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CHANGING PERCEPTIONS ON THE RFT BY CONDITIONING SUBJECTS
TO RELIEVE DISSONANCE AND/OR ESCAPE FROM
THE ANXIETY IN A NEW MANNER

by

Harold Weinberg

A DISSERTATION

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Under the Supervision of Professor Clayton Gerken
and Associate Professor Jay M. Toews

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TITLE

Changing Perceptions on the RFT by Conditioning Subjects to

Relieve Dissonance and/or Escape from the Anxiety in a New Manner

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PREVIEW

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I would like to dedicate this dissertation to my family.

H.J.W.

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION	1
History.. . . .	1
Stability of Perceptions.	5
II. REVIEW OF RELEVANT RESEARCH AND THEORY	8
Cognitive Dissonance.	11
Reinforcement Theory.	13
Hypotheses.	14
Military Significance	15
III. METHODOLOGY.	16
Subjects.	16
Apparatus	16
Rod and Frame Test Apparatus and Room.	16
Conditioning Room and Apparatus.	17
Social Influence.	18
Procedure	18
Individual Treatments	20
Total Conditioning Treatment	20
Reversal Treatment	21
Reinforcement-only (No Social Influences) Treatment	21
Social Influence Treatment	21
Test-Retest Treatment.	22
Analysis of Data.	22
IV. RESULTS.	24
V. DISCUSSION	30
Total Conditioning Treatment.	31
Reinforcement Treatment	32
Test-Retest Treatment	33
Social Influence Treatment.	33
Reversal Treatment.	34
Conclusions	36
Implications.	36
Suggestions for Future Research	37
REFERENCES	39

	PAGE
APPENDIX A - Sequence of Trials of Body Position and the Rod and Frame	44
APPENDIX B - Ambiguous Figures	46
APPENDIX C - Stooge Responses	62
APPENDIX D - Instructions Given to the Subjects	76
APPENDIX E - Instructions for Subjects in Total Conditioning and Reversal Treatments	78
APPENDIX F - Instructions for Subjects in the Reinforcement- Only Treatment	80
APPENDIX G - Instructions for Subjects in the Social Influence Treatment	82
APPENDIX H - FD and FI Pre- and Post-Treatment Means	84

PREVIEW

LIST OF TABLES

TABLE	PAGE
1 Analysis of Variance of Results of Treatment Effects on FD-FI Functioning.	25
2 "t" Test Comparing Field Independent Group Mean Response Change and Field Dependent Group Mean Change.	26
3 Subjects' Response Changes During Social Influence Treatment	27
4 Analysis of Variance of Treatment Means	28
5 Post-test Treatment Means	28
6 F Value of Scheffé Comparison of Treatment Means.	29

CHAPTER I

INTRODUCTION

History

The numerous studies published yearly in the journals relating the concept of field dependence to cognitive abilities is a great tribute to Witkin, Lewis, Hertzman, Machover, Maisner, and Wapner (1954), and Witkin, Dyk, Paterson, Goodenough, and Karp (1962). These studies represent one of the most extensive, productive and stimulating research programs within the area of psychology.

Their earlier studies were designed to explore one's perception of the upright. At first, they developed two situational tasks to evaluate an individual's performance. In the first situation, the Body Adjustment Test (BAT), the room and the body were tilted. The subject's task was to adjust his chair to an upright position. The second situation developed was the Rod and Frame Test (RFT). The individual's visual field was eliminated and a substitute field was presented consisting of a luminous rod embedded within the frame. Both the rod and frame were tilted and the subject was to adjust the rod so that it was in the upright position.

In both these situations, subjects were found to vary in their performances. At one extreme were individuals who adjusted their body and the rod in accordance with the tilted frame and the room. At the other extreme were individuals who performed independently of the context produced by these external stimuli. These

individuals, it seems, utilized internal frames of reference in making the adjustments.

