

FIELD DEPENDENCE AND  
PAROLE SUCCESS

K. Renear, 1969

*Published on demand by*

UNIVERSITY MICROFILMS

*Xerox University Microfilms, Ann Arbor, Michigan, U.S.A.*

*University Microfilms Limited, High Wycombe, England*

18934

This is an authorized facsimile  
and was produced by microfilm-xerography  
in 1975 by  
Xerox University Microfilms,  
Ann Arbor, Michigan,  
U.S.A.

This dissertation has been  
microfilmed exactly as received

*X*  
70-9827

RENEAR, Katherine Roberts, 1924-  
FIELD DEPENDENCE AND PAROLE SUCCESS,

Claremont Graduate School and University  
Center, Ph.D., 1969  
Psychology, general

University Microfilms, Inc., Ann Arbor, Michigan

FIELD DEPENDENCE AND PAROLE SUCCESS

by

*PERFECTS*  
KATHERINE RENEAR

A Dissertation submitted to the Faculty of  
Claremont Graduate School in partial  
fulfillment of the requirements for the  
degree of Doctor of Philosophy in the  
Graduate Faculty of Psychology

Claremont  
1969

Approved by:

*Stuart Oskamp*  
Stuart Oskamp, Ph.D.

We, the undersigned, certify that we have read this dissertation  
and approve it as adequate in scope and quality for the degree  
of Doctor of Philosophy.

*Arthur B. Shuster*

\_\_\_\_\_  
Visiting Examiner

\_\_\_\_\_  
Faculty Reader

\_\_\_\_\_  
Faculty Reader

\_\_\_\_\_  
Supervisory Committee

*Stuart C. Kramer*

\_\_\_\_\_  
Chairman

*Robert Allen Keith*

*Steven L. Johnson*

#### ACKNOWLEDGMENTS

The assistance of the following groups and individuals is acknowledged with appreciation. The California State Department of Corrections made facilities and subjects available. Mrs. Iverne R. Carter, Superintendent, California Institution for Women, and Dr. Lawrence A. Bennett, Chief, Research Division, California Department of Corrections gave substantial assistance.

The California State Department of Mental Hygiene provided time and facilities for data analysis. Dr. Thomas Ball, Chief Psychologist, Pacific State Hospital, Dr. Trent E. Bessent, Chief Psychologist, Metropolitan State Hospital, Dr. Jack Fox, Chief Psychologist, Patton State Hospital, and Mr. Irving Stone, Chief Psychologist, Fairview State Hospital gave much encouragement and support.

Dr. Stuart Oskamp, Dr. Robert Allen Keith, and Dr. Steven Fahrion served as committee members in a most helpful way. Dr. F. Theodore Perkins was a committee member and gave a standard of excellence in psychology.

Mrs. Maurine Behrens, Dr. Robert Behrens, Mr. Geoffrey Clarke and Dr. Earl Owens collected the field dependence data. They maintained accuracy and precision of observation under trying conditions. Their loyalty to good experimental work was impressive.

Dr. Arthur B. Silverstein, Research Psychologist, Pacific State Hospital, gave advice and help in design and analysis. His assistance was the major factor in completing the work.

Particular acknowledgment is given to the women who served as subjects. Their generosity in contributing time and effort is very much appreciated.

CONTENTS

	Page
LIST OF TABLES . . . . .	v
CHAPTER I. INTRODUCTION . . . . .	1
CHAPTER II. REVIEW OF THE LITERATURE . . . . .	5
CHAPTER III. PROBLEM . . . . .	33
CHAPTER IV. METHOD . . . . .	36
CHAPTER V. RESULTS AND DISCUSSIONS . . . . .	48
CHAPTER VI. SUMMARY . . . . .	65
APPENDIXES . . . . .	67
REFERENCES . . . . .	79



LIST OF TABLES

Table	Page
1. Actual and Expected Percentages of Nonreturnees .	45
2. Intercorrelations of Three Measures of Field Dependence . . . . .	48
3. Subjects with Disciplinary Reports Versus Subjects without Disciplinary Reports by WAIS Subtest Score Group . . . . .	50
4. Subjects with Disciplinary Reports Versus Subjects without Disciplinary Reports by EFT Score Group . . . . .	51
5. Subjects with Disciplinary Reports Versus Subjects without Disciplinary Reports by RFT Score Group . . . . .	51
6. Analysis of Variance of Letters-and-Visits Scores by WAIS Subtest Scores . . . . .	54
7. Analysis of Variance of Letters-and-Visits Scores by EFT Scores . . . . .	54
8. Analysis of Variance of Letters-and-Visits Scores by RFT Scores . . . . .	54
9. Analysis of Variance of Base Expectancy Scores by WAIS Subtest Scores . . . . .	56
10. Analysis of Variance of Base Expectancy Scores by EFT Scores . . . . .	56
11. Analysis of Variance of Base Expectancy Scores by RFT Scores . . . . .	56
12. Summary of Siegel-Tukey Tests for Returnee versus Nonreturnee Groups . . . . .	60

LIST OF APPENDIXES

Appendix	Page
A. Number of Subjects by Month and Year of Release . . . . .	67
B. Months of Released Time . . . . .	68
C. Characteristics of Returnees and First Released Nonreturnees . . . . .	69
D. Dates of Release of Returnees and Nonreturnees Matched for Release Date . . . . .	70
E. Rod and Frame Test Scores (Mean Degrees of Absolute Deviation) . . . . .	71
F. Embedded Figures Test Scores (Mean Second Per Design) . . . . .	72
G. WAIS Subtest Scores (Sums of Scaled Scores for Picture Completion, Block Design and Object Assembly Subtests) . . . . .	73
H. Number of Disciplinary Reports Per Subject . . . . .	74
I. Number of Letters and Visits Per Subject . . . . .	75
J. Base Expectancy Scores . . . . .	76
K. Selected Means: EFT and RFT . . . . .	77
L. Base Expectancy Scores for Returnees and Nonreturnees . . . . .	78

## CHAPTER I

### INTRODUCTION

The study to be reported in this paper is grounded in the work on field articulation which has been carried out for the past twenty years by H. A. Witkin and his associates. The basic idea propounded by Witkin is that field articulation is an enduring dimension of human behavior which is meaningfully related to personality functioning. Field articulation is, broadly speaking, the degree to which a person perceives in a field-resistant manner. The term "field articulation" is defined by Witkin as including both perceptual and intellectual functioning, but, so far as this study goes, it will be taken as synonymous with the older term "field independence."

Witkin's work has had heuristic value, with both of his major books generating a number of studies. This body of work has continued to elicit considerable interest.

The measures of field dependence, primarily the Rod and Frame Test (RFT) which was originally devised by Witkin and Asch, and the Embedded Figures Test (EFT) which was adapted by Witkin from the Gottschaldt figures, have been described as ingenious even by some of those who criticize other aspects of work in this area. The RFT and the EFT are objective, quick, relatively non-verbal and relatively culture-free, so that if they do predict personality functioning, they would be valuable in research and clinical work.

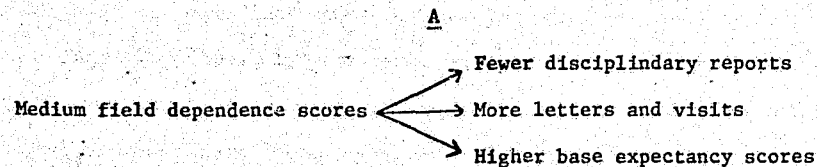
Witkin's theory is, of course, broader than his measures. He is proposing a major, novel variable of human psychological functioning (with, indeed, suggestions now arising in the literature that this new variable extends to other species) which would require amending a good deal of what has been so far established in psychology.

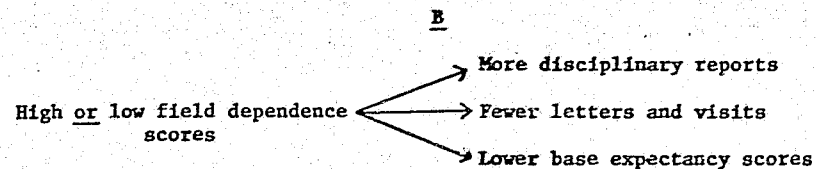
The specific prediction from Witkin's theory which is to be tested in this study is that persons in the midrange of field dependence will tend to function more adequately than either extremely field-dependent or extremely field-independent persons. The sample on which this prediction is to be tested is drawn from the inmate population of the California Institution for Women.

The setting of this study, the California Institution for Women, is the largest women's prison in the world and the only state prison for women in California. At the time the data were collected, between August 20, 1966 and August 28, 1966 inclusive, the population consisted of about 800 inmates. About one-fourth of these were incarcerated because of forgery and bad-check writing, about one-fifth because of offenses related to narcotics and dangerous drugs, about one-sixth because of homicide and other injuries to persons, and the remainder for various felonies. The women who are admitted to the Institution are a selected group, because probation is by far the most likely outcome for a woman who is convicted of a felony in this state. The emphasis of the institution is on rehabilitation. The inmates are becomingly dressed (there are no uniforms) and the physical plant looks like a small college. Academic education, vocational training, medical treatment, counseling, arts and crafts, music and sports are prominent

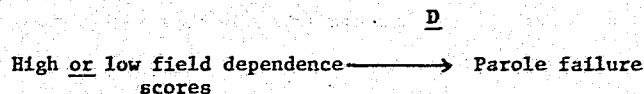
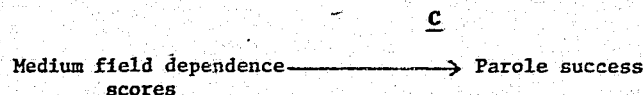
parts of the daily routine. Under a flexible sentencing law, the parole of the women is determined in large part by their evidenced rehabilitation.

