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An investigation of the Braen Self-Description Inventory as a predictor of rigidity.

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AN INVESTIGATION OF THE BRAEN SELF-DESCRIPTION

INVENTORY AS A PREDICTOR OF RIGIDITY

A Thesis
Submitted to the Faculty of Graduate Studies through the
Department of Psychology in Partial Fulfillment of the
Requirements for the Degree of Master of Arts at
The University of Windsor

by

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1964

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ABSTRACT

The present research investigated the ability of the Self-Description Inventory (SDI) as a predictor of rigidity. Certain Rorschach indices were utilized as the criterion. This study extended the investigation on the concept of rigidity by using a relatively new inventory measure as a predictor of rigidity. Also, in past studies, Rorschach indices of rigidity have been compared with motor, cognitive, perceptual and projective tasks. In this study Rorschach indices were compared with an inventory measure of rigidity.

The SDI was administered to 94 high school students. The highest fourteen scorers on the SDI were selected as the rigid group. The nonrigid group consisted of the lowest fourteen scorers. The experimental groups were considered to be homogeneous with respect to age, sex and academic level. The Rorschach was administered individually to all subjects in the rigid and nonrigid group.

The hypothesis that the SDI would significantly differentiate rigid from nonrigid subjects was confirmed. A significant difference was found between the group profiles of the rigid and nonrigid group. An investigation of the specific differences between group profiles revealed that the rigid group obtained a significantly lower on total number of responses, organization score and content range.

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These significant differences were interpreted respectively as: lower productivity, inability to organize and a restricted range of interests.

An evaluation of the protocols with the total number of responses held constant was computed by comparing the rigid and nonrigid group on responses to card I and card II only of the Rorschach.   A significant difference in total of responses was found on card I, confirming one result of the main analysis, viz.:   the rigid group was less productive than the nonrigid group.

Lastly, a comparison of the rigid and nonrigid group on Fisher's Scale of Rigidity for the Rorschach yielded no significant findings.

In general, the SDI proved to be a satisfactory predictor of rigidity characterized by lower number of total responses, lower organization score and restricted content range on the Rorschach.

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CHAPTER I

INTRODUCTION

The past sixty years of experimental investigation on rigidity has been an attempt to define and measure the concept. Various tests have been used as measurements of rigidity: sensorimotor tasks, "creative effort" tasks, the Einstellung Water Jar Test, perceptual tests, inventory tests and the Rorschach. Relatively few inventory tests have been used. Usage of the aforementioned tests has yielded conflicting results. The reliability and validity of the tests have been strongly questioned (Applezweig, 1954; Chowen, 1959). The need for a more adequate measure of rigidity is generally agreed upon.

The purpose of this study is to use a comparatively new inventory, the Braen Self-Description Inventory, as a predictor of rigidity and certain Rorschach indices as the criterion. In the past Rorschach indices of rigidity have been compared with the aforementioned tests. This study proposes to extend the investigation in this field by comparing Rorschach indices of rigidity with performance on a rigidity inventory.

Background of Related Research
Sensorimotor Tasks

Rigidity was originally conceived of as a perseverative

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tendency in behavioral processes. Attempts were made to
measure this perseverative tendency in ideational, sensory
and motor tasks. Lankes (1915) found a positive intercorre-
lation of 0.29 among the three measures. Spearman (1927)
carried out the first factor analysis on the perseveration
studies of Jones (1928). He concluded that the tests were
measuring a common factor which he called perseveration.

Later investigators criticized the evidence for a
general factor of perseveration. Burri (1935) pointed out
three statistical errors made by Spearman in his factor
analysis of the data. One, he failed to report and consider
all three of the tetrad differences found in the data. Two,
he claimed that one common factor accounted for the results,
whereas Burri demonstrated that more than one factor could
have accounted for the results. Three, Spearman assumed
that the nature of the common factor he found was persever-
ation. There was no empirical evidence for this assumption.

Jasper (1931) demonstrated that the tests used by
Lankes (1915) and Jones (1928) yielded negative intercorre-
lations when applied to different subjects. He also pointed
out that speed and intelligence variable were not controlled
in Jones study (1928) and that therefore the results were
questionable. In his investigation on measures of persever-
ation, Jasper (1931) found a negative intercorrelation of
0.29 among the tests. He concluded that "purer" measures of
perseveration were needed.

Shevach (1937) criticized the previous studies on perseveration for (a) mass administration of sensory tasks which should have been individually administered, and (b) the lack of reliability and validity estimates for the perseveration tests. In his study on sensory perseveration Shevach (1937) found that the measures yielded conflicting results when applied to different subjects.

"Creative Effort" Tasks

After the perseveration tests were seriously discredited as valid measures of rigidity, the next popular measure was the "creative effort type of motor task. Walker (1943) contended that rigidity was due to the influence of a habituated activity on the performance of newly attempted tasks. He called this influence, "disposition" rigidity and demonstrated that it was best measured by motor tasks that involved performing a new task in a way that conflicts with the old established manner of performing it. Cattell (1946) and Stephenson (1943) also found evidence of the "creative effort" type of motor tasks. However, Notcutt (1943) found nonsignificant results with this measure.

The Einstellung Water Jar Test (WJT)

The Einstellung Water Jar Test has been used in over fifty-seven experimental investigations of rigidity. Luchins, the author, states the test was devised to measure rigidity of behaviour, not rigidity inherent in the personality.

Levitt and Zuckermann (1959) in their critical review
of the WJT concluded:

> . . . the weight of experimantal testi-
> mony indicates that the WJT is not a
> valid measure of what is usually con-
> ceived of as personality rigidity. Only
> 14 per cent of the studies could be
> regarded as having results suggesting
> validity, while nearly half were clearly
> negative. Even the few positive studies
> should be regarded skeptically, for sev-
> eral reasons . . . The positive studies
> tend to be characterized by poorer meth-
> odology in general (1959, p. 377).