A third situation, the Embedded-Figures Test (EFT), was also developed. This was a variant of the Gottschaldt Test. The subject's task here was to locate a simple figure embedded in a complex design. His score was the amount of time taken to discover the simple figure.

In the EFT, perception of the true upright was not present but there was a similarity between the response required here and in responses required in the BFT and RFT. In all three situations, the subject was asked to concern himself with a particular object of perception. The object was contained in a complex field, and the field was structured so as to affect the subject's perception of the object. The results of putting the same subjects through these three situations revealed that they tended to perform in a consistent manner. Their performances were quite stable and were maintained over time.

In the above tasks, it was clear that the basic performance requirement was to separate some stimulus object from the context within which it was contained. Witkin (1948) used the label Field Independent (FI) to refer to performances which reflected one's ability to perceive stimuli apart from the context within which they occurred. He used the term Field Dependent (FD) to refer to performances which reflected one's inability to separate stimuli from the field. Perception was influenced by the field. Witkin did not look at these dimensions in terms of a dichotomy, but rather he

believed that a continuum existed.

The field dependent dimension was shown to be related to many other perceptual situations (Witkin et al., 1962). White (1953) used an auditory embedded test; Axelrod and Cohen (1961) used a tactile embedded figure test with blind subjects. Both investigations found positive correlations of about .75 with measures of field dependence. These findings suggested that field dependence was relevant to perceptions in other modalities.

After gaining initial reinforcement and impetus from the consistent relationships between the field dependent dimension and the different sense modalities, Witkin and associates (1954) decided to relate FD to other cognitive variables. Wapner and Levine (1950) found that FI subjects made higher scores on non-verbal parts of intelligence tests than FD subjects. These results were confirmed by Witkin et al. (1954) who also found that no differences existed in the verbal IQ's of FI and FD subjects. Machover (1954) found that FI and FD subjects differed in their figure drawings. Hariss (1962) found that FI subjects were superior to the FD subjects in solving Dunker-type insight problems. Witkin (1962) also found that individuals reacted consistently in a wide variety of testing situations (Draw-A-Person, Rorschach, TAT, intellectual functioning, memory, reliance on others, etc.).

It therefore seemed that the approach one utilized on the RFT was one instance of a reflection of an individual's approach to adapting to his habitat (see Witkin et al., 1962; Messick, 1961;

Christie and Lindaur, 1963; Linton, 1955; and Wiggins, 1968). From the evidence accumulated, it became evident that the Ss performance on the RFT was related to a broader style of behavior which was exhibited by the individual in his interaction with his environment.

It then seemed that the perceptual designation of FD-FI was too narrow to explain the wide range of consistent behaviors manifested by the individual in his interaction with the environment. If this theory was to survive it had to be modified and extended to account for the wide consistent findings. Gardner (1959) conceived of FD as one component of a broader cognitive style which he called Field Articulation (FA). Gardner described FA as:

The dimension of individual differences with which we are dealing represents at its extreme, contrasting ways of approaching a field whether the field is immediately present or is represented symbolically. It may therefore best be described as an analytical vs. global field approach. What we have been calling Field Dependence is in effect the perceptual component of this more cognitive style.

Witkin adopted this definition of cognitive functioning. The analytical individual is articulated and differentiated, while the global individual is less articulated and less differentiated. The articulated and differentiated individual has the ability to perceive stimuli as discrete from their backgrounds. He can structure a field when it is either disorganized or ambiguous. The global individual does not perceive stimuli as discrete from their backgrounds and cannot structure an ambiguous stimulus field. Therefore, the cognitive differences inferred to exist between FI and FD subjects were, in the broadest sense, the extent to which perceptions were relatively

articulated or relatively global. Thus, it is the tendency towards one of these ways of experiencing or perceiving that seems responsible for the pervasive consistency in the individual's cognitive functioning.

Stability of Perceptions

The results of past investigations seem to indicate that one's performance on the RFT, BFT, EFT, etc., is stable and not a transient means of coping with a particular situation.

