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## Personality characteristics of early and late responders to ambiguous stimuli.

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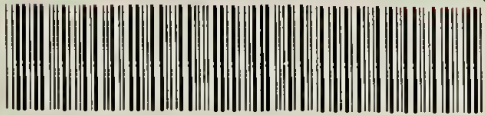
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PERSONALITY CHARACTERISTICS OF EARLY  
AND LATE RESPONDERS TO AMBIGUOUS STIMULI

A Dissertation Presented

By

George Magakis, Jr.

Submitted to the Graduate School of the  
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PERSONALITY CHARACTERISTICS OF EARLY  
AND LATE RESPONDERS TO AMBIGUOUS STIMULI

A Dissertation

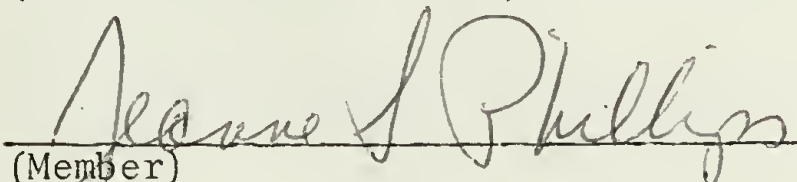
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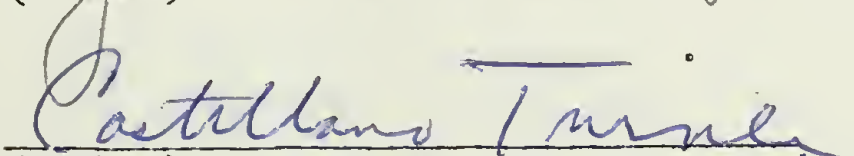
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## TABLE OF CONTENTS

| CHAPTER         | PAGE |
|-----------------|------|
| I. INTRODUCTION | 1    |
| II. METHOD      | 5    |
| III. RESULTS    | 7    |
| IV. DISCUSSION  | 11   |

## LIST OF TABLES

| TABLE |   | PAGE |
|-------|---|------|
| I.    | MEANS AND STANDARD DEVIATIONS OF AGE AND YEAR<br>IN COLLEGE FOR MALES AND FEMALES   | 5    |
| II.   | MEANS AND STANDARD DEVIATIONS OF RECOGNITION<br>LEVEL SCORES, PA SCALE SCORES, A SCALES SCORES,<br>AND SC SCALE SCORES FOR MALES AND FEMALES                          | 7    |
| III.  | PRODUCT-MOMENT CORRELATIONS BETWEEN RECOGNITION<br>LEVEL SCORES AND PA SCALE SCORES, A SCALE<br>SCORES, AND SC SCALE SCORES FOR MALES, FEMALES,<br>AND SEXES COMBINED | 8    |
| IV.   | COMPARISON OF MEAN RECOGNITION LEVEL SCORES FOR<br>Ss DIVIDED INTO UPPER AND LOWER GROUPS ON THE<br>BASIS OF MMPI SCALE SCORES  | 9    |

## ABSTRACT

A perceptual ambiguity task was presented to thirty-six college students (eighteen males and eighteen females). The task was conceived of as indexing a general cognitive trait, namely responding prematurely versus conservatively in an ambiguity situation. The point at which the Ss made their first response was used as an index of the degree to which they tended to structure ambiguous stimuli on the basis of inadequate information. The hypotheses that higher scores on the Paranoid, Anxiety, and Schizophrenia scales of the Minnesota Multiphasic Personality Inventory would be associated with a tendency to respond differentially to ambiguous stimuli were not supported. The lack of support for the Paranoid and Anxiety scales was not in agreement with earlier findings. In addition, no sex differences were found in tendencies to respond to the stimuli.



## CHAPTER I

### INTRODUCTION

The recognition of an object can be conceived of as a process of categorization in which properties of the object (external cues) are used to assign this object to a class. Binder's example (1958) serves to illustrate this point: "An assigned response class or category may be a name like 'orange' if the object is spherical, orange colored, about three inches in diameter, etc." Binder (1955) and Bruner (1957) have conceptualized that a person in the recognition of an object gathers information about that object for the purposes of assigning this object to a class. In the process of arriving at a decision as to what class an object belongs, individuals may differ in the degree of certainty with which they make a decision. Some individuals may allow internal cues to predominate in their cognitive activity and prematurely form a decision (Hilgard, 1951; and Miller, 1951). Other individuals may wait until they sample all of the cues available.