In this study adequate functioning is defined as success on parole. The general plan of the study is to investigate whether measures of field dependence are related to measures of parole success. A validated measure of expected parole success, the "base expectancy" score which has been developed by the Department of Corrections, is used as one estimate of the likelihood of parole success. Two other measures are used to estimate the likelihood of parole success: the amount of contact an inmate maintained with the community as shown by correspondence and visits, and the number of disciplinary reports during a three-month period. The assumption underlying the use of these three dependent variables is that they will discriminate between women who succeed, at a later time, on parole, and women who fail at a later time. Because of the fact that an additional variable is to be introduced below, it may be well to present the study schematically at this point.





Twenty-nine months after the field dependence scores were obtained, data for another dependent variable was obtained, parole success versus parole failure of some of the subjects who had been paroled. The schema for this variable is:



It is important to note that parole success is the variable for which "disciplinary reports," "letters and visits," and "base expectancy score" are estimates. The right hand terms in A and B are approximations of the right hand terms in C and D.

In summary, this study tests an hypothesis derived from Witkin's field dependence theory, using prison inmate subjects and estimated and actual parole success as dependent variables.

## CHAPTER II

### REVIEW OF THE LITERATURE

This review will begin with Witkin's statements of his data and theory and go on to consider field dependence measurements, followed by a review of work relating field dependence to three classes of dependent variables.

#### Witkin's Major Presentations of Field Dependence

Much of Witkin's experimental work and his theoretical formulations are presented in two books and in an article which contains the most recent extensive statement of his findings and theoretical position (Witkin, Lewis, Hertzman, Machover, Meissner, & Wapner, 1954; Witkin, Dyk, Faterston, Goodenough, & Karp, 1962; Witkin, 1965). These three sources will be summarized and discussed.

Personality through Perception (Witkin et al., 1954) reports a number of correlational studies, mainly the relationships obtained by various combinations of test scores. A summary of the tests given is as follows:

- (1) 52 men and 51 women college students were given:
  - (a) perceptual tests -- the Tilting-Room-Tilting-Chair Test, Body Steadiness Test, Two-Hand Coordination Test, Body Balance Test, Rotating Room Test, Embedded Figures Test, Brightness Constancy Test, Audio-Visual Conflict Test, and Rod and Frame Test; and
  - (b) personality tests -- Autobiography, Personality Questionnaire (78 MMPI Items), Sentence Completion, Interview,

Figure Drawings, Rorschach, TAT, and Word Association Test.

- (2) 38 men and 39 women mental hospital patients were given:
  - (a) perceptual tests -- the Tilting-Room-Tilting-Chair Test, the Rod and Frame Test, and the Embedded Figures Test; and
  - (b) personality tests -- the same tests as were given to the college students.
- (3) 42 boys and 46 girls (three groups, ages 8, 10 and 13) were given:
  - (a) perceptual tests -- the Tilting-Room-Tilting-Chair Test, the Rod and Frame Test, and the Embedded Figures Test; and
  - (b) personality tests -- Rorschach, TAT, Figure Drawings, and Miniature Toys.

The presentation of the findings in Personality through Perception is diffuse, and it is in many ways a difficult book to read. (One irrelevant but interesting point about the publications by Witkin et al. is the extent to which they differ stylistically. The published style of this research group varies so markedly, from just bad writing to writing of unusual clarity, that it seems likely that the members of the group take turns writing. It is interesting to speculate as to how much the incongruence of styles has contributed to the mixed reception accorded to their publications.) The following summary of the book is not complete but conveys some of the flavor of the book and most of the content, highly condensed. The objectives of the large study are to establish whether space orientation to the upright is a stable characteristic, whether it generalizes over situations and whether it is related to general personality organization. Witkin describes the perceptual test apparatus and procedure in meticulous detail. There



are a number of passages in which Witkin gives the intuitive basis of his perceptual tests, as in the following.

He [the subject] is thus confronted with essentially the same type of situation that people frequently encounter in everyday life, where it is necessary to choose between standards based on one's own impulses and feelings and standards derived from environmental pressures. To the extent that there is continuity in the individual's psychological operations, it is very likely that the person's characteristic way of handling this important kind of situation may be revealed in our tests (Personality through Perception, p. 14).

He makes the distinction between part-of-a-field tasks, such as the Rod and Frame Test, which he says encourage the subject to behave in a more analytical fashion, and field-as-a-whole tasks such as the rotating room which more easily permit global reactions.

Witkin's use of the statistical material in Personality through Perception has been the subject of much criticism. His own defense of his methods is, "In brief, despite some concerns about violation of statistical protocol, we have gone ahead in what we considered to be the simplest method of inductive analysis" (Witkin et al., 1954, p. xxiv). One frequent criticism of Witkin's statistical method is that he presents selected correlation coefficients, the implication being that the selection is biased. A review of the book leads to a contrary criticism, however, since in the first 100 pages, over 300 correlation coefficients are presented, and on page 102 there is another group of 104 correlation coefficients. The large number of statistics presented seems to have the perhaps paradoxical effect of leaving the reader in a state of uncertainty as to the conceptual content. The general impression left is that the presentation of the data is somewhat over-detailed.

An important part of the book is the material on developmental changes in perception. Children tend to increase in field independence until ages 15-17, after which the tendency is to be slightly more field dependent than at the adolescent low point, in part-of-a-field tests. There are large inter-individual differences in field dependence even among children. Females tend to be more field dependent at all ages and are significantly more field dependent as adults. In the field-as-a-whole tests reported in Personality through Perception, children perform as well as adults, but it is noteworthy that the test administration differed between children and adults, with the children being given experience with the test apparatus before they were tested. The book emphasizes that "sex differences were observed only in tasks that required dealing analytically with a given field; they generally did not occur when separation of an item from its context was not at issue" (p. 161). In establishing body position with the eyes closed, women did as well as men, thus women have as good "body sensitivity" as men. Differences in the structure of tasks causes more variation in women's scores than in men's, that is, women's performances are more variable from one type of test to another.

In Chapter 9, the authors specify the subdivision of the core sample of 52 men and 51 women into high, medium and low subgroups on the basis of scores on perceptual tests. The size of subgroups ranged from 13 to 23; men's and women's scores were analyzed separately.

The foregoing groups of subjects were assigned personality scores on the basis of an interview and their performance personality tests. In describing the interview procedure, the authors state that the

subjects were allowed freedom to speak on matters relating to their personal adjustment but that they were also questioned about school, military experience, family, childhood, career, marriage, sex, religion, politics, body image, and self image. The focus of the interview was on reporting easily observable behavior and surface affect. The pairs of interview variables which were rated were: awareness of self (self-awareness vs. denial); method of handling hostility (open vs. repression); activity--passivity; and method of handling inferiority feelings (compensatory vs. low self esteem). In addition, the subject's self assurance during the interview was rated. Not all subjects were rated on all variables. The interview variables were not related, as evidenced by chi square tests. The authors state that "Our personality variables . . . cut across levels of adjustment, and might appear in a context of relative health or illness" (*Ibid.*, p. 202). This and similar statements seem to answer Postman's (1955) extreme criticism of the book as being too psychopathological in orientation.

The authors note that the relation between perceptual test scores and personality ratings was highest in the cases of field dependent men and field independent women.

The remainder of the book details scoring procedures for the variables derived from the Rorschach Test, the Figure Drawing Test, the Thematic Apperception Test and the miniature toy play situation. Case histories, as well as results for a group of hospital patients and for a group of children, are presented.

The foregoing summary touches upon at least most of the content of Personality through Perception. It should be noted that the

summaries provided at the ends of the chapters are inadequate in that they are so condensed and cursory as to in some instances misrepresent the material. This alone may account for some of the misunderstandings of this book.

Objections to Personality through Perception include objection to the personality testing, objection regarding cross-validation, the contention that the field dependence measures are essentially intelligence tests, and objection to the large number of correlations presented (Postman, 1955; Smith, 1955).

The objection to the personality testing, that is, the contention that the personality tests used are not validated, seems to have been met by Witkin in reply to a later criticism. The point made in rebuttal is essentially that the use made of the projective techniques is so limited as to make these techniques self-validating in this situation. Put in other terms, the general use made of the projective techniques was simply to observe what the subject did or did not do in the test situation so that the "projective test" was in reality merely a number of observed behaviors. As an example, the subject either did or did not use the whole blot in a Rorschach response and his using-or-failing-to-use eventually resulted in a W score. The fact that the subject used 100% of the blot area, or less than 100%, would seem to be observable fact and not susceptible to validation in any usual sense. This point is not original with Witkin, but it is cogent. The rebuttal leaves uncovered, of course, the criticism that the inferences drawn aren't observable fact, and here one comes to a question of judgment. It appears that Witkin makes restricted generalizations, far more

restricted than "the casual and intuitive language of the clinic and the couch" of which Smith accuses him (Smith, 1955, p. 351). He adopts, in fact, a mechanistic rule for each variable on the Rorschach, the Figure Drawing, the Thematic Apperception Test and the miniature toy play situation. These rules are laboriously spelled out and, while the lengthy specifications make for dull reading, they are neither casual nor intuitive. The use of the test responses overall is conservative and pedestrian to such a degree that it is hard to see how the tests could have been used at all if they had been used any more mechanically and restrictedly. For example, the Thematic Apperception Test scores rest upon two and only two points: did the hero carry out a self-initiated project, and did the story have an outcome favorable to the hero. This is a far cry from saying, for instance, that someone sees the acrobat climbing up the rope and so is euphoric. The difficulty arises in asking whether one can legitimately label such behavior in response to a Thematic Apperception Test card as "assertive." It would seem legitimate for Witkin to use any term he wishes, if he defines it operationally, as he has done.