Experimental attempts have been made to alter mode of field approach. Franks (1956) found no significant differences in test-retest RFT performances among subjects after they were given barbituates, amphetamines, or placebos. Pollack, Kahn, Karp and Find (1960) found no significant changes in performances of subjects on the RFT after giving tranquilizers, anti-depressants, or convulsive therapy. Kreidman (1959) found no difference in performances on the EFT test given immediately prior to surgery and again five weeks later.

Other investigators have used special training techniques in order to change field of approach. Witkin (1948) attempted to change his subjects' perception of the upright by combining information on spatial orientation with demonstrations and practice in adjusting the chair on the RFT. Witkin felt that training produced some improved spatial orientation but he concluded that it:

. . . rarely altered the subjects' perception of the situation. Its effect was rather to enable him to interpret his perceptual experiences in an intellectual

way and thereby arrive at a more nearly correct estimate of his own position and the position of the field. (p. 32)

It was then suggested that

. . . training does not alter the impressions themselves, but relies on a more intellectual analysis of these impressions. (p. 32)

Weiner (1955) also attempted to train his subjects in spatial orientation in order to alter their perception of the upright on the RFT. He taught his sample of both males and females to use postural experiences in perceiving the upright when the chair in which they were seated was level and tilted. He found no significant improvement in either an experimental or control group when the chair was level. However, he found that training led to significant improvement in the RFT when the chair was tilted. The control group also showed some improvement. Weiner then concluded:

The noted improvements were attended by increased stability of the visual field, and in most cases, represented real changes in the perceptions themselves. Marked individual differences in which training led to improvement in orientation were also noted. (p. 372)

It would seem that both studies resulted in improvement of perception after training on a dependent measure.

Weinberg (1968) in a pilot study divided his subjects into two treatments (Conditioning and Test-Retest). In the Conditioning Treatment, the experimental subjects were exposed to an Asch type paradigm. If they were influenced by the stooges in responding to ambiguous stimuli they were punished by a shock for one-tenth of a second from a 90 volt battery cell with an intensity of two

milliamperes per second. However, if they ignored the influence of the stooges in responding they were rewarded with candy. The experimental subjects were found to be superior in their post-treatment RFT scores.

In summary, the review of these studies suggests that field dependence as measured by perceptual tests which require the handling of an object in an embedded context, represents a pervasive characteristic of the individual which influences one's approach to a wide variety of tasks, e.g., RFT, EFT, autokinetic situation, etc. The review of studies also suggests that one's performance is quite stable and amenable to change only by means of specific training on the dependent measure. The exception to this is Weinberg's finding that performance on the RFT was amenable to change by exposing subjects to an instrumental conditioning treatment in the presence of ambiguous stimuli. The present study will attempt to replicate and elaborate the findings of the pilot study.

PRELIMINARY

CHAPTER II

REVIEW OF RELEVANT RESEARCH AND THEORY

Prior to Weinberg's (1968) pilot study attempts at changing performance on the RFT succeeded only when specific training on the dependent measure occurred. However, Weinberg (1968) demonstrated that performance could be changed by applying response contingent reinforcement. The present study will attempt to replicate the results of the pilot study and to validate the conditioning treatment procedure by using various comparison treatment groups.

Setting the stage for the development of the treatments employed in this study was an interesting hypothesis set forth by Elliot (1961) based on a review of Linton's (1955) study. Linton (1955) found that FD subjects were more influenced by peers than were FI subjects in estimating frequency of autokinetic movement as well as changing their attitudes after reading authoritative articles. Linton, however, concluded that the degree of conformity is specific to the situation in which it occurs. Elliot (1961) suggested that conformity to external frames of references accounted for only part of the variance in field dependency. The conformity which Linton observed was the result of the unstructured nature of the autokinetic situation. Elliot believed that the field dependent person does not always act dependently, but that it may be more accurate to say he reacts with disruption and ineffectiveness in the face of strange or unstructured stimulus configurations. This disruption then leads

to conforming behavior when there is available something obvious to which the individual can conform, like a luminous frame or a confident confederate. Elliot suggested that field dependence includes the tendency to react with affective and intellectual disruption when the subject's situation is marked by unusualness, incongruity, or lack of structure in general.