The concept of "intolerance of ambiguity" has been introduced as a possible cognitive style for people who respond early to ambiguous stimuli (Frenkel-Brunswik, 1948). This concept has been defined as "the tendency to resort to black-white solutions, to arrive at premature closure as to valuative aspects, often at the neglect of reality ..." (p. 115). The individual who is intolerant of ambiguity then tends to precipitate judgement both in perception and cognition. Such an individual would more readily assign an object to a class on the basis

of less external cues than a person who is more tolerant. The explanation advanced by Frenkel-Brunswik is that this individual feels acutely insecure in ambiguous situations due to "an underlying emotional conflict between glorification and hostility in the attitude toward parents, sex, and one's social identity ..." (p. 140), and hence tends to structure prematurely. It thus appears that personality factors are tied in with whether an individual will form a decision prematurely in an ambiguous situation as in the case of the individual who is intolerant of ambiguity or whether he will wait and sample more cues before reaching a decision. Further, it appears that responses to ambiguous situations can be conceived of as on a continuum going from "responds prematurely on the basis of little information" to "responds conservatively on the basis of all information available" in which certain personality factors play a role in determining where an individual will fall on such a continuum.

Support for this notion comes from Binder (1955, 1958) who posited that the tendency to make recognition responses to stimuli in which all of the cues are not present is a function of some personality variables. He found higher Paranoid (Pa) scale scores on the Minnesota Multiphasic Personality Inventory (MMPI) associated with a tendency to withhold responses until a relatively low amount of uncertainty was present in his recognition experiment. Subjects with higher Pa scale scores were characterized as sensitive, distrustful, and suspicious. These characteristics, Binder posited, led to a "watch and wait" attitude on the part of the Ss. Ss would only

respond when the available cues left them no doubt or uncertainty. Therefore, Ss with higher Pa scores would tend to fall on the "responds conservatively" end of the continuum.

Binder also found higher scores on the Schizophrenic (Sc) scale of the MMPI to be associated with a tendency to respond late to ambiguous stimuli. This was not one of his hypotheses, and he stated that this result should be cross-validated. However, since higher Sc scale scorers are characterized as imaginative, mischievous, and sharp-witted (Dahlstrom and Welsh, 1965), these characteristics should be linked with a tendency to respond early rather than as Binder's correlation ( $r = .38$ ,  $p < .05$ ) would indicate. Thus, a hypothesis that requires investigation is whether higher Sc scale scores would be associated with a tendency to respond at lower or higher levels of certainty than lower Sc scale scores.

Another important personality variable investigated in relation to responses to ambiguous stimuli has been anxiety (Smock, 1955, 1958; and Moffitt and Stagner, 1956). Smock (1955) has found a tendency for Ss under "stress" conditions to respond at lower levels of certainty than Ss under "security" conditions. He concluded that "... anxious individuals tend to resolve ambiguous or unstable situations through premature structuring and closure" (p. 181). In a later study, Smock (1958) again found this trend in anxious individuals. In addition, the findings of Moffitt and Stagner are in agreement with those of Smock. They administered five perceptual tasks to Ss differentiated on the basis of high and low situational anxiety (threatening versus non-



threatening instructions) and high and low manifest anxiety (Taylor Manifest Anxiety Scale). They concluded on the basis of their results that both situational and manifest anxiety is associated with a diminished sampling of cues necessary to reach a decision. On the basis of these results, it was hypothesized that a relation between responses to ambiguity and the Anxiety (A) scale (Welsh, 1954) on the MMPI should exist due to its overlap with the Taylor scale. The final hypothesis tested was that higher A scale scorers respond at lower levels of certainty than lower A scale scorers.

Finally, it was felt that possible sex differences might emerge in the present study due to differences in role behavior e.g. males in our culture seem to be more impulsive, daring, and less anxious than females who are characterized as being conservative and cautious. Moffitt and Stagner did find a significant interaction between sex and anxiety in their study with females showing more anxiety in the "threat instructions" situation. Therefore, females were expected to fall on the "responds conservatively" end of the continuum, while males were expected to fall toward the "responds prematurely" end.

## CHAPTER II

## METHOD

Subjects. A group of thirty-six students (eighteen males and eighteen females) at Mansfield State College served as Ss.

Means and standard deviations for age and year in college were computed for males and females and are presented in Table 1.

Table 1

Means and Standard Deviations  
of Age and Year in College  
for Males and Females

| Sex             | Age   | Year |
|-----------------|-------|------|
| Male (N = 18)   |       |      |
| Mean            | 18.72 | 1.94 |
| S. D.           | 1.88  | .86  |
| Female (N = 18) |       |      |
| Mean            | 19.44 | 1.94 |
| S. D.           | 3.56  | .68  |

Using t-tests, no significant differences were revealed between males and females on age and year in college, thus eliminating these as potential confounding factors.