Objection to the lack of cross-validation is more to the point, but Witkin would say that he used the hospital group as a standardization group. His critics object to the use of such a "different" group, but this objection would seem to employ a somewhat questionable dichotomy of "mentally well" and "mentally sick." As Witkin explains, he had to select only the more rational patients, so the difference between groups would appear not to completely overthrow his finding.

The contention that the field dependence tests are essentially

tests of intelligence was later brought to a climax (Zigler, 1963) in a review of Psychological Differentiation in which it was pointed out that not only do the field dependence tests relate to intelligence, but also so do the personality tests. Witkin cites factor analyses (Cohen, 1957, 1959) to refute this contention, stating that the variance common to the Wechsler scales and field dependence tests is carried by only three subtests, Block Design, Object Assembly, and Picture Completion (Witkin, 1963). The weight of evidence accumulating seems to bear against dismissing Witkin's work as being artifactual. Another factor analysis (Goldstein & Chotlos, 1966) has been published in which Revised Army Alpha Examination scores were related to RFT scores. Regardless of the foregoing study, it would seem that the question of whether the field dependence tests, all of which involve visual perception, can be considered a measure of general intelligence, will be disputed for some time to come. Probably the basic dispute is one of definition, and it is likely that the earliest (infant) measurements of developmental adequacy involve and depend upon visual perception (Gesell & Amatruda, 1941).

Objections raised as to the large numbers of correlation coefficients presented have been answered by Witkin with the statements that he considers only the pattern of correlations and that no conclusion is based on only one or two correlation coefficients (Witkin et al., 1954, p. xxiii). Furthermore, this statistical treatment has the advantages of easy communicability and flexibility.

In Psychological Differentiation (Witkin et al., 1962) the major findings reported are correlations between perceptual tests -- the RFT,

the Tilting-Room-Tilting-Chair Test, and the EFT -- and personality tests -- Rorschach, TAT, Figure Drawings, and interview with mother and with child -- given to 68 ten-year-old boys who were divided into three subgroups, the first two subgroups being used to develop the measures of field independence.

One of the reviews cited earlier (Zigler, 1963) contains several statements that raise the question of how completely the reviewer understood this book. In writing about what he believes to be a source of contamination, Zigler says that an interviewer talking to a subject's mother "could hardly help but know through the interview alone whether the boy was field-dependent or independent." This would seem unlikely in at least some cases. Another criticism that he states is that Witkin failed to integrate his findings in a way that would be meaningful to a developmentalist such as Heinz Werner. Several correspondents called attention to the fact that Werner had written a complimentary foreword to the book and stated positive reactions to both the book and the long-term research project (Korchin, 1963; Proshansky, 1963; Witkin et al., 1963).

In general, the second Witkin book (Psychological Differentiation, 1962) shows more attention than did the first one to cross-validation, replication, reporting of negative evidence, concern with suitable use of statistical methods, and establishing reliability of ratings by judges. In the second book, also, there is a more explicit statement of the hypothesis that both field dependent and field independent people can show pathology. The authors begin by defining and discussing the concept of differentiation. They state their method of study, which

is (a) correlation of several measures of field dependence in order to demonstrate intra-subject consistency across measures, (b) study of mother-child interactions to define the kinds of interactions that foster field independence or field dependence in children, and (c) evaluation of the stability of field dependence during development.

Studies by other investigators are reported, also, and a large body of evidence is presented to support the construct of stable individual differences, both perceptual and intellectual, in field dependence. Children who are field independent structure this experience better than do those who are field dependent, according to interview ratings and performance on the Rorschach and on memory tests. Field independent children have a more highly developed personal identity, as shown by performance on figure drawing tests and the Thematic Apperception Test. The nature of defenses, the degree of activity, and the level of verbal skills in field independent and field dependent children are discussed in the light of experimental evidence. Case studies illustrating different levels of field dependence are presented. Interview ratings and EFT scores of the mothers are evaluated in relation to the field dependence scores of their children and some relationship is shown between child rearing methods, level of maternal field dependence, and children's levels of field dependence.

In an important position paper, Witkin (1965) reviews some more recent work related to his theory of field articulation. Field articulation is defined as a cognitive style, a bipolar dimension, that includes both perceptual and intellectual functioning. (It is a broader term than "field-independence"; since, however, so much of the



literature uses the older term "field-independence", the terms "field-independence" and "field articulation" will be used interchangeably in this paper.) Witkin discusses various indicators of field articulation and presents his theory relating field articulation to the development of defenses, to pathology, and to the "potential for change" in psychotherapy. He suggests that an intermediate range of field articulation may be evidence of both better personality functioning and better potential for change in a positive direction.

The evidence now clearly indicates that pathology occurs at both extremes of the differentiation dimension. In fact, there is some suggestion of greater frequency of pathology at the extremes than in the middle of the range (Witkin, 1965, p. 324).

It is further possible that patients who are intermediate in the range of measures of differentiation are in general more amenable to change than highly differentiated patients (*Ibid.*, p. 334).

Witkin's publications have received much attention in the literature. In addition to the reviews mentioned earlier, other reviews state that field dependence-independence "is without question the most carefully and thoroughly explored dimension of cognitive style that we have" (Adelson, 1969, p. 243), and "Witkin's work has for years stood out as the most systematic application of the cognitive-control approach and certainly one of the most influential on research" (Klein, Barr, & Wolitzky, 1967, p. 508).

#### Field Dependence Measurements

Next to be discussed are a group of studies describing various measurements of field dependence. This review will include studies which relate field dependence measurements to other measurements in

those cases in which the relationship of measures seems to be the chief finding of relevance for this paper.

Adevai, Silverman, & McGough (1968b) performed a factor analysis of the scores of 92 college men on 10 perceptual tests. The highest correlation of the RFT was with mirror tracing speed and accuracy. The correlation between the EFT and RFT was .49. As the authors point out, the finding by Witkin et al. (1954), that the EFT correlates more highly with Rorschach C scores than does the RFT, suggests that emotional control enters into performance on the EFT. This factor analysis is the beginning of a large scale study which is designed to investigate relationships between field dependence and physiological responses.

On the basis of factor analyses, Goodenough & Karp (1961) concluded that the relationship between field dependence and I. Q. is a function of a common cognitive style, i.e., the capacity to overcome embeddedness.

In another analysis, 18 test scores (including six Wechsler Adult Intelligence Scale subtests, RFT, EFT, Match Problems and Insight Problems to measure adaptive flexibility, and distraction tests) obtained from 150 men were intercorrelated and factor analyzed (Karp, 1963). The first factor consisted of three field independence tests, Wechsler Object Assembly and Block Design, the two adaptive flexibility tests, and a measure of perceptual closure. Distraction tests, Wechsler Digit Symbol and the cancellation test loaded on the second factor. These two factors had a correlation of .23, so that Karp's hypothesis, that field dependence is different from distractibility, was upheld.

An attempt to show, in opposition to Karp's results, that field dependent subjects are more susceptible to distraction was not successful (Bloomberg, 1968).

One study found a relationship between RFT scores and efficiency in a tracking task (Benfari & Vitale, 1965). This study used a directional score instead of the absolute deviation measure used by Witkin, an innovation criticized by Barrett & Thornton (1967a) who present data to show that the directional score on the RFT is not related to field dependence in their subjects. Flaws in RFT technique are criticized by Lester (1968) who states that control of head position, starting position effects, control readings and the effect of instructions need to be more carefully managed in some RFT studies. A response set was found in 79% of a group of male college students in that they placed the rod to the left of the true vertical in the RFT situation (Hellkamp, 1968). This response set is not significant unless direction of error is used as a variable. Among the explanations given by the author are the set (einstellung, not response set) given by the initial tilt of the frame to the left, Mach's E-effect, and laterality. It is, however, of note that Kato (1965a) with Japanese subjects found a different pattern; the initial set did not last throughout the series but instead the rod was adjusted to the direction of frame tilt.

In another sample, about half of the 46 male subjects showed response sets, with field dependent and field independent subjects showing response sets with equal frequency (Cabe, 1968).

Another investigator (Rudin, 1968) made some extreme changes in apparatus, using a small rod and frame apparatus with a frame

approximately 7 1/2 inches square, in an attempt to demonstrate that his construct of ability to change set is more explanatory of field dependence data than are Witkin's. Unlike Kato, he did not present data on the equivalence of his apparatus and the RFT, so that his conclusions seem to be weak.

Kato (1965b) miniaturized the RFT to a 15 cm. square frame and found a correlation of .767 between his apparatus and the standard RFT. The EFT has been shortened and put into group form (Jackson, 1956; Jackson, Messick, & Myers, 1964). A Monkey Embedded Figures Test, not yet standardized (Rosenblum, Witkin, Kaufman, & Brosigole, 1965) and the demonstration that pigeons show distorted perception of the visual vertical when they can't see the surroundings (Lyons & Thomas, 1968) indicate that field dependence measurement may be extended to other species.