It is interesting to note that when Elliot described the tendency to conform as resulting from the unstructured and ambiguous situation he seemed to be describing the common variance associated with the RFT, EFT, BAT, autokinetic situation, etc. In all these situations, the FD subject looks for some external frame of reference to reduce the hypothesized affective and intellectual disruptions; thus, when the frame or confident confederate are present, he conforms.

A study seeming to support the notion of an affective disturbance causing greater field dependence is Gross's (1959) study. She found that when a set of a bogus lens (actually clear glass) was introduced, her subjects tended to perceive in a more field dependent manner. This study suggests that field dependence can be increased by making the subjects uncertain about their judgments.

Block's (1957) study also gives indirect evidence from a physiological level. He found that the FD subjects showed a greater reaction on the GSR than did FI subjects in a lie detection situation. Cohen, Silverman and Shmavonian (1959) reported similar results in a replication of Block's study.

Witkin (1962) also reported finding some form of affective disturbance which might suggest a greater degree of anxiety on the

part of the field dependent subject. In an unstructured interview, field dependent subjects were rated as less assured, more tense and more anxious than field independent subjects. Field-dependent subjects also were less sure of their judgments on the RFT (Witkin et al., 1962).

With respect to the RFT situation, Witkin reports:

A minority of subjects, however, encountered great difficulty. Almost without exception, these were individuals who were strongly influenced by the position of the frame Some of these subjects lost their bearings with respect to the true horizontal and vertical so completely that they reported themselves unable to continue the test. . . . Under these conditions of disorientation, determinations of the vertical were arrived at with great difficulty . . . and were made with a feeling of uncertainty on the part of the subject. (Witkin et al., 1962), p. 47)

Witkin also reports the following anecdotal information:

Linton (1952) . . . in leading her blindfold subjects into the autokinetic situation noted differences among them in the ease and comfort with which they moved. One group of subjects she characterized as especially self-confident, their movements approaching normal walking behavior despite being blindfolded. Another group showed an especially fumbling gait, relying on the examiner for support. The first group was significantly more field dependent than the second. (Witkin et al., 1962, p. 168)

Weinberg (1968) in his pilot study also confirmed much of what Witkin described above. In a clinical observation, he found that the FD subjects when led into the testing room were more tense while walking, exhibited greater apprehension and were more physically rigid than were the FI subjects. Many of the FD subjects were also quite defensive about their choice of responses during testing and during the conditioning part of his experiment.

Cognitive Dissonance

The concept of cognitive dissonance may be important in the elaboration and explanation for the tension precipitated by the ambiguous stimulus field. Tension generated by the stimulus field may be the signal for the FI person to rely on his own frame of reference and for the FD person to utilize an external frame of reference. The major structural components of this theory are cognitive elements. Examples of cognitive elements may be attitudes, opinions, feelings, etc.

The basic assumption of cognitive dissonance is that the human organism tries to establish cognitive harmony, consistency or congruity among his opinions, attitudes, feelings, behaviors, etc. The human organism has a drive toward cognitive consonance (Festinger, 1957). Dissonance which is presumed to have motivational characteristics arises when events that occur diverge from the cognitive elements that one expresses, believes, expects, etc. The individual may reduce the tension in various ways. He may attempt to change his own cognitions or the elements in the environment (Festinger, 1957; and Brehm and Cohen, 1961). It would seem that the FD individual restructures his cognitions to relieve the dissonance while the FI subject restructures elements in the environment to relieve his tension.

Festinger and Carlsmith (1959) showed that students changed their attitudes when dissonance was created. Gerard (1961) showed