> . . . the WJT has three major shortcomings
> as a test qua test. Its use usually in-
> volves a considerable, and potentially
> biasing, loss of Ss; it frequently yields
> nonnormal distributions of scores; and its
> reliability is difficult, if not impossible,
> to estimate with any degree of accuracy
> (1959, p. 378).

> There is evidence from a number of studies
> that the WJT is measuring an intellectual
> factor or factors rather than a personal-
> ity characteristic (1959, p. 379).

Perceptual Tasks

Angyal (1948) developed a perceptual technique which
successfully differentiated rigid from flexible subjects.
The task consists of tachistoscopic exposures of letter com-
binations which the subjects are asked to reproduce. The
characteristic response pattern of rigid subjects was accur-
ate, logical answers that adhered strictly to objective
reality. The "loosely organized" subjects were unsystematic,

haphazard in their responses. The technique needs further standardization and validation.

Frenkel-Brunswik (1949) hypothesized a positive relationship between low tolerance for ambiguity on a perceptual task and rigid social, emotional and cognitive behaviour. In her investigation of social prejudice Frenkel-Brunswik found that subjects classified as ethnocentric manifested a low tolerance for ambiguity on a perceptual task. It was hypothesized that a fear and avoidance of ambiguity is generalized to other areas of behavior and manifests itself in a strong need for certainties in social, emotional and cognitive behavior. Partial evidence for the hypothesis was obtained.

Becker (1954) found that perceptual rigidity manifested on ainseikonic lenses is positively related to personality rigidity on the Rorschach. Rigid subjects defined by the ainseikonic test had lower Dd%, less usage of space, lower sum C, narrower content range, used fewer determinants, and obtained a higher score on Fisher's Scale of Rigidity for the Rorschach. The same subjects were also rated rigid on Block's Ego Rating Interview.

Bova (1958) investigated the relationship between rigidity on an autokinetic task and Fisher's Scale of Rigidity. It was hypothesized that rigid subjects would see less movement and have a longer reaction time on the autokinetic task, and that this manifestation of rigidity would be

related to Fisher's Scale. No significant relationship was
found.

Inventory Tests

Two political attitude scale, the California F Scale
of Authoritarism and The California Ethnocentrism Scale have
been used in several studies as rigidity criteria. The
implicit assumption was that rigidity, ethnocentrism, and
authoritarism are related. Rokeach (1948) claimed that the
California Ethnocentrism Scale was a measure of generalized
rigidity. However, Brown (1953), Goodstein (1953) and
Applezweig (1954) did not find a positive relationship be-
tween the two scales and other measures of rigidity. Jack-
son (1957) severely criticized the two scales. He pointed
out that the scales were multidimensional, poorly constructed
and not free from an acquiescent response set.

Wesley (1953) developed a questionnaire to measure
manifest rigidity. The scale consists of fifty items which
were rated high by five clinicians as indicative of rigidity.
Subjects grouped as rigid on the scale were also found to be
rigid on a clinical concept formation task. However, the
inventory needs to be item-analyzed and validated.

Maresko (1954) used a revised Likert-type attitude
scale toward personal habits (RAPH) as a rigidity criterion.
His hypothesis was that rigidity regarding personal habits
is positively related to authoritarism as measured by the
California F Scale. A positive correlation of 0.62 was

found between the two tests.

Rehfish (1958) constructed a preliminary scale to measure personality rigidity based on Fisher's concept of rigidity. Test items were drawn from the Minnesota Multiphasic Personality Inventory, the California Psychological Inventory and other scales. The final form consists of 39 items that significantly differentiated subjects rated as rigid or nonrigid by five to eight judges. The scale was item analyzed, and positive cross-validating evidence for two preliminary versions of the scale was found. Corrected reliability for a sample of 60 subjects was 0.72. The scale is limited for use only with male subjects, however. Further standardization and validation needs to be carried out on the test.

An inventory measure of rigidity based on Kurt Lewin's rigidity construct was developed by Braen (1960a). A college sample of 50 and 100 students was used for selection of the inventory items. The inventory consists of 49 true and false items and is subdivided into four bi-polar response sets. Two separate item analyses revealed that the test possesses internal consistency. No significant sex differences on the test were found. The reliability estimate for the inventory was .80 and .86 for a college sample of 50 and 100 students, respectively. Construct validity for the test has been established; however no empirical validity estimation has been undertaken.

Braen & Wallen (1960b) investigated possible similar-
ities between the Self-Description Inventory (SDI) and the
Wesley Scale of Rigidity. The performance of high school
students on the two inventories was also investigated, and
compared with test results obtained by college students on
the two scales. Finally, the relationship between an in-
telligence variable and the two inventories was assessed.
The SDI and the Wesley Scale were combined together as one
inventory and administered to 283 high school students drawn
from grades 11 and 12. A statistically significant difference
in the mean scores for the high school and college sample was
found on the Wesley Scale. No significant difference was
found between the total scores of the high school and col-
lege group on the SDI. However, a significant difference
was obtained between the two groups on the sub-scales of
the SDI. The high school group was less rigid compared to
the college group. A high correlation coefficient was found
between the Homogeneity-Heterogeneity sub-scale of the SDI
and the Wesley Scale. A positive correlation of .49 was
obtained between the SDI and the Lorge Thorndike Intelli-
gence Tests. A reliability coefficient of .67 was obtained
for the high school group. This coefficient was low com-
pared to the reliability estimate of .80 and .86 obtained
for college students. The lower reliability coefficient was
attributed to (a) differences in motivation between college
and high school students, and (b) the different procedure

followed to administered the SDI to the high school group.
No significant sex differences were found for either the
Wesley Scale or the SDI.

Philip, Fehr, & Smith (1960) employed the SDI as a
predictor of perceptual rigidity. The SDI and a battery of
perceptual tests were administered to a sample of college
students. No statistically significant results were found.