Some of the studies related to the measurement of field dependence present bits of information, some present inconsistencies and some present surprises. Among the bits of information are the facts that the EFT and the RFT are correlated more highly in retarded boys when their common variance with the Wechsler Intelligence Scale for Children is included, and that a sample of engineers and technicians is more field independent than one of Witkin's samples (Thornton & Barrett, 1967; Barrett & Thornton, 1967b).

A puzzling result is reported in which field dependent subjects performed more accurately in pattern recognition when exposure times were .010 - .020 second. RFT and pattern recognition scores were not related when exposure times were longer. This is one study in which

field dependent subjects excel the field independent in a visual perceptual task (Kaswan, Haralson, & Cline, 1965). Field independent subjects recalled parts of a design better than did field dependent subjects in another study (Wachtel, 1968). On the other hand, tests of field dependency are not related to recognition of fragmented pictures (Campbell, Dyer, & Boersma, 1967). This result is especially puzzling since inability to recognize fragmented pictures is common among brain damaged individuals who tend to be field dependent. A relationship was found between field independence and four tests of creativity. The four tests were "Ask and Guess" and "Tin Cans", which seem to require verbal fluency and unconventional thinking, and "Circles" and "Decorations", which require inventing different designs (Spotts & Mackler, 1967). There seems to be room for experimentation on the relationships between field dependence scores and the recognition, recall or invention of visual patterns.

Hein, Cohen, & Shmavonian (1965) have published data which give strong support to the status of field articulation and which could be expected to precede similar studies, none of which are in print yet. Their twenty-two subjects were male undergraduates or medical students, ranging in age from 18 to 24 years, 11 of whom were defined as field dependent on the basis of a greater than 7 degree deviation on the RFT and 11 of whom were defined as field independent on the basis of a less than 2 degree deviation on the RFT. The field dependent subjects did not condition, with electric shock to the finger as the unconditioned stimulus, green light as the conditioned stimulus, and the galvanic skin response as the criterion measurement. A somewhat related study

(Gorman, 1968) showed that field independent subjects learned a printed maze better than did field dependent subjects. The significance of the Hein result seems to be more far-reaching than that of the Gorman study because the classical conditioning technique appears to minimize possible sources of experimental error such as variation in subjects' motivation. If the Hein data are replicable, this study would establish list field dependence as a major learning theory variable and would require the re-evaluation of much of the theory and evidence in the area of learning.

In summary, attempts to further define field independence--field dependence by factor analysis and by smaller studies correlating field dependence with other variables, and concern with aspects of measurement such as response sets and refinements of measurement devices indicate a considerable degree of on-going interest in Witkin's theory and, also, the fluidity of a still incompletely-explored area.

#### Field Dependence and Physiological Correlates

Next to be reviewed is a group of studies relating field dependence to physiological correlates, the latter term referring to any attribute of the physical condition of the subjects. The inclusion of some of the studies, particularly those relating to alcoholism, under this subheading is open to question since many of the studies could be classified in different ways.

A group of studies on alcoholism mentioned here is representative of a much larger group in the literature pertaining to the relationship between alcoholism and field dependence. The reason for alcoholism

featuring so largely in field dependence research is not immediately obvious. In part, this concentration upon alcoholic subjects may result from increasing concern over alcoholism as a social problem and increased research funds available to study alcoholism. Probably part of the concentration of effort on alcoholic subjects results from an implicit hypothesis that alcoholics are dependent in personality orientation so that demonstrating their field dependence extends the definition of field dependence.

Witkin has summarized the trend of alcoholism -- field dependence research as follows.

Alcoholics have been found to present a consistent picture of marked field dependence. . . . This picture has been found among alcoholic men and alcoholic women; among current drinkers and among abstaining former drinkers; among alcoholics who are under the influence of alcohol and among alcoholics who are sober; among long-term drinkers and among relatively new drinkers (Witkin, 1965).

In another publication appears the statement,

This relation between alcoholism and field dependence may have two possible bases. On the one hand, field-dependent perception may be a consequence of alcoholism. Prolonged drinking, it can be argued, produces brain damage and other kinds of central nervous system dysfunction which in turn affect perception (Karp, Witkin, & Goodenough, 1965).

In one study, non-alcoholic brain damaged subjects were more field dependent than were hospitalized alcoholics (Bailey, Hustmyer, & Kristofferson, 1961). Nonalcoholic tuberculous patients excelled alcoholic tuberculous patients in field independence and in differentiating among people (Rhodes, Carr, & Jurji, 1968). Alcoholic women, in comparison to non-alcoholic women, were more field dependent in scores on a Figure-drawing Test, the Body Adjustment Test, RFT and EFT.

Subjects were matched on age, ethno-religious affiliation and education (Karp, Poster, & Goodman, 1963).

There have been numerous studies which attempted to demonstrate that the alcoholic's field dependence changes over time or treatment. A representative study is one in which 62 male alcoholic patients, given the RFT at the beginning and end of 8 to 10 weeks of inpatient treatment, were more field independent on the second testing. The fact that the subjects had opportunity to discuss the RFT while hospitalized may have influenced scores, and the motivation of the subjects may have been different at the beginning and end of their hospitalizations. Kristofferson (1968) found that giving alcoholic drinks to male college students made their RFT scores worse. Her purpose was to begin to gather evidence on whether field dependence is a predisposition to or a consequence of alcoholism. It seems possible that the effect of alcohol on eye movements may have confounded her experimental variable (Wendt, 1951, p. 1203).

Visual efficiency in relation to field dependence has been the subject of several studies. In one sample, the frequency of eye movements was not related to EFT scores, in opposition to earlier results (Burdick, 1965). Search patterns do differ, however, in that field independent subjects, more often than field dependent, look at the most informative parts of pictures (Conklin, Muir, & Boersma, 1968). One observation that may be pertinent is that two of the three pictures used to obtain the dependent variable were from the Picture Completion subtest which has been shown to measure field dependence (Witkin, 1965, p. 328). Visual functioning, that is, the resolving power of the eye,



not search pattern, was not related to EFT scores in one group (Barrett, Cabe, & Thornton, 1968). Persons with incompletely established eye dominance are more field dependent than those with established eye dominance; handedness, eyedness and crossed dominance were not related to field dependence (Oltman & Capobianco, 1967).

Sighted children are more field independent than blind children in their performance on a tactile field dependence test developed by Witkin, Birnbaum, Lomonaco, Lehr, & Herman (1968). Deaf girls show a relationship between field independence and reading skill, but deaf boys do not (Fiebert, 1967).

In an electroencephalographic study, 27 EEG signs from the records of each of 74 subjects were correlated with their RFT score; 8 signs were significantly related (Pillsbury, Meyerowitz, Salzman, & Satran, 1967).

Two studies give some evidence that sensory deprivation and field dependence may be reciprocally related. Jacobson (1966) reported that subjects treated to one hour of sensory deprivation showed improved RFT performance compared to a control group; the author's tentative explanation is that brief sensory deprivation is followed by an increased awareness of bodily sensations. Zuckerman (1968) isolated his subjects for 8 hours and measured their field dependence by the EFT; his study was designed to determine whether field dependency predicted responses after isolation to his stress measures, which included two verbal self reports, heart rate, skin conductance and the fraction of 17 ketosteroids, a urinary metabolite derived from adrenal cortical and gonadal hormones. If the subject was familiar with the

laboratory, the stress measures were not related to field dependence, but the relationship held for subjects who were isolated on their first day at the laboratory. The author suggests that the EFT predicts a stress response to novel stimuli. Perhaps related is the relationship observed by Barrett & Thornton (1968b) between field dependence and motion sickness, which could be considered a response to a novel stress.

Schwartz & Karp (1967) measured the Body Adjustment Test, RFT and EFT performances of groups of men and women of ages 17, 30-39, and 58-80. They conclude that field dependence increases with age. The authors caution that their samples may not represent the general population.

One investigator has predicted that marijuana will induce field dependence (Dinnerstein, 1968). He notes that drug control regulations have made the study of the relationship difficult. This study proposal illustrates the range of physiological variables touched upon in field dependence research. Most of the easily accessible physiological variables touched upon have been tested for a possible relationship to field independence, but, with the exception of the work in the area of alcoholism, most of the touched-upon relationships have yet to be fully explored.

#### Field Dependence and Personality Correlates

As the theory of field dependence has from the beginning related perceptual mode to personality functioning, the study of personality correlates of field dependence is naturally of interest to a number of investigators. In a long article (which was summarized on pages

14-15), Witkin (1965) reviews evidence and states theory concerning the relation between field dependence and identity, defenses and pathology. He makes the point that field dependence does not relate to conventional nosological categories but does to symptoms and symptom pictures. Projection is associated with field independence and eating and drinking with field dependence.

In a longitudinal study by Schimek (1968) individual differences in intellectualization, measured by Rorschach ratings, tended to remain stable for ten years from subject age 14 to age 24, and were correlated with field dependence. The field independent intellectualized more. Intellectualization ratings were related, also, to measured intelligence.

Two factor analytic studies done in the framework of psychoanalytic theory (Gardner, Holzman, Klein, Linton, & Spence, 1959; Gardner, Jackson, & Messick, 1960) presented field articulation as a full-fledged personality variable, described by the authors as "an important aspect of adaptive behavior with implications for several other aspects of personality organization" (Gardner et al., 1960, p. 23). The 1960 Gardner study disagrees with the idea that ego strength is correlated with field articulation and concedes that field articulation may not be specifically covered by psychoanalytic theory, to the extent that "psychoanalytic theory may not include specific mechanism-constructs that would account for field articulating behaviors." The authors, therefore, review two other theoretical positions that may account for field articulation data. Piaget states that perception is governed increasingly by attentional schemata and

is increasingly realistic and differentiated with developmental progress. A Gestalt-Psychological view holds that perceptual articulation results from increased attention which, in turn, results from extra energy recruited to the visual cortex from other parts of the brain. Gardner favors Piaget's explanation. The conclusion drawn by Gardner is that field articulation is related to four factorial abilities: flexibility of closure, spatial relations and orientation, associative memory and inductive reasoning. The four abilities just mentioned did not appear as separate factors, but Gardner calls on past experience to verify their factorial existence and says that maybe the fact that the subjects were women is the explanation of this difficulty, because these specific abilities would be less well developed in women and less discriminable in a group of women.