Materials. A series of 35 mm slides of eight stimuli in which line drawings of simple objects e.g. trees, telephone, dog, etc. were sequentially blurred until they became unrecognizable were presented to each S on a screen ten feet from where S was sitting. The order of

presentation of slides was from most blurred to least blurred for a given series.

The same slides as used by Cashdan (1965) were used in the present study with one exception: only eight of the original nine stimuli were used. This was so for the ninth series of slides were used to try to develop a rigidity measure i.e. how willing S is to change his mind in the face of additional information. However, this attempt failed and the ninth series of slides was not used in the experiment.

There were twelve slides for each stimulus. The first slide of the series was the most blurred with each following slide becoming less blurred up until the last slide which was completely focused.

Procedure. All Ss were tested individually. Each S was placed in a chair ten feet from the screen and read the following instructions for the eight series of slides:

I am going to show you a series of slides on the screen. Each slide will be shown for a period of ten seconds. At first the object shown will be very blurred, but it will get sharper and sharper as we go along. As soon as you have any idea of what the object is, tell me. Then, we will repeat the procedure with the next object. Do you have any questions?

Once the person guessed, the series being shown was discontinued and the next series begun. A S's score for responding to the stimuli in the eight series was obtained by averaging his scores for the eight series. This was called the "recognition level score".

In the last part of the experiment, each S was administered the MMPI. Each protocol was scored for the Paranoid (Pa), Schizophrenic (Sc), and Anxiety (A) scales.



## CHAPTER III

## RESULTS

The mean recognition level scores (point on a twelve-step scale at which S gives a noun response), Pa scores, Sc scores, and A scores and their standard deviations for males and females are presented in Table 2.

Table 2

Means and Standard Deviations of Recognition  
Level Scores, Pa Scale Scores,  
A Scale Scores, and Sc Scale  
Scores for Males and Females

| Sex    | Recognition<br>level | Pa scale | A scale | Sc scale |
|--------|----------------------|----------|---------|----------|
| Male   |                      |          |         |          |
| Mean   | 6.88                 | 51.55    | 52.66   | 59.61    |
| S. D.  | 2.36                 | 10.68    | 10.17   | 15.66    |
| Female |                      |          |         |          |
| Mean   | 8.23                 | 53.11    | 49.66   | 52.88    |
| S. D.  | 1.76                 | 7.32     | 7.81    | 5.30     |
| t      | 1.90                 | .50      | .97     | 1.69     |

All mean differences are non-significant.

No significant differences were found between the males and females on each of the experimental measures.

The product-moment correlations between recognition level scores and each of the MMPI scales used are presented in Table 3 for males,

females, and the sexes combined. As can be seen, all correlations were non-significant.

Table 3  
Product-Moment Correlations Between Recognition Level  
Scores and Pa Scale Scores, A Scale Scores, and  
Sc Scale Scores for Males and Females

|          | Pa scale | A scale | Sc scale |
|----------|----------|---------|----------|
| Males    | .12      | -.19    | .07      |
| Females  | -.04     | .32*    | -.20     |
| Combined | .09      | -.05    | -.07     |

\*p > .05

For more sensitive tests of hypotheses, it was desirable to compare the mean recognition level score of Ss with higher MMPI scores with the mean recognition level scores of Ss with lower MMPI scores. Therefore, all Ss were ranked on the basis of their Pa, A, and Sc score distributions separately and the mean score of those falling in the upper third of each distribution was compared with the mean recognition level score of those falling in the lower third of each distribution. Table 4 contains the means and standard deviations of the recognition level scores for these distributions as well as the t-value resulting from a comparison of the means. No significant differences were found.

Table 4

Comparison of Mean Recognition Level Scores for  
Ss Divided into Upper and Lower Groups  
 on the Basis of MMPI Scale Scores

| Mean Recognition Level Scores |                         |                         |         |
|-------------------------------|-------------------------|-------------------------|---------|
| Scale                         | Upper Third<br>(N = 12) | Lower Third<br>(N = 12) | t value |
| Pa                            |                         |                         |         |
| Mean                          | 7.52                    | 6.84                    | .68     |
| S. D.                         | 2.28                    | 2.36                    |         |
| A                             |                         |                         |         |
| Mean                          | 7.62                    | 7.49                    | .14     |
| S. D.                         | 2.42                    | 1.95                    |         |
| Sc                            |                         |                         |         |
| Mean                          | 6.77                    | 7.45                    | .71     |
| S. D.                         | 1.95                    | 2.50                    |         |

All t values were non-significant.

The correlations between the recognition level scores and the Pa scores for males, females, and sexes combined do not support the hypothesis relating to recognition response level. A comparison of the means for higher and lower Pa scorers in Table 4 failed to support the hypothesis that higher Pa scorers would respond at higher levels of certainty than lower Pa scorers.