Chernets (1962) investigated the ability of the SDI to
predict rigid from nonrigid subjects using responses to The-
matic Apperception Test (TAT) as the criterion. The hypoth-
esize was that rigid subjects, when instructed to change
their interpretations of TAT cards, would show fewer changes
than the nonrigid group. The rigid and nonrigid group each
consisted of 20 high school boys. The results indicated
only one statistically significant difference between the
responses of the rigid and nonrigid group, vis: the rigid
group was significantly less productive in their responses
compared to the nonrigid group.

Rorschach Psychodiagnostik

McAndrew (1948) found deaf subjects to be significant-
ly more rigid in their Rorschach responses than a group of
normals. The protocols were characterized by fewer re-
sponses, more rejections, larger percentage of whole re-
sponses, less differentiation in their responses, more
animal content and more perseverative tendencies. The rigid
subjects were also found to be rigid on three Lewinian

measures of rigidity: level of aspiration, restructuring, and satiation tests.

Eriken and Eisenstein (1953) used a modification of the Rorschach Psychodiagnostik, the McReynolds Concept Evaluation Technique, and three other tests to measure personality rigidity. The McReynolds Technique consists of 50 Rorschach concepts which are presented individually to the subject. The subject is asked if each concept is a reasonable interpretation of the card. The hypothesis is that rigid subjects will accept fewer interpretations of the cards than nonrigids. A positive relationship was found between the McReynolds Technique, a test of ambiguities, a perceptual expectancy test, and the Einstellung Water Jar Test.

Johnson and Stern (1955) found a positive relation between rigidity on a photic stimulation test and Fisher's Scale of Rigidity for the Rorschach. Five individual indices on the Rorschach also differentiated the rigid group.

Tolor (1957) found a negative relation between rigidity manifested in Tree Drawings and ten Rorschach correlates. Subjects grouped as rigid or flexible according to their Tree Drawings were significantly different on only one Rorschach indice, viz., total number of responses. The F+FC ration came close to being significant.

Eiduson (1959) measured the rigidity-flexibility dimension in Rorschach performance, dream protocols, and five

areas of behaviour. Rigidity on the Rorschach was measured by global ratings, and nine a priori criteria. A positive relationship was found among the three measures.

Instead of using individual Rorschach indices to measure rigidity, Fisher (1950) developed a scale which is based on score patterns obtained on the Rorschach. The scale consists of various penalty weights which are assigned to patterns of Rorschach scores indicating degrees of restrictiveness. The weights and score patterns were selected in an arbitrary manner; however, the scale has proved to be sufficiently differentiating to be used as a rigidity criterion (Becker, 1954; Johnson and Stern, 1955). A sample of the scale is presented in Appendix A.

Cowen and Thompson (1951) carried out an extensive investigation on rigidity as measured by the Rorschach. Thirty-four subjects defined as rigid and nonrigid according to their performance on the Einstellung Water Jar Test were measured on the Bell Adjustment Inventory, the California Inventory Test and twenty Rorschach indicators of rigidity. The mean age of the rigid group was 13 years; the mean age of the nonrigid group was 14 years. No statistically significant difference was found between the rigid and nonrigid group on the Bell Adjustment Inventory and the California Inventory Test. Nine of the twenty Rorschach indices significantly differentiated the rigid from the nonrigid subjects.

Fabrikant (1954) corroborated the findings of Cowen and Thompson. He administered the Rorschach twice to two equated groups, Group A and B, of male psychoneurotic veterans. On the second Rorschach testing, Group B was instructed to maximize their movement, color, shading, and texture responses. Fifteen subjects who showed a significant increase in their responses were classified as the nonrigid group. The remaining 17 subjects comprised the rigid group. The initial protocols of the rigid and nonrigid group were then examined for five indicators of rigidity. Subjects having at least four of these indices in their initial records were predicted to be rigid. Subjects whose protocols contained less than three of the indices were predicted to be nonrigid. A chi square evaluation revealed that the five indices were not reliable indicators of rigidity. The initial protocols of the rigid and nonrigid groups were then examined for the nine indicators of rigidity found by Cowen and Thompson (1951). The initial protocols were significantly different on three Rorschach indices. Fabrikant concluded that the nine indices reported by Cowen and Thompson were significantly differentiating.

Purpose of Present Research

Past investigators have used relatively few inventory tests of rigidity in their studies. It is the purpose of this study to use a comparatively new inventory, the Braen Self-Description Inventory (SDI) as a predictor of rigidity.

The Rorschach indices found by Cowen and Thompson (1951) and corroborated by Fabrikant (1954) will be used as the criterion measure. In past studies Rorschach indices of rigidity have been established and compared with motor, cognitive, projective and perceptual tests of rigidity. It is the purpose here to compare these indices with an inventory measure, the SDI.

CHAPTER II

METHODOLOGY AND PROCEDURE

Experimental Sample

The Self-Description Inventory (SDI) was administered
to 94 subjects, all of whom were grade 11 high school girls
attending a separate school. Five subjects who answered
more than five items positively on the lie scale were elim-
inated from the original sample. From the remaining 89 sub-
jects the two experimental groups were drawn. Fourteen sub-
jects who attained the highest scores on the SDI were select-
ed as the rigid group. The nonrigid group consisted of the
fourteen subjects who attained the lowest scores on the SDI.
The two groups were considered to be homogeneous with
respect to age (the age range was from 16 years to 17 years),
sex and academic level.

Psychometric Instruments
The Self-Description Inventory (SDI)

The Self-Description Inventory (SDI) is a theoreti-
cally based inventory of manifest rigidity. The inventory,
developed by Bernard Braen, is based on Kurt Lewin's rigid-
ity construct. According to this construct the personality
structure and the psychological environment is conceptually
represented as divided into regions and systems. Rigidity
is defined as the impermeability of the regional boundaries

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which prevents communication between the regions. Braen postulated that if the particular boundaries of the inner-personal regions are rigid (relatively impermeable) then the particular boundaries in the psychological environment would be rigid (difficult to change) for that person.

From the definition of rigidity, and the postulate developed from it, Braen inferred four theoretical statements regarding personality rigidity and the behavioral manifestations related to each statement, viz.:

1. The more rigid the person, the slower he is to change his goals. Variation in persistence, endurance, consistency, and fixation were inferred to be the behavioral manifestations of this statement. These traits are measured by the Homogeneity-Heterogeneity response set included in the test.