In contrast, an explanation of field dependence as the resultant of an interaction between ego strength and role identification is given in the report of a study by Vaught (1965). Using the RFT, the Gough femininity scale, and the Barron ego-strength scale, Vaught found that in a group of 138 male and 119 female students more field independence was associated with masculine role identity and high ego strength, regardless of biological sex, although as a group the males were more field independent. Vaught interpreted his finding as suggesting that differences in role preferences account for sex differences in RFT performance.

Field independent women are better than field dependent in forming a concept by Bruner's scheme, in which the subject chooses a card from an array and is told either that the card does illustrate

the concept or that the card does not. The subject continues choosing cards until he verbalizes the concept. Otis means and ranges were evidence that the two groups did not differ in intelligence (Dickstein, 1968).

Field independent and field dependent male college freshmen did not differ on Minnesota Multiphasic Personality Inventory and Barron Ego Strength Scale scores (Adevai, Silverman, & McGough, 1968a). A group of male Catholic students showed no relationship between Dogmatism Test scores and RFT scores (Hellkamp & Marr, 1965). On the other hand, subjects who had high scores on a test of authoritarian attitudes had field dependent EFT scores (Clark, 1968). According to results with the Maudsley Personality Inventory, field dependent subjects are more extroverted than are field independent (Evans, 1967). A sample of 40 male Japanese students showed a relationship between high (field-dependent) RFT scores and inferiority feelings, lack of objectivity and lack of cooperativeness on the Yatabe-Guilford Personality Inventory (Kato, 1965a). It appears that scores of objective tests of personality only in some instances vary with variation in field independence—field dependence. As Adevai points out, the mixed results may be a matter of the personality inventories being insensitive to perceptual aspects of personality functioning. In addition, the facts that the Minnesota Multiphasic Personality Inventory has been shown to be fakeable and that it was derived from nosological categories which do not relate to field dependence perhaps bear on the results of these studies.

Another group of studies relate dependence as a personality

variable to field dependence. Results from one study were that the subjects' self reports of the degree to which they relied on others for assessment of their own efforts was correlated with field dependence (Willoughby, 1967). In an experiment in which subjects were urged to complete as many anagrams as possible, the field dependent subjects got as many correct solutions but, also, more incorrect solutions than the field independent (Bloomberg, 1965). The author gives two possible explanations of the outcome, that the field dependent subjects are impulsive or susceptible to irrelevant combinations of letters, and that the field dependent subjects try to please the examiner and therefore work under greater pressure. Bell & McManis (1968) found that female subjects who were classified as punishment avoiding were more field dependent than female subjects who were classified as reward seeking. No significant difference appeared for male subjects. The results were the same when intelligence was controlled. Using as subjects children who were either extremely field dependent or extremely field independent, under conditions of approval versus disapproval by adult experimenters, it was found that field dependent children did worse on a letter-cancellation task under disapproval than did field-independent children. The authors (Konstadt & Forman, 1965) conclude that field dependent subjects are more dependent on social approval. Field dependent men had a greater percentage of verbalization which was rated as dependent while they worked with a confederate on tasks which required decisions (Alexander & Gudeman, 1965). Field dependent students scored better in incidental learning of human faces (Messick & Damarin, 1964), and field dependent

subjects retained incidentally learned social words, but not neutral words, better than did field independent (Fitzgibbons, Goldberger, & Eagle, 1965).

Thus it appears that there is a good deal of evidence that dependency as a personality variable is more likely to be shown by individuals who are field dependent than by those who are field independent.

The last study to be mentioned in connection with personality correlates of the field dependence dimension is one in which supervisors who were intermediate in field dependence showed the most esteem for their least preferred coworkers (Weissenberg & Gruenfeld, 1966). This study supports Witkin's curvilinear hypothesis of personality adequacy, and it is the only one of the studies reviewed in this paper which tested the hypothesis.

#### Field Dependence and Social Variables

The studies in this group are some of those in which field dependence was compared to social variables, the latter term referring to real-world conditions or variations in continuing socially-observable behavior.

A study of the effects on boys of father absence used two groups of adolescent boys, matched for age, grade point average, I. Q., socioeconomic status and race. Measures used were the Gough femininity scale, a semantic differential and the RFT. Boys whose fathers were absent were more field dependent than those whose fathers were present. The presence or absence of the father was not reflected in the boys' sexual identities (Barclay & Cusmano, 1967).

Another study had subjects drive an automobile simulator, and during the drive a dummy pedestrian stepped into the path of the car. The dependent variables were measurements taken on the car: speed, brake position, steering wheel position and position of the car. The conclusion was that field independent subjects are more effective in responding to an emergency (Barrett & Thornton, 1968a).

Reading achievement is related positively to field independence, according to a study by Stuart (1967). And in a study which the authors state is only exploratory, field independent adults improved more in a reading improvement program (Higgins & Gage, 1968).

Karp found that in a sample of men between the ages of 60 and 75 years, those who had retired were more field dependent than those who were still working (Karp, 1967). Comparing long term homeless men versus those just entering the category of the homeless, Levinson (1967) found that the chronic homeless were more field dependent.

The relevance of this group of studies is that the dimension of field dependence is beginning to be related to real-world functioning. In surviving the test of translation from the laboratory to schools, work and everyday skills, the field dependence dimension has come through at least as favorably as most other personality constructs.

#### Summary

The diversity and liveliness of research on field dependence is evident from the studies reviewed. Research on field dependence is characterized, furthermore, by the excellence of both independent and dependent variable measurement. The precision and accuracy of



measurements does not, of course, validate constructs, but the "brass instruments" level of measurement should avoid problems of replicating results. Another point which distinguishes research in this area is the integration of concepts from different areas of psychology.

A review of the literature indicates that the research in field dependence has developed primarily in the areas of measurement of field dependence and correlation of field dependence measurements with personality variables, many of which are measured by physiological response. Only recently has field dependence research moved into social variables. And only rarely has the curvilinear hypothesis, that persons who are intermediate in field dependence will show more social and personality adequacy, been tested. The study to be reported in this paper is an attempt to test the curvilinear hypothesis using a social or real-world dependent variable. The studies reviewed seem to place field independence, in most cases, at the "success" end of a success-failure continuum: field independent persons form concepts better, feel more acceptable, are less clinging in interpersonal situations, condition better, withstand stress better, and even drive cars better. In opposition to all these results is Witkin's contention that intermediate field independence is more likely to be related to adequate functioning; in support of this idea is his impression that the states of pathological functioning occur at either end of the field dependence dimension.

It seems that a variable such as field dependence that is meaningfully related to adjustment to parents, to feelings toward co-workers, and to response to novel stresses might also be a significant

aspect of parole success, and that is the general viewpoint adopted in the present study.

### CHAPTER III

#### PROBLEM

This study tests Witkin's prediction that persons who score in the intermediate range in measures of field dependence are more likely to demonstrate personal adequacy. The assumption is made that success on parole is a demonstration of personal adequacy, and therefore those who score in the intermediate range in measures of field dependence are more likely to succeed on parole than are persons who score high or low in field dependence. Self control and good relationships with persons in the community are presumed to be predictors of good parole potential. These two intuitively-derived variables are measured in this study by number of disciplinary reports and by number of letters and visits.

#### Hypotheses

- (1) Subjects who are intermediate in field dependence act out less than do subjects high or low in field dependence.
  - (a) Subjects who make intermediate scores on the Block Design, Picture Completion and Object Assembly subtests of the WAIS receive fewer disciplinary reports than do high scorers and low scorers.
  - (b) Subjects who make intermediate scores on the EFT receive fewer disciplinary reports than do high scorers and low scorers.

- (c) Subjects who make intermediate scores on the RFT receive fewer disciplinary reports than do high scorers and low scorers.
- (2) Subjects who are intermediate in field dependence maintain relationships better than do subjects high or low in field dependence.
- (a) Subjects who make intermediate scores on the Block Design, Picture Completion and Object Assembly subtests of the WAIS send more letters and receive more letters and visits than do high scorers and low scorers.
- (b) Subjects who make intermediate scores on the EFT send more letters and receive more letters and visits than do high scorers and low scorers.
- (c) Subjects who make intermediate scores on the RFT send more letters and receive more letters and visits than do high scorers and low scorers.
- (3) Subjects who are intermediate in field dependence are better parole risks.
- (a) Subjects who make intermediate scores on the Block Design, Picture Completion, and Object Assembly subtests of the WAIS have higher parole success expectancy than do high scorers and low scorers.
- (b) Subjects who make intermediate scores on the EFT have higher parole success expectancy than do high scorers and low scorers.
- (c) Subjects who make intermediate scores on the RFT have higher

parole success expectancy than do high scorers and low scorers.

The operational definitions of the variables will be given under the description of method.

Another hypothesis, which was added and tested after the first three hypotheses were tested, is as follows.