A comparison of the means for the Sc scores in Table 4 did not show that higher Sc scorers would respond at lower or higher levels of certainty than lower Sc scorers. Nor did the correlations in Table 3 reveal any tendencies.



A comparison of the means in Table 4 for the A scale did not reveal that higher A scorers respond at lower levels of certainty than lower A scorers. Nor did the correlations in Table 3 reveal the expected negative correlation (that for the females was in the opposite direction).

## CHAPTER IV

## DISCUSSION

In the present study, no significant differences were found between the personality variables examined and an S's tendency to respond either early or late to the ambiguity task used. Further no sex differences emerged.

Higher scores on the Sc scale were not associated with a tendency to respond either prematurely or conservatively. In this case, it appears that the imaginative, perhaps whimsical behavior that some people suggest is associated with high Sc scale scores bears no relation to S's response to ambiguity. This was borne out by a lack of any significant correlations (Table 3). Nor do these results support Binder's finding of a positive correlation between Sc scores and S's tendency to respond late. Further the "higher Sc score group" did not differ significantly on the task from the "lower Sc score group".

Ss with higher Pa scores in this study did not have a tendency to hesitate before responding. This was borne out by the lack of any significant correlation between the Pa scores and the recognition response scores (Table 3). Further a comparison of the means for the "higher Pa score group" yielded no significant differences. This finding is not in accord with Binder's (1958) finding of a significant correlation of .49 between the Pa scores and his recognition task for the Ss in his experimental group.

An important difference between the present study and Binder's may have resided in the nature of the experimental tasks used. Binder used a task in which he first familiarized Ss with the stimuli used in a paired-associates learning task. The stimuli were all simple line drawings of objects such as a golf flag, seaway penant, sail, etc. to which S had to learn to appropriate name because of the simplicity of the drawings. Therefore, S was limited in the possible number of responses he could make. Certain lines were common to all drawings of the objects. This was important for Ss were presented with one line that was common to all objects and then another. As more and more lines were added, the possible number of objects that the lines represented were reduced. In the present study, none of the drawings had anything in common i.e. the dog slides have little in common with the telephone slides. Furthermore, they were more complex in that they had a greater degree of detail drawn in. Ss responses to the stimuli were not limited to a restricted set of responses. Therefore, it appears that the differences between tasks may account for the failure to replicate.

Although the task used in this study differed from those used in Smocks' (1955, 1958) and Moffitt and Stagner's (1956), more congruences exist between this study and theirs than between this study and Binder's. Nevertheless, no support was found to confirm the earlier findings of these studies. The failure to replicate, therefore, is even more puzzling.

Ss in the present study with higher A scores showed no tendency to respond earlier than Ss with lower A scores. This was shown in a



comparison of the differences between means for the two groups of Ss which did not approach significance (Table 4). Further there were no significant correlations between the factors studied. The only correlation that approached significance was for the females (Table 3). This finding is in disagreement with Moffitt and Stagner who found that anxious females under threatening instructions showed maximum closure. Given the general disconfirmatory results of the study, one is hard-pressed to make much of this significant correlation.

The greatest support for a relation between anxiety and a tendency to respond prematurely in the study of Moffitt and Stagner is found under the conditions of "induced" or aroused anxiety i.e. threatening instructions. This relation also receives support in Smocks' studies in which different perceptual tasks were used. However, in Moffitt and Stagner's study when Ss' anxiety states were measured in an unaroused setting, a relation between manifest anxiety and a tendency to respond prematurely received little support. Moffitt and Stagner found a trend in the appropriate direction between manifest anxiety and premature closure, but this trend was not significant. In the present study, no support was found for a relation between manifest anxiety and a tendency to respond prematurely. It thus appears that performance on a task may be more sensitive to induced anxiety than to measured manifest anxiety.

The discussion in the above paragraph suggests that in general performance on such tasks may be more sensitive to stimulated arousal conditions rather than to manifest test personality variables. Since

Draguns (1963) and Cashdan (1965) have demonstrated the sensitivity of the task used in this study, differences between Binder's findings and those in the present study may not only be due to task differences, but to the means by which personality variables are measured (induced versus tested). Perhaps, if Ss could be made to feel situationally distrustful and suspicious rather than dimensionalizing this via, say, MMPI Pa scores a relation might emerge between these personality characteristics and a tendency to respond early.

In conclusion, this study suggests that a possible relation might yet exist between certain personality characteristics and responses to ambiguity; no relation was found, however, in this study between scales which seek to measure these characteristics and responses to ambiguity. The clarification of this, of course, awaits further research.

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