2. The psychological environment of the rigid person is more stable than that of the nonrigid. Individual differences in organization, coordination, and coherence were considered to be the related behaviors. The Incoherent-Coherent response set found in the inventory measures these traits.

3. The more rigid the person, the slower and more deliberate are his actions. The behaviors related to this statement were inferred to be variations in inhibition, reflection, hesitation and impulsivity. These traits are measured by the Deliberation-Impulsivity response set.

4. The rigid person is more objective than the non-rigid. Variations in time perspectives and objectivity-subjectivity were inferred to represent this statement. The response set in the inventory is labeled Externalization - Internalization.

Manifest rigidity on the SDI is defined as the score obtained on the test; the higher the score, the greater the degree of rigidity.

The test consists of 49 true and false items plus a lie scale taken from the Minnesota Multiphasic Personality Inventory (MMPI). The items were drawn from the author's imagination, the MMPI, and other tests. They were worded so that they would have a particular appeal to college students. Two criteria for item selection were met by the final 49 items, viz.:

1. The correlation coefficient between each item and the total score must meet the test of significance at the .20 level or better.

2. Each item must be answered in the keyed direction by between 25 and 75 per cent of the subjects.

Two separate item analyses revealed that the inventory possesses internal consistency. No sex differences on the test were found by the critical ratio method.

Construct validity was established by comparing the inventory with two tests, viz.: Edward's Personal Preference Scale (PPS), and the Consistency Scale (CS) which is

embedded in the PPS.

The PPS measures six manifest needs. Scores on needs of endurance, dominance and deference were thought to be indicative of rigidity according to the Lewinian construct. Scores on needs of autonomy, succorance, and aggression were considered to be indicative of flexibility. Manifest rigidity on the PPS was defined as the difference score between the two types of needs; the higher the score, the greater the rigidity. A positive correlation of .62 was found between the SDI and the difference score on the PPS.

The Consistency Scale is a measure of response consistency in a choice situation. It was predicted that rigid subjects would be inconsistent in their responses on the CS. Manifest rigidity was defined as a low score on the CS. A negative correlation between the CS and the SDI was predicted. The obtained correlation coefficient was .02. The negative result was attributed to sampling differences, for it was learned that the subjects were "aware" of what the CS was measuring.

A negative correlation was predicted between the CS and the PPS. A correlation coefficient of .11 was obtained. This result was also attributed to sampling differences.

The reliability coefficients evaluated by the odd-even technique for two separate college samples of 50 and 100 were respectively .80 and .86. Reliability coefficient for a high school sample (Braen, 1960b) of 100 students was .62.

Chernets (1963) obtained a reliability figure of .84 by the test-retest method with a sample of 40 high school boys.

The Rorschach Psychodiagnostik

The Rorschach Psychodiagnostik was developed by the Swiss psychiatrist, Herman Rorschach. The test consists of ten figures, one on each of ten cards. It is based on the rationale that the subject's interpretation of the figures is an indication of his personality structure.

Several Rorschach indices have been postulated as indicators of rigidity. This study proposes to use the indicators of rigidity found by Cowen and Thompson (1951 and corroborated by Fabrikant 1954), viz.:

1. A lower total response score (R).

2. A lower organization score (Z).

3. Fewer color determined responses (FC + CF + C).

4. Longer average reaction time (T/R).

5. Longer reaction time on initial responses ($T/_1R$).

6. A narrower range of content categories used.

7. Fewer movement plus color determined responses (M + C).

8. More rejections.

9. Percentage of F+ responses which deviated from an ideal range of 80 to 90 per cent.

Experimental Procedure

The SDI was administered by the writer and a graduate student to 94 subjects in two sessions. After eliminating five subjects whose lie score exceeded the limit accepted by Braen (1960a), a rigid and nonrigid group were chosen by selecting the highest 14 scorers (rigid group) and the lowest 14 scorers (nonrigid group). The total scores on the SDI for the rigid and nonrigid group were found to be significantly different. This may be seen in Table 1.

Table 1

Mean, Standard Deviations and t ratio for the Rigid and Nonrigid Group on the SDI

Group	Mean	S.D.	t
Nonrigid	20.93	2.82	
Rigid	42.00	2.32	13.6***

*** t.001 = 4.31

Individual Rorschachs were administered by the writer to both the rigid and nonrigid group. The protocols were scored according to the Beck Scoring System (Beck, 1960). Small's Rorschach and Location Manual (1956) and Beck's Form Level Table (1960) were used to determine the form level of

each response. Beck's Associational Content Classification (Beck, 1960) was used for scoring range of content. The Wilson and Blake Conversion Table (Beck, 1960) was used to obtain the weighted organization score.

Scorer Reliability

Scorer reliability was estimated for 50 per cent of the Rorschach protocols. Two graduate students in psychology evaluated seven protocols each. The fourteen records were selected randomly from the total of twenty-eight. The two judges scored only four indices: two color determined scores; one movement score; organization score. The congruity of the author's scores and the judges was estimated by the Pearson r Correlation Test. The correlation coefficients are presented in Table 2.

Table 2

Pearson r Correlations Between the Writer's Scores
and Two Judges' Scores on Rorschach Indices

Indice	r
FC scores	.90
CF scores	.67
Z scores	.71
M scores	.90

These correlations compare favorable with others reported in the literature. In fact, the FC and M correlations are higher than those usually obtained.

Scorer reliability was not estimated on the reaction time and total number of response indices since the scores for these indices are a matter of frequency count. Nor was it estimated for the percentage of $F+$ responses or content range since these indices were scored according to the normative tables mentioned on page 20.