- (4) Subjects who are intermediate in field dependence remain on parole longer.
  - (a) Subjects who make intermediate scores on the Block Design, Picture Completion, and Object Assembly subtests of the WAIS remain on parole longer than do high scorers and low scorers.
  - (b) Subjects who make intermediate scores on the EFT remain on parole longer than do high scorers and low scorers.
  - (c) Subjects who make intermediate scores on the RFT remain on parole longer than do high scorers and low scorers.

## CHAPTER IV

### METHOD

#### Subjects

The subjects were ninety women inmates of the California Institution for Women, the state prison for women. Subjects were chosen by (a) selecting names at random, (b) excluding those whose files contained psychiatric diagnoses or whose I. Q.'s were less than 90, and (c) obtaining volunteers from this pre-screened group.

The volunteers were obtained at group meetings to which women whose files met the criteria were invited. There were a series of meetings of about 20 women per meeting until enough subjects volunteered. The women were told at the meetings that a research project was being carried out in order to find out who would do well on parole in the community. The tests were described briefly and the women were told that they would be tested by persons not on the staff of the institution and that the scores would not be made a part of any subject's institution file nor released to institution personnel. Any further questions about the theory or hypotheses underlying the procedure were not answered; instead, an explanation was given to the effect that it was not possible to tell more and have the results valid. Specific questions were answered to the extent possible without going into the rationale. A frequent question was whether the experiment had the purpose of telling what kind of crime a person was likely to

commit. Another question often asked was whether the experiment would validate psychoanalysis. The questions generally seemed to reflect either anxiety about possible information going into the institution files or an interest in the experiment.

The mean I. Q. of the sample, measured by a variety of tests, was 106, and the mean age was 33.5 years. The racial composition of the sample was 59 Caucasians, 26 Negroes and 5 Mexican-Americans. The large proportion of Negro subjects was intended to approximate the population proportion in the prison, which has nearly 50 per cent Negro inmates.

#### Tests

The Picture Completion, Block Design and Object Assembly subtests were the standard Wechsler Adult Intelligence Scale subtests (Wechsler, 1955). These three subtests have been identified in factor analyses as measures of field dependence (Cohen, 1957, 1959; Karp, 1963) and are mentioned by Witkin (1965) as being tests of field dependence.

The materials for the Picture Completion subtest consist of 21 plates, 2-3/4" x 3-3/4", each of which shows an object with some part missing. The subject's task is to point to or to name the missing part. The time limit is twenty seconds for each plate, with no time bonuses. All 21 plates are shown to each subject. The maximum score is 21 points. The test is administered with standardized instructions.

The Block Design subtest materials consist of 9 wooden cubes, approximately 1" on each side, colored white and red, with two sides entirely white, two sides entirely red and two sides white-and-red,

the two-colored sides being divided into a white and red right triangle by a diagonal, together with 10 colored plates bearing small (6 of them 1" square and 4 of them 1-1/2" square) pictures of designs to be made with the blocks. The time limit for the first six designs is sixty seconds and for the last four designs is 120 seconds. The scoring includes bonuses for speed. The test is discontinued after failure on any three consecutive designs. The maximum score is 48 points. The test is administered with standardized instructions.

The Object Assembly subtest materials consist of 4 jigsaw puzzles, 2 of which have 6 pieces and 2 of which have 7 pieces. The puzzles are assembled by the subject with time limits of 120 seconds for the first two and 180 seconds for the third and fourth puzzles. The test is administered with standardized instructions. The maximum score is 44 points.

The EFT was the short form validated by Jackson (1956), consisting of 12 colored plates of complex geometric figures in which the subject finds one of six simpler figures. The time limit is three minutes for each plate. The score is the mean time required for solution, so the maximum score is 180 seconds.

The RFT apparatus was the Marietta Apparatus Company #18-10 Rod and Frame Device. The following is the description of the device by the manufacturer.

The rod and frame are mounted on independent concentric shafts. The frame is square, made of metal tubing. The experimenter can set the frame at any angle (clock-wise or counter-clockwise) with respect to the gravitational vertical. Tilt of the rod, which is also of metal tubing, is continuously variable in either direction and is adjusted via a motor drive. The subject controls orientation of the rod by



**CONTINUED**

**1 OF 2**

manipulating a switch mounted in a hand-held control box. A master parallel control system is provided for the experimenter. Read-out of the angular setting of both rod and frame is provided by protractor-type indicators to the nearest degree. The read-out indicators and master controls are mounted on the rear panel of the housing which encloses the motor drive, controls, etc. The assembly is mounted on a metal tripod stand. Between the rod-frame assembly and the controls is a flat black disk. The surface of the tubing is coated with a phosphorescent paint.

#### SPECIFICATIONS

Frame: 42-inches square, 3/4 inch diameter metal tubing  
Rod: 40-1/2 inches long, 3/4 inch diameter metal tubing  
Centered 42 inches from the floor  
Disk: 48-inches diameter, tempered Masonite, flat black finish

The apparatus was set up according to Witkin's "Procedure for Rod-and-Frame Test (short-form) 1962." Distance from front of frame to front of chair seat was 80 inches. Distance from floor to chair seat was 22 inches. A headrest was attached to the chair. The test was not timed. The score is mean degrees of absolute deviation from the vertical. The maximum score is 90 degrees.

Satisfactory darkening of the 13'6" square room was obtained by painting flat black or draping with black cloth or black paper all of the surfaces within the room. The examiner wore dark clothing. The ultra-violet light source which was supplied with the apparatus was masked to reduce the illumination.

#### Test Administration

The three tests were given consecutively; order of administration was not controlled. All RFT's were given by one examiner. The WAIS subtests and the EFT were given by two other examiners. Occasionally a third examiner substituted to give either the WAIS subtests or the

EFT; no examiner effect in these two tests was discernible from inspection of the scores. The RFT was given by a Caucasian male, the WAIS subtests usually by a Caucasian female, and the EFT usually by a Caucasian male. The three tests were given in three adjoining rooms. Before testing, three subjects were met outside the testing area, given brief, general instructions and taken to the testing area. Testing was completed in nine consecutive days. The dependent variable data were collected after testing was completed, so that at the time of testing the examiners did not know any of the dependent variable scores.

#### Independent Variables

Three independent variables were measured, in the sense that measurements were made of field dependence using three different tests.

#### WAIS Subtests

Scores consisting of the sum of the scaled scores for three subtests of the Wechsler Adult Intelligence Scale were obtained by giving each subject the three subtests under the standard conditions. The three subtests, Picture Completion, Block Design, and Object Assembly, have been found to be related to field independence (Cohen, 1957, 1959). These subtests contribute, of course, to the intelligence test score obtained from the WAIS. Witkin asserts, however, (1965) that they tap a factor of ability to overcome an embedding context, and that scores on these three tests bear little relationship to scores on the other WAIS subtests, which load on a verbal comprehension factor and a numerical factor.

In a sample of college men, the correlation between RFT and Picture Completion was .67, and between RFT and Block Design .65; for a group of 12-year-olds, WISC Object Assembly had a loading of .57 on an analytical field approach factor (Witkin et al., 1962, pp. 65, 74).

All of the performance subtests of the WAIS are, unlike the verbal subtests, at least crude tests of visual perception, in the sense that the verbal subtests can be given to a blind subject, but the performance subtests cannot be.

#### Embedded Figure Test

Scores consisting of mean time scores for 12 hidden figures were obtained by giving each subject the short form of Witkin's EFT (Jackson, 1956). This test has been considered an optimum test of field dependence because it is brief, it is objectively scored, it requires no equipment except for the test cards, and it is relatively culture-free and non-verbal. On rational grounds, the test seems to have some weaknesses; it makes heavy motivational demands, and the scoring is crude in that there is little difference between the score obtained by a subject who gets every item correct after working almost the whole time limit and the score obtained by a subject who get no items correct after gazing around the room for the whole time limit. Low scores indicate field independence, high scores field dependence.

#### Rod-and-Frame Test

Scores consisting of mean degrees deviation from the vertical were obtained by giving each subject the RFT. The body-erect condition, Witkin's Short Form, was used. The purpose of the test is to provide

subjects with an opportunity to use either cues from their own body or cues from the visual field to make a judgment of verticality. When these two frames of reference are placed in opposition, the subject must react in either a "field independent" way, orienting to the body cues produced by gravity, or a "field dependent" way, orienting to cues produced by the visual field. Low scores indicate field independence, high scores field dependence.

#### Dependent Variables

Four dependent variables were measured: number of disciplinary reports given to each subject during a three month period; number of letters sent and received by, plus visits received by, each subject during a three month period; the base expectancy score for each subject; and, after an interval of 29 months, the parole success and parole failure of subgroups of the original sample.

The data for the four dependent variables were obtained from institution files. It was assumed that records would be accurate on the first three points, because disciplinary reports and base expectancy tend to influence length of prison term, because current disciplinary action depends, in part, on past disciplinary action, because the base expectancy is used in many research studies, and because the visiting and mail privileges are limited by institution rule, necessitating an accurate record. Since the information for these three dependent variables is used in the conduct of the department's business, it seemed likely that the file data might be more accurate than is the case at times in other settings.

The data for the fourth dependent variable were also obtained from the institution files, which record date of return to prison.

