or asked him if there was anything they could do to help.
9. Throughout the elementary school years, this child is apt to sit back and watch for awhile whenever he enters a new situation.
10. It is likely that the child will not be a leader in school.

EPISODE 2

1. An adult should have shown the child how to use the paint more constructively.
2. If this child is allowed to continue to be messy with paint and other things at nursery school, she will want to be messy at home.
3. Using paint in this way has little value as an art experience.
4. The child probably was seeing how messy she could be with the paints before an adult stopped her.
5. It is likely that this child isn't allowed to be messy at home.
6. The child seemed to be more concerned about getting paint on her clothes than she was with getting it on her hands and arms.
7. If this child is allowed to be messy at nursery school, but not at home she soon will not be sure where she can be messy and where she can't.

EPISODE 3

1. The child seemed to feel guilty about not doing as the others were doing.
2. The child seemed to be a well-adjusted child.
3. The child probably was less interested in rhythms than he was in what the children on the ground were doing.
4. An adult should have helped the child stand on the board.
5. An adult should have helped the child do something else.

EPISODE 4

1. This is a good example of an adult helping a child when the child really didn't need help.
2. The child was becoming upset over not being able to get her trousers on by herself.
3. The adult should have used this situation to point out to the child how to get into her trousers by herself rather than helping her.
4. The next time the child has a problem in dressing she is apt to want help from an adult.
5. The child probably would have become upset if the adult had not helped her when she did.

EPISODE 5

1. This would have been a more valuable experience for the child had he made a good print of the leaf.
2. An adult should have shown the child how to be less messy in his painting.
3. Apparently, the child didn't care that his picture was a messy one.
4. An adult should have helped the child make a better print.
5. The child shouldn't have been left by himself to do such a complicated task.

EPISODE 6

1. The child should not have been allowed to eat with his fingers.
2. It seemed to be easier for the child to eat with his fingers than with his fork.
3. The adult should be sure that the child finishes the food on his plate before he leaves the table.

4. This child has to learn that mealtime is a time for eating rather than a time for playing or just looking around.
5. Most children of this age would not let their attention wander from their eating as much as this child did.
6. When allowed to eat like this at nursery school the child is likely to eat in much the same way at home.
7. The child seemed to resent the adult telling him what to do.

EPISODE 7

1. Apparently, the girl is a friendly, sociable child.
2. An adult should have helped the girl keep the boys from taking the leaves.
3. Most children of this age would not have felt so strongly about losing some leaves as this girl did.
4. The boys who took the leaves from the wagon should have been reprimanded.
5. It is likely that these boys are trouble makers in the nursery school.
6. Someone should help the girl realize that she should not cry over something as unimportant as this.

EPISODE 8

1. It is likely that the child is well adjusted since he is so free and confident in his body movements.
2. As an adolescent, it is likely that the child will excell in athletics.
3. An adult should have been near the child when he was playing on the bars.
4. This child probably wouldn't be interested in such things as painting or listening to music.
5. It is likely that this child is a bully.

EPISODE 9

1. Leaving the girls to settle their differences by themselves was a good idea.
2. The "1st" girl is likely to be assertive throughout childhood.
3. The "1st" girl probably is an insecure child.
4. An adult should have comforted the "2nd" girl.
5. The "1st" girl should have been reprimanded for taking the toy away from the "2nd" girl.
6. The "1st" girl is a selfish child.
7. After the "1st" girl took the cup away, an adult should have helped the "2nd" girl get started in another activity.
8. The "2nd" girl probably is an insecure child.

EPISODE 10

1. The girl seemed to be upset by not being able to work the puzzle.
2. It is likely that the difference in the ability of the two children to work puzzles is due to something other than intelligence or the opportunity to practice.
3. An adult should have helped the girl work the puzzle.
4. Even though the girl didn't work the puzzle well, she should have been praised for her effort.
5. An adult should have given the boy a puzzle that was harder for him to work.

APPENDIX D

A Modification of Welsh's coding system, dealing with the designation of scales which may be considered equal when making rank comparisons.

One part of Welsh's coding system dealing with how to indicate in the profile code which of the scales may be considered equal, was modified slightly for the configural analyses applied in this study.

Welsh advocates the underscoring of two scales when they are within one T-score point of each other, and this system is extended when there are more than two scales involved. In this study it was found that such an extension can cause trouble when there are more than two scales involved. The previously cited profile code of subject 01 is an example in point. Her code reads 439518762 and for purposes of demonstration it was presented as having only two scales underscored, i. e., 3 and 9. The actual situation was this: scale 4 was higher than scale 3 by only one T-score point. This necessitates underscoring scales 3 and 4. But, scale 3 was higher than scale 9 by only one T-score point also, and this would again necessitate underscoring the scales involved. Now this leaves the profile looking like this: 439518762. To someone who had not actually coded the profile the implication is that the three scales may be considered equal, either because they are all actually the same height or because they are within one T-score point of each other. This interpretation is quite valid if one looks at 4-3

or 3-9; however, when one gets to the comparison 4-9 he will also rate these scales as equal, and this will not be in keeping with the coding procedure since they are actually more than one T-score point apart. It so happens that exactly the same situation occurs with the next three scales, i. e., scale 5 is one T-score point higher than scale 1, and it in turn is one T-score point higher than scale 8. This would then leave the profile reading 439518762. Again the same mistake can be made when comparing scales 5 and 8 because when looking at the profile code these scales would be considered equal while they are actually more than one T-score point apart. The modification of Welsh's system that is proposed here, involves only a slight change: continue with the procedure of underlining two scales that are within one T-score point of each other, but when the third scale enters as it did in the situations cited above, do not underscore again, but rather overscore the second and third scales and thereby keep their relationship divorced from the first scale, which is as it should be. This would leave the profile code reading 439518762, instead of 439518762. This approach could be extended even to the extreme case where every scale was just one T-score point above that one following it in the code. As an illustration of just such a hypothetical case, the profile would read 937586214 using this modified approach, while the use of Welsh's system, unmodified, would make the profile read 937586214.