Statistical Design

Since the purpose of this research is to determine whether the SDI is a reliable predictor of rigidity using Rorschach indices as the criterion, the main analysis will be a type II analysis of variance with replications. In other words, this analysis will indicate whether the scores of the rigid and nonrigid group on the Rorschach indices are significantly different. Further, this analysis will compare the score profiles of the rigid and nonrigid group. A simple analysis of variance for each index will also be computed to determine specific differences between the group profiles should an over-all significant difference between group profiles be found. A chi square technique will be used to evaluate the ninth index, which is not included in the main analysis.

In the subsidiary analyses the chi square technique

will be used to compare the rigid and nonrigid group on responses to card I and card II of the Rorschach. Further, t tests will be computed to evaluate the rigid and nonrigid group on Fisher's Scale of Rigidity for the Rorschach.

CHAPTER III

PRESENTATION AND ANALYSIS OF RESULTS

The present study investigated the ability of the SDI to differentiate rigid from nonrigid subjects using certain Rorschach indices as the criterion. The results of the study will be discussed in two sections. The first section deals with the main analysis, a type II analysis of variance. A simple analysis of variance for each index is also discussed.

The second section is concerned with the subsidiary analyses. A comparison of the rigid and nonrigid group on responses to card I and card II of the Rorschach is presented. Next is a comparison of the rigid and nonrigid group on Fisher's Scale of Rigidity as evaluated by two t tests.

Main Analysis

The Rorschach protocols were evaluated by a parametric test of significance since the score data appeared to be normally distributed. Seven of the nine Rorschach indices were analyzed by a type II analysis of variance with replications. No rejections were made by the rigid or nonrigid groups; hence, the eight index, the number of rejections, could not be tested. The ninth index, the percentage of $\underline{F+}$ responses, was evaluated by the Chi Square Technique.

As shown in Table 3, the mean difference between the rigid and nonrigid group was not significant. The difference between Rorschach indices was significant as expected, since each index is a different measure. A significant difference between the group profiles was found at the .001 level of confidence.

Table 3

Analysis of Variance of Seven Rorschach Indices for Rigid and Nonrigid Group

Source	Sums of Squares	df	Variance Estimate	F
Difference between groups	1,586.31	1	1,586.31	1.54
Difference between individuals	26,656.40	26	1,025.20	
Difference between Rorschach Indices	46,574.69	6	7,762.44	32.70***
Difference between Group Profiles	5,613.67	6	935.81	3.94***
Remainder	37,016.92	156	237.28	
Total	117,447.99	195	602.29	

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 * F.05 = 2.09
*** F.001 = 3.74
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Figure 1 on page 25 shows graphically the group profiles on the seven indices. As may be seen there is a
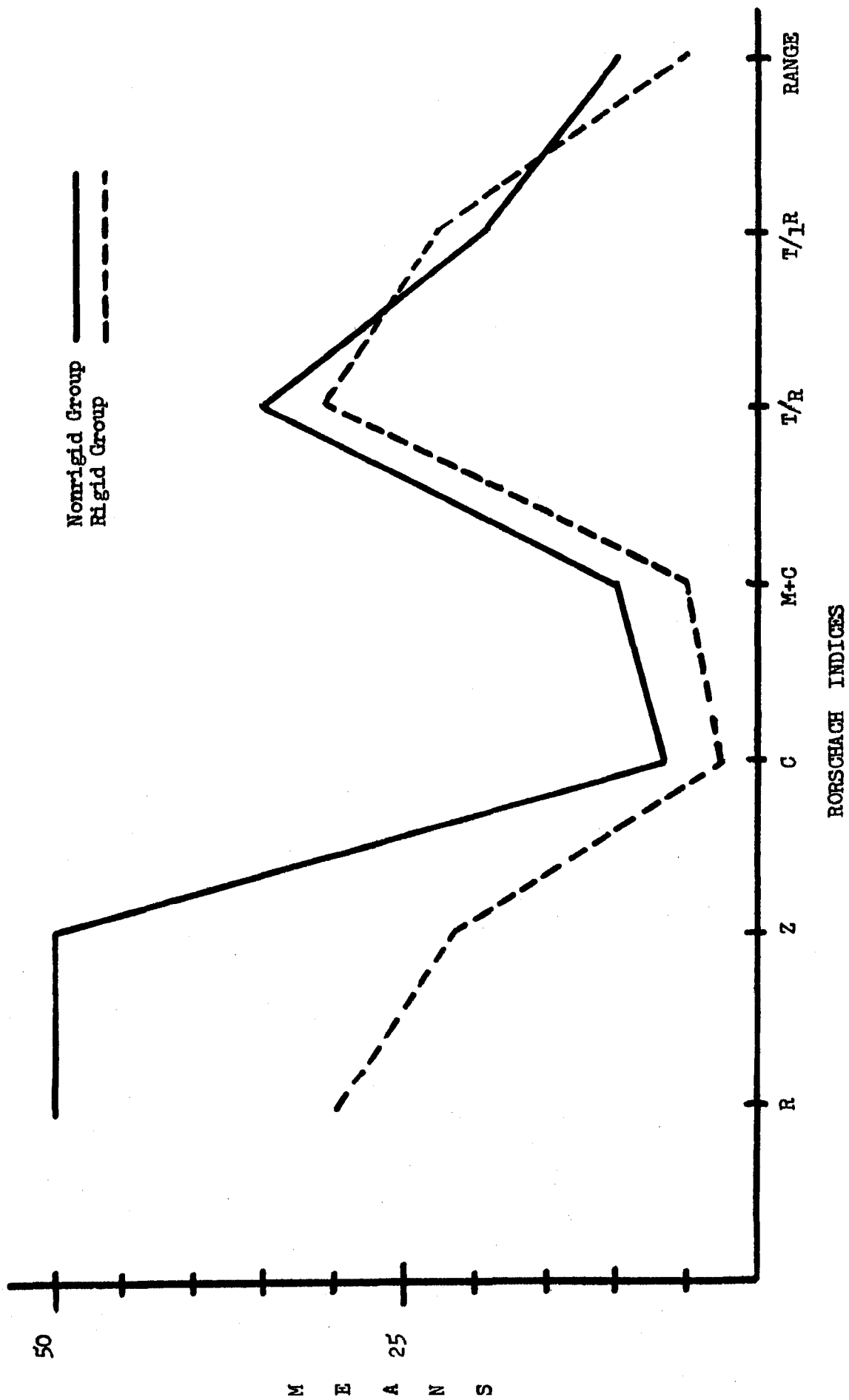
Figure 1. Mean profiles for the Rigid and Nonrigid group on seven Rorschach Indices.

notable difference between the rigid and nonrigid group on the total number of responses and organization scores. The means for the other indices are in the expected direction, except on the average reaction time factor. A higher average reaction time score was expected for the rigid group. The obtained score was two points lower than that of the nonrigid group.