#### Number of Disciplinary Actions

The number of disciplinary actions was the number of rules infractions reported for a subject during June, July and August, 1966. This period of time was the longest that permitted collection of data for all subject, since some of the subjects had not yet been admitted to the institution in May, 1966 and some of the subjects were paroled in September, 1966. (One subject was paroled August 29, 1966.) A plan to use the length of locked-time imposed as a finer measure of degree of rules infraction had to be discarded because it became apparent that the penalty for rules infractions depended on factors other than the severity of the infraction, factors such as the judged psychological stability of the inmate. It was expected that those subjects who were most likely to succeed on parole would be those who received fewest disciplinary reports.

#### Number of Letters and Visits

The second dependent variable was the total number of letters received by and sent to each subject plus the number of visits received by each subject in the period of June, July and August, 1966. The number of visits is limited by rule to two per month; the number of outgoing letters is limited by rule to ten per week total divided in any way among ten allowed correspondents; the number of incoming letters is unlimited. This variable was intended to measure the relationship-maintaining behavior of the subjects. Since the inmates do not use the

telephone, contact with family and friends in the community is reflected in number of letters and visits. It was expected that those subjects who were most likely to succeed on parole would be those who maintained relationships with family and friends as indicated by total number of letters and visits.

#### Base Expectancy Scores

The third dependent variable was the base expectancy score which is computed by the institution staff for each inmate. The base expectancy score is derived from a multiple linear regression equation which predicts the subject's chance of not returning to prison within two years following release (Gottfredson, Ballard, & Bond, 1962; Mueller, 1966). The terms of the equation consist of a constant, the number of the subject's arrest-free years, use of heroin, use of alcohol, number of aliases, number of probation or parole violations, and number of prior arrests. The equation was based on a sample of 695 women and validated on a sample of 577 women. The reliability of the equation terms, defined as percentages of perfect agreement by three persons coding various items, ranges from 74% for prior arrests to 100% for heroin. The concordance between the actual percentage of nonreturnees and the expected percentage of nonreturnees for the validation sample is shown in Table 1.

TABLE 1  
Actual and Expected Percentages of Nonreturnees

Base Expectancy Score	Percentage of Nonreturnees	
	Actual	Expected
98-100	100.0	95
79-97	82.0	85
68-78	81.9	78
50-67	66.7	69
37-49	54.0	60
17-36	53.9	52
0-16	33.3	38

Since this base expectancy score for women is related to research studies on approximately 3,000 male subjects, there is considerable reason to believe that the base expectancy score does in fact correlate with success on parole.

#### Parole Success and Parole Failure

The last dependent variable to be measured was actual parole outcome for subgroups of the whole sample of 90 subjects.

The release outcome, as of January 30, 1969, for the 90 subjects who were tested in 1966 is as follows:

One died on December 14, 1967; this subject was not included in analyses of the returnee-nonreturnee groups, even though she was released on December 20, 1966.



Eight were not released, this number including one subject who was released to another legal agency.

Thirteen were released and returned to the institution before January 30, 1969; this number includes as "returned" one subject who left parole jurisdiction and who will be returned if she is apprehended. Of the 13 returnees, seven have been released for a second time since 1966 and one of these seven has returned for a second time since 1966.

Sixty-eight of the subjects who were released between August 29, 1966 and January 30, 1969 did not return during that period.

Dates of release are shown in Appendix A.

The test to be made on this dependent variable required the comparison of scores of the returnee group with the scores of nonreturnees. For this purpose comparisons were made with three different nonreturnee control groups. The nonreturnee control groups were (a) the 68 nonreturnees, (b) the 13 nonreturnees first released, and (c) 13 nonreturnees matched to the returnees by date of release. (An important point is that the control groups are not independent; the group of 68 contains each of the groups of 13 and the two control groups of 13 subjects have five subjects in common.) Months of released time for the groups are shown in Appendix B.

The first-released control group consists of women who have been out longest. Some characteristics of this group and the returnee group are shown in Appendix C. Neither age nor race seems to be an important difference between these groups. (Five of the women on parole have

been discharged from parole; however, they are referred to here as "on parole" together with other subjects who are still technically on parole.) The base expectancy score does differentiate the two groups. In other words, the return versus non-return of these 26 subjects could have been predicted on the basis of their base expectancy score. This fact indicates that perhaps the base expectancy scores are sounder measures for extreme groups than for a more representative group, but this fact does not bear upon the question of whether medium field dependence is associated with parole success. The first-released control seems slightly more defensible as a control group than does the matched-released-date control group. Two of the returnees returned after more than 20 months on parole, and four of the matched-released-date control group have been out less than 20 months. The first-released control group has demonstrated more parole success than the other control group.

The release dates for the matched-released-date control group are shown in Appendix D. The release dates were matched fairly closely, the largest difference between members of a pair being 17 days. It is important to note that the groups were matched only on dates of release. The matching of release dates was not intended to give two perfectly-matched groups, but rather to provide some degree of control for social variables. For example, it is conceivable that parole conditions, such as quality of parole supervision and availability of employment, were more favorable at one time than at another.

## CHAPTER V

### RESULTS AND DISCUSSION

The results obtained on the first three dependent variables will be mentioned first. The distributions of the independent variables are shown in Appendixes E, F, and G. The distributions of the dependent variables are shown in Appendixes H, I, and J.

The directions of the various distributions are not the same. The directional meanings of the scores are as follows:

Low RFT scores mean field independence;

Low EFT scores mean field independence;

High WAIS scores mean field independence.

The three independent variables are correlated as shown in Table 2, so that there is evidence that, in this sample, the WAIS subtests, the EFT and the RFT all measure the same performance to a significant extent. The highest correlation is between the WAIS subtests and the EFT.

TABLE 2  
Intercorrelations of Three Measures  
of Field Dependence

	WAIS	EFT	RFT
WAIS	—		
EFT	-.687*	—	
RFT	-.463*	.494*	—

\*p less than .001

The subjects in this sample were less field dependent on the RFT and more field dependent on the EFT than were the samples of women measured by Witkin, but they fall within the range of scores reported by other investigators. The means reported by Witkin, et al. (1954), Rhodes, Carr, & Jurji (1968), Dickstein (1968), Kato (1965a), and Barclay & Cusmano (1967) are shown in Appendix K.

The distribution of RFT scores is extremely skewed in the positive direction, with a mean of 7.30 and a median of 4.50. The EFT scores are less extremely skewed in the negative direction. One of the differences between the two distributions is that nine of the subjects or 10% of the sample made maximum field-dependent EFT scores but none of the subjects even came close to making the maximum field-dependent RFT score of 90 degrees. The distribution of the WAIS subtest scores approximates a normal curve.

#### Disciplinary Reports

The prediction for the dependent variable of disciplinary reports was that subjects who were medium in field dependence would receive fewer disciplinary reports than would subjects who were high or low in field dependence. The number of disciplinary reports was stated to be a predictor of parole success. The distribution of the number of disciplinary reports is shown in Appendix H. Since 70 of the subjects received no disciplinary reports, for 70 subjects or 78% of the sample, the prediction would be the same.

The prediction that subjects with medium field dependence would receive fewer disciplinary reports was tested by chi square. The

subjects were divided into low, medium and high groups on the basis of their scores on the WAIS subtests, the EFT and the RFT. The division into low, medium and high WAIS groups was made by arraying the scores for the WAIS subtest and designating the 30 low scores low field independence, the 30 middle scores medium field independence and the 30 high scores high field independence. Ties were broken by chance. The division into low, medium and high EFT and RFT groups was done in the same way, except that low EFT and RFT scores were designated high field independence groups.

The results are shown in Tables 3, 4 and 5.

TABLE 3

Subjects with Disciplinary Reports Versus  
Subjects without Disciplinary Reports  
by WAIS Subtest Score Group

	Low	Medium	High	Total
With Reports	9	5	6	20
Without Reports	<u>21</u>	<u>25</u>	<u>24</u>	<u>70</u>
Total	30	30	30	90

$\chi^2 = 1.67$ ,  $p$  greater than .05

TABLE 4

Subjects with Disciplinary Reports Versus  
Subjects without Disciplinary Reports  
by EFT Score Group

	Low	Medium	High	Total
With Reports	6	7	7	20
Without Reports	<u>24</u>	<u>23</u>	<u>23</u>	<u>70</u>
Total	30	30	30	90

$\chi^2 = 0.13$ , p greater than .05

TABLE 5

Subjects with Disciplinary Reports Versus  
Subjects without Disciplinary Reports  
by RFT Score Group

	Low	Medium	High	Total
With Reports	4	10	6	20
Without Reports	<u>26</u>	<u>20</u>	<u>24</u>	<u>70</u>
Total	30	30	30	90

$\chi^2 = 3.60$ , p greater than .05

The three groups did not differ with respect to the number who received reports. The hypotheses stating a relationship between field dependence and parole success as predicted by number of disciplinary reports were not confirmed. However, further consideration of the logic of assuming that disciplinary reports would predict parole success made this assumption appear fallacious for the following reasons: some of the disciplinary infractions were not observed, and not all of those which were observed were officially reported. Furthermore, the measure as used in this study is too crude because it lumps minor rule infractions together with serious offenses. Thus, the possible lack of validity of the disciplinary-reports dependent variable seems sufficient to explain the lack of confirmation of these hypotheses.

Witkin, et al., (1962, p. 209) cite an unpublished study by Korchin in which patients "whose primary symptom was direct affective discharge" made field dependent EFT scores. Bloomberg (1965) suggested that the anagram errors of field dependent subjects might result from impulsive behavior. The finding of no significant differences in numbers of disciplinary reports gives modest negative evidence about the impulsiveness shown by field dependent subjects. If the subjects in this sample who were field dependent had been consistently more impulsive in breaking rules, it would seem likely that the number of disciplinary reports would have reflected that tendency.