The significant difference between group profiles was investigated by comparing the rigid and nonrigid group on every index by means of a simple analysis of variance. Seven analyses of variance were thus computed. Three of the seven analyses yielded significant results. The rigid and nonrigid group were found to be significantly different on total number of responses (Table 4), organization score (Table 5), and content range (Table 6).

Table 4

Analysis of Variance for Total Number of
Responses for Rigid and Nonrigid Group

Source	Sums of Squares	df	Estimate Variance	F
Between	5,729	1	5,729.0	
Within	21,107	26	811.8	7.06*

*F.05 = 4.22
**F.01 = 7.22

Table 5

Analysis of Variance for Organization
Score for Rigid and Nonrigid Group

Source	Sums of Squares	df	Estimate Variance	F
Between	39,445	1	39,445.0	
Within	24,127	26	927.9	42.5***

***F.001 = 13.74

Table 6

Analysis of Variance for Content
Range for Rigid and Nonrigid Group

Source	Sums of Squares	df	Estimate Variance	F
Between	124.3	1	124.3	
Within	621.6	26	23.5	5.20*

*F.05 = 4.22
**F.01 = 7.22

Some authors, e.g. Cronbach (1949) maintain that scores
on the individual indices may be affected by the total number

of responses given on the test. This would mean that the
above differences in organization score and content range
may be suspect. It should be pointed out, however, that the
obtained difference in organization score is much greater
than the reported difference for total number of responses.
Also, the indicated difference in content range is as great
as the difference in total number of responses. This sug-
gests that the differences indicated are reliable.

As mentioned previously the chi square technique was
used to compare the rigid and nonrigid group on percentage
of F+ responses which deviated from an ideal range of 80-90
per cent. No significant difference was found. The compar-
ison yielded a chi square value of 1.92 which for one degree
of freedom has a probability value of approximately 0.15.

Subsidiary Analyses

Part 1

Cronbach (1949) and Fiske (1953) contend that the in-
fluence of the total number of responses on individual scores
should be partialled out before valid conclusions can be
drawn from the Rorschach data. Cronbach (1949) suggested
one method of doing this is by scoring only a fixed number
of responses on all protocols. This procedure was found to
be useful by Werner (1959). It was decided therefore to
utilize this technique by comparing the rigid and nonrigid
group on responses to card I and card II of the Rorschach.

On card I of the Rorschach only five of the original

nine indices are represented. Table 7 presents the Chi Square values for the five indices for the rigid and nonrigid group. As indicated in Table 7, a significant difference was found in the total number of responses given on card I. No other significant differences were found.

Table 7

Chi Square Values for Five Rorschach Indices found on Card I for Rigid and Nonrigid Group

Indices	x^2
Number of responses	7.0**
Organization scores	0.1
Movement scores	1.0
Initial Reaction Time	0.0
Content Range	2.2

**p.01 = 6.63

Six of the original nine indices are represented on card II. As shown in Table 8 on page 30, no significant differences were found between the rigid and nonrigid group on these six indices.

Table 8

Chi Square Values for Six Rorschach Indices
found on Card II for Rigid and Nonrigid Group

Indices	x^2
Number of total responses	2.2
Organization scores	0.1
Movement scores	0.1
Initial reaction time	2.2
Content range	3.5
Color determined scores	1.4

* P.05 = 3.84

Part 2

The Fisher Scale of Rigidity for the Rorschach (Fisher,
1950) was used as a final technique for comparing the rigid
and nonrigid group. The scale is a measure of rigidity on
the Rorschach in terms of the subject's pattern of scores,
rather than on individual indices. Fisher selected scores
which clinically are interpreted as indicators of rigidity.
The scores were arranged in patterns indicating degrees of
rigidity. The scale consists of various weights which are
assigned to the different score patterns. The greater the
number of weights assigned, the higher the degree of rigidity

on the scale. A sample of the scale is presented in Appendix A.

As may be seen in Table 9, no significant difference was found between the rigid and nonrigid groups on the Fisher Scale.

Table 9

Mean, Standard Deviation and t ratio for Fisher Scale of Rigidity for Rigid and Nonrigid Group

Group	Mean	S.D.	t
Rigid	21.29	16.30	
Nonrigid	13.93	6.63	1.51

*t.05 = 2.47

The results of a t test are obscured when the data contain extreme scores. One subject in the rigid group whose scores were comparatively extreme was dropped from the sample. A second t test was then computed and no significant difference was found. Table 10 on page 32 presents these results.

Table 10

Mean, Standard Deviation and t ratio for Fisher Scale of Rigidity for Rigid and Nonrigid Group (Select Sample)

Group	Mean	S.D.	t
Rigid	18.10	10.40	
Nonrigid	13.93	6.63	1.69

*t.01 = 2.47

In summary, the findings of the main analysis revealed significant differences between Rorschach indices and the group profiles. While the former was expected, the significant difference between group profiles is impressive. No statistically significant difference was found between the means of the rigid and nonrigid group. The evaluation of the Rorschach indices by means of simple analyses of variance revealed significant differences between the rigid and nonrigid group on three Rorschach indices, viz.: total number of responses, organization score and content range. The remaining indices were not found to be significantly differentiating.

In the subsidiary analyses a significant difference between the rigid and nonrigid group was reported for the total number of responses given on card I. No significant

difference between the rigid and nonrigid group was reported for card II. Finally, an evaluation of the Rorschach protocols according to the Fisher Scale of Rigidity yielded no significant difference between the rigid and nonrigid group.

CHAPTER IV

DISCUSSION OF RESULTS

The present research investigated the ability of the SDI to differentiate rigid from nonrigid subjects. Certain Rorschach indices were used as the criterion. In this chapter the findings of the main analysis will be discussed, followed by a discussion of the subsidiary results.

Main Analysis

The hypothesis that the SDI would significantly differentiate rigid from nonrigid subjects was confirmed. As reported in Table 3, the rigid and nonrigid group, classified according to the SDI, obtained a significantly different pattern of scores on seven Rorschach indices. This finding extends the investigation on the concept of rigidity in that for the first time an inventory measure has successfully predicted rigid from nonrigid subjects on the Rorschach. In previous studies, inventory measures have been used as predictors of rigidity on cognitive tests (Rokeach, 1948); concept formation tasks (Wesley, 1953); political attitude scale (Meresko, 1954); and perceptual tasks (Chernets, 1963; Fehr & Smith, 1960). This finding represents also further validation evidence for the Braen Self-Description Inventory.

No significant difference was found between the means

of the rigid and nonrigid group as indicated in Table 3.
This indicates that the SDI differentiated the rigid from
nonrigid subjects in terms of their score patterns, rather
than according to their mean score for the seven indices.
This finding is in keeping with the generally accepted meth-
od of interpretating Rorschach data according to score
patterns.

The specific differences between the group profiles
was investigated by means of a simple analysis of variance
for each index. As reported in Tables 4, 5, and 6, the
rigid group obtained a statistically significant lower score
on total number of responses, organization score and content
range.

The first of these indices, the lower number of re-
sponses for the rigid group, indicates lower productivity
and restrictiveness according to Beck (1960, p. 212).
Tolor (1950) and Johnson and Stern (1957) also found that
rigid subjects were significantly differentiated by a lower
number of responses on the Rorschach. In his investigation
of the SDI as a predictor of rigidity, Chernets (1963) found
that rigid subjects gave significantly fewer number of re-
sponses in their interpretation of TAT Cards. The result
obtained for this index confirms the findings of the pre-
vious investigators and indicates that the interpretation
given above is an acceptable one.

The second statistically significant result, the lower

organization score for the rigid group, is interpreted as an inability to perceive relationships in the blots (Beck, 1960, p. 46). The organization score was developed by Beck (1960) to measure organizational processes which were not reflected in the W score. The organization score is assigned when the subject perceives a relationship between two or more parts of the blot, and the meaning assigned to the blot obtains from this relationship. The statistically significant lower organization score obtained by the rigid group seems to indicate therefore an inability to integrate precepts, to perceive relationships in the unstructured stimuli. In his investigation of the Lewinian rigidity construct, Kounin (1941) also found that rigid subjects manifested less organizational ability than nonrigids. His findings revealed that the more rigid the subject:

1. The more likely is he to structure a new field which is perceptually ambiguous into a relatively large number of separate independent regions (achieves a less integrated structure).

2. The less easily he can perform a task which requires that he restructure a given field.

It would seem that the Lewinian Rigidity Construct upon which Kounin (1941) based his experiment and upon which the SDI is based is a useful construct for differentiating rigids from nonrigids according to organizational ability.

The third significant result, the narrower content range for the rigid group, has been accepted as indicating

a more restricted range of interests (Beck, 1960, p. 221).
This result is in agreement with the findings of Eiduson
(1950) and Becker (1954) who found that rigid subjects were
characterized by a restricted content range.

The result for the M+C index was in the expected direc-
tion, but not statistically significant. Tolor (1953) also
found that this index did not differentiate rigid subjects.

Similarly, the total number of color responses did not
prove to be significantly differentiating. This result is
contrary to the findings of Reichard (1949) who found that
rigid, ethnocentric subjects gave significantly fewer color
determined responses. The inconclusive results for the M+C
and C indices may be explained by the lower scorer reliabil-
ity for the CF scores obtained in this study. In other
words, the scoring for these indices may have introduced a
source of error which would mask any significant results if
there were any.

The result for the average reaction time index was
nonsignificant. Instead of obtaining a higher score as
expected, the rigid group obtained a lower score. Bova
(1958) found that a higher average reaction time score was
positively related to rigidity measured by an autokinetic
task. Johnson and Stern (1958) found a positive relation
between this index and rigidity measured by a photic stimu-
lation task. It should be pointed out that in both of these
studies the average reaction time index was compared with

performance on a perceptual task. In this study the index
was compared with performance on a pencil and paper inven-
tory. This may explain the opposite, though not statis-
tically significant, result found in this study.

The percentage of $\underline{F+}$ responses that deviated from an
ideal range of 80-90 per cent and the initial reaction time
index was not statistically significant.

In summary, the rigid group obtained a significantly
lower score on three Rorschach indices, viz.: total number
of responses, organization score and content range. The
SDI then, may be said to measure a type of rigidity which is
characterized by restrictiveness, inability to organize and
a narrow range of interests.

Subsidiary Analyses

Part 1

The Rorschach protocols of the rigid and nonrigid
group were evaluated again, the total number of responses
held constant for this analysis. The reason for this
emerges from the statistical design proposed by Cronbach
(1949) who maintained that the individual scoring categories
are affected by the total number of responses. Thus, the
rigid and nonrigid group were compared on responses to card
I and card II of the Rorschach. As reported in Table 7, one
statistically significant index was found on card I, viz.:
total number of responses. This result confirmed the find-
ing in the main analysis and is interpreted in the same way.

As shown in Table 8, no differentiating indices were found on card II. The fact that the total number of responses was significant on card I and not on card II may be explained by "color shock." Card II is the first colored card presented to the subject. It sometimes happens that the emotional reaction to seeing color reduces the total number of responses given on the card (Beck, 1960, p. 111). This is a possible explanation for the statistically non-significant difference in total responses given on card II.

Part 2

The subsidiary analysis applied the design Fisher (1950) used. One purpose here was to employ a new approach with the hope that further differences between the groups would reveal themselves. No significant difference was found between the rigid and nonrigid group using the Fisher Scale of Rigidity. Statistically nonsignificant results were also found by Bova (1953) and Applezweig (1955) in their investigation with the Fisher Scale. Whatever elements of the personality structure the Fisher Scale is measuring, it does not seem that the SDI successfully distinguishes them in this study.

SUMMARY AND CONCLUSIONS

The present research investigated the ability of a comparatively new rigidity inventory, the Braen Self-Description Inventory (SDI), as a predictor of rigidity. Certain Rorschach indices were utilized as the criterion.

A statistically significant difference between the group profiles of the rigid and nonrigid group was found which confirmed the hypotheses that the SDI is a successful predictor of rigidity. An investigation of the specific differences between group profiles revealed that the rigid and nonrigid group were significantly different on three Rorschach indices, viz., total number of responses, organization score and content range. It was suggested that the SDI measures a rigidity which is characterized by low productivity, inability to organize and a narrow range of interests.

Two subsidiary analyses were also computed. In the first, the Rorschach data was evaluated with the total number of responses held constant. One statistically differentiating index was found, viz.: total number of responses given on card I. The result was interpreted as indicating a lower productivity for the rigid group. This finding was also established in the main analysis.

The second subsidiary analysis, which consisted of an

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evaluation of the Rorschach data according to Fisher's Scale of Rigidity, yielded no significant result. This, also, was found to be the case when other investigators used this scale.

In summary, this study extended the investigation on the concept of rigidity in that for the first time an inventory measure of rigidity successfully predicted rigid from nonrigid subjects on the Rorschach.

APPENDIX B

THE FECHNER SCALE OF PRIORITY FOR THE FORGOTTEN

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SCORING FOR RORSCHACH RIGIDITY

Each of the weights below is a penalty for what is considered to be excess rigidity or restrictiveness. The larger the final summation of weights, the greater is the implied rigidity.

F per cent (F%)

(1) If the number of responses is 22 or fewer—
(a) An F% of 55-60 gives a score of 3.
(b) An F% of 61-70 gives a score of 4.
(c) An F% of 71-80 gives a score of 6.
(d) An F% of 81-90 gives a score of 8.
(e) An F% of 91-100 gives a score of 11.
(2) If the number of responses is over 22—
(a) An F% of 55-60 gives a score of 4.
(b) An F% of 61-70 gives a score of 5.
(c) An F% of 71-80 gives a score of 7.
(d) An F% of 81-90 gives a score of 9.
(e) An F% of 91-100 gives a score of 12.

Number of Responses (R)

(1) If the number of responses lies between 0 and 15, inclusive, the score is 9.
(2) If the number of responses lies between 16 and 20, inclusive, the score is 6.

Percentage of Animal Responses (A)

(1) If the percentage of "animal" responses is 60-70, the score is 6.
(2) If the percentage of "animal" responses is 71-80, the score is 8.
(3) If the percentage of "animal" responses is 81-90, the score is 10.

Form Accuracy (F+)

(1) If the number of responses lies between 15 and 22, inclusive—
(a) And if the F% is at least 40 and not higher than 50—

An F+% of 85-90 gives a score of 5.
An F+% of 91-100 gives a score of 8.
(b) Or if the F% is 51 or higher—
An F+% of 85-90 gives a score of 6.
An F+% of 91-100 gives a score of 9.

If a record contains fewer than fifteen responses only one-half of any given weight applies.

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[1] For three of the cards (I, III, and VIII) a given basic variation or any other variation could earn only one credit. This was done because of the ease with which most subjects worked out interpretations for these cards that concealed rigidity tendencies on more "difficult" cards.

(2) If the number of responses exceeds 22—
(a) And if the F% is at 35 and not higher than 50—
An F+% of 85-90 gives a score of 6.
An F+% of 91-100 gives a score of 10.
(b) Or if the F% is 51 or higher—
An F+% of 85-90 gives a score of 6.
An F+% of 91-100 gives a score of 12.

Card Turning

Less than two responses in which the card is viewed other than in the upright position gives a score of 4.

Color

Less than two FC responses is scored 6. (M.FC is not counted as an FC) .

Whole Responses (W)

(1) If the percentage of W responses is 40-50—
(a) The score is 5 in records where the number of responses is 22 or under.
(b) The score is 6 in records where the number of responses exceed 22.
(2) If the W% is 51-60—
(a) The score is 7 where the number of responses is 22 or less.
(b) The score is 9 where the number of responses is over 22.
(3) If the W% is 61 or over—
(a) The score is 10 where the number of responses is 22 or less.
(b) The score is 12 where the number of responses is over 22.

Small Detail Responses (Dd)

(1) If the Dd% is 18-23—
(a) The score is 3 where the number of responses is under 22.
(b) The score is 4 where the number of responses is over 22.
(2) If the Dd% is 24-30—
(a) The score is 5 where the number of responses is 22 or under.
(b) The score is 6 where the number of responses is over 22.
(3) If the Dd% is 31-40—
(a) The score is 8 where the number of responses is 22 or under.
(b) The score is 9 where the number of responses is over 22.
(4) If the Dd% is 41 or over—

(a) The score is 10 where the number of responses is 22 or under.
(b) The score is 11 where the number of responses is over 22.

Movement Responses (M)

(1) If number of movement responses is less than two the score is 15.
(2) If the number of movement responses is less than one the score is 20.

Content

If four or more responses fall into the same content category (aside from "human" and "animal" responses)—

(a) And i
through 25
(b) And i
through 40
(c) And if
over, the sc

Average 1
If average
(a) 25 thr
(b) 30 thr
(c) Over 4

Less than

number of responses is 1
: is 7.
umber of responses is 26
e is 6.
mber of responses is 41 or

Initial Response (T/IR)

time per initial response is
seconds, the score is 2.
seconds, the score is 5.
s, the score is 7.

Responses (FY)

responses gives a score of 3.

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