### Letters and Visits

The prediction for the dependent variable of letters and visits was that subjects who were medium in field dependence would have more correspondence and visits than would subjects who were high or low in field dependence. The independent variable scores were divided into three groups for each of the three independent variables in the way described on page 50. The letters-and-visits scores for the high, medium and low field dependence groups were analyzed by a one-way analysis of variance for the WAIS subtest scores, for the EFT scores and for the RFT scores. Results are shown in Tables 6, 7, and 8. The results showed no significant differences between groups for any of the three analyses. The hypotheses that subjects who showed medium field dependence would have more letters and visits were not supported. The most likely explanation is that the dependent variable is confounded by factors other than subjects' tendency to maintain relationships. Some of the subjects had relatives and close friends a long distance away, but none close enough to visit them. Some subjects who seemed on acquaintance to have warm relationships with others rarely wrote letters for various reasons, including poor writing skills and dislike of the institution censorship. The lack of significant results seems to reflect the inadequacy of the letters-and-visits measure as a predictor of parole success.

### Base Expectancy

The prediction for the dependent variable of base expectancy was that subjects who were medium in field dependence would have higher



TABLE 6

Analysis of Variance of Letters-and-Visits  
Scores by WAIS Subtest Scores

Source of Variation	Sum of Squares	df	Mean Square	F	p
Between Groups	5,430.29	2	2,715.14	1.49	n.s.
Within Groups	<u>158,578.70</u>	<u>87</u>	1,822.74		
Total	164,008.99	89			

TABLE 7

Analysis of Variance of Letters-and-Visits  
Scores by EFT Scores

Source of Variation	Sum of Squares	df	Mean Square	F	p
Between Groups	223.29	2	111.64	0.06	n.s.
Within Groups	<u>163,785.70</u>	<u>87</u>	1,882.59		
Total	164,008.99	89			

TABLE 8

Analysis of Variance of Letters-and-Visits  
Scores by RFT Scores

Source of Variation	Sum of Squares	df	Mean Square	F	p
Between Groups	224.36	2	112.18	0.06	n.s.
Within Groups	<u>163,784.63</u>	<u>87</u>	1,882.58		
Total	164,008.99	89			

base expectancy scores than would subjects who were low or high in field dependence. The base expectancy scores for the high, medium and low field dependence groups were analyzed by three one-way analyses of variance. The results are shown in Tables 9, 10, and 11. The results were not significant, and the hypotheses that subjects who had medium field dependence scores would have higher base expectancy scores were not supported. Assuming that the field dependence dimension is related to adequate personality functioning, this result is surprising, since the base expectancy scores, unlike the other two dependent variables, is a proved predictor of parole success. Furthermore, the independent variable measurements correlate with each other, so that some stable aspect of personal functioning is being measured. If one assumes that field dependence is related to personal functioning and that the base expectancy score predicts personal functioning on parole and that the data are adequate, then the most logical explanation for the lack of significant results is that the predicted relationship is obscured by the error variance of the WAIS, EFT, RFT and base expectancy scores. If the error were eliminated from the base expectancy scores, the hypothesis might be substantiated. In this study an attempt was made to accomplish this error reduction by taking followup measurements and obtaining the parole success measurements of which the first three dependent variables were approximations.

#### Parole Outcome

In evaluating this attempt to test the original predictions against parole outcome, it must be noted that the returnee group is

TABLE 9

Analysis of Variance of Base Expectancy  
Scores by WAIS Subtest Scores

Source of Variation	Sum of Squares	df	Mean Square	F	p
Between Groups	1,402.40	2	701.20	0.86	n.s.
Within Groups	<u>70,967.60</u>	<u>87</u>	815.72		
Total	72,370.00	89			

TABLE 10

Analysis of Variance of Base Expectancy  
Scores by EFT Scores

Source of Variation	Sum of Squares	df	Mean Square	F	p
Between Groups	138.20	2	69.10	0.08	n.s.
Within Groups	<u>72,231.80</u>	<u>87</u>	830.25		
Total	72,370.00	89			

TABLE 11

Analysis of Variance of Base Expectancy  
Scores by RFT Scores

Source of Variation	Sum of Squares	df	Mean Square	F	p
Between Groups	1,884.60	2	942.30	1.16	n.s.
Within Groups	<u>70,485.40</u>	<u>87</u>	810.18		
Total	72,370.00	89			

small, the groups are not matched (with the exception of release date), the criterion is still in flux, and a portion of the outcome of parole success would be expected to depend on social rather than personality variables. These points are to be enlarged upon because it seems that, if any field dependence effect is demonstrated under these conditions, one could expect that the effect must be fairly large in order for it to appear in this disadvantageous test. The fact that the returnee group and two of the control groups are small includes two disadvantages. First, the small N's mean that any effect must be large to overcome error variance. Second, the small N's mean that the original sample is probably non-representative of the CIW population and non-representative in a direction that would tend toward non-significant results. That is, the fact that only 13 of 81 subjects released have been returned is not representative of the CIW population. A truly representative sample would contain more returnees. Probably this high success rate includes two factors: some of the subjects still on parole (including some in the control groups) will return in the future; and probably the volunteers in the study's sample were much more likely to be subjects with a law-abiding bent than the average CIW inmate. The groups not being matched allows for the possibility of error due to social factors operating unchecked. For example, a woman in the returnee group might have a medium degree of field dependence but might also belong to a criminally oriented family which would virtually guarantee her parole failure. To give the hypotheses in question a full trial with such small groups, it would be necessary to match experimental and control subjects on variables

such as vocational adequacy, physical health, social class and type of crime (e.g., a person convicted of murder almost never repeats his crime and a person convicted of narcotics possession almost always repeats). The fact that the criterion is in flux weighs, also, against the possibility of obtaining significant differences, as an unknown number of the control subjects may shift into the returnee group at any time. The foregoing considerations point to the conclusion that any demonstration of a field dependence effect operating differentially between returnees and nonreturnees would suggest that the effect is a large one.

The WAIS, EFT and RFT scores for the returnee and nonreturnee groups were analyzed by the Siegel-Tukey test, which is designed for the situation predicted by the hypotheses, namely a greater scatter of scores in one group (Siegel & Tukey, 1960). The Siegel-Tukey test is designed for the situation in which experimental subjects are expected to have both higher and lower scores than control subjects, or in other words, more scatter. The test does not require the assumption of normality, and it is applicable to ordinal data.

The computational steps in the Siegel-Tukey test are as follows. All of the scores are arrayed with each score identified as an experimental group score or a control group score. The scores are then ranked with the low ranks being assigned at either end of the distribution. That is, the lowest score is ranked "1", the two highest scores are ranked "2" and "3", the second and third lowest scores are ranked "4" and "5" and so on, as in the following fictitious example.

Score:	0	2	4	7	8	9
Group:	E	E	C	E	C	C
Rank:	1	4	5	6	3	2

Ties between groups are given an average rank. With this ranking, the smaller ranks are assigned to the more variable of the two groups, that is, the smaller ranks appear at both ends of the combined distribution. The next step is to sum the ranks of the smaller group. The sum,  $R$ , is converted to a unit normal deviate by means of the formula:

$$Z = \frac{2R + 1 - n_1 (n_1 + n_2 + 1)}{\sqrt{n_1 (n_1 + n_2 + 1) (n_2 / 3)}}$$

In this study, one-tailed tests were used.

The results are shown in Table 12. The results were significant and in the predicted direction for the WAIS scores for all control groups. For the tests with the control group consisting of all non-returnees and first-released control group, the EFT scores yielded  $p$ 's of .05 and .10, which suggest that some effect is operative. The EFT scores for the matched-release-date control group and the RFT scores did not show significant differences between returnees and non-returnees.

Considering the factors in favor of non-significant results, discussed above, these results seem to support the prediction that subjects with medium field dependence scores do succeed better on parole. The fact that the effect is demonstrated on the WAIS, marginally demonstrated on the EFT, and not demonstrated on the RFT

TABLE 12

Summary of Siegel-Tukey Tests for Returnee  
versus Nonreturnee Groups

Group	WAIS		EFT		RFT	
	R	p	R	p	R	p
All Nonreturnees	340	.01	403	.05	606	n.s.
First-Released Nonreturnees	129	.01	145	.10	171	n.s.
Matched-Release- Date Non- returnees	136	.05	152	n.s.	157	n.s.

scores probably reflects differences among the three tests. Witkin's remarks (1965) on differentiation and integration seem to have some bearing on this set of results. He points out that personal adequacy consists not only of the ability to differentiate (field independence) to a moderate degree but also of the ability to integrate. It is noticeable that the WAIS subtests involve not only a differentiation, a disembedding of structure, but also an integration of parts of the differentiated figure. Perceptual integration, the formation of gestalten, is necessary for success on the WAIS subtests, and the same process seems to be necessary to retain in memory and then disembed from the complex background the embedded figures in the EFT. If perceptual integration of this sort is necessary on the RFT, it is not obvious upon inspection, as the task seems only to require the differentiation of the rod from the surrounding frame and the utilization of cues to the vertical. The excellent performance on the RFT by the subjects in this sample would seem to indicate that their ability to differentiate is satisfactory. The less adequate performance on the EFT and the average performance on the WAIS subtests are both poorer than the RFT performance. A possible explanation of the failure of the RFT to predict parole success might be that the integrative function is more important to parole success than is differentiation, and that the RFT does not measure integrative ability as well as do the other tests.

Although this possibility might suggest further research, this study in itself gives no explanation as to why the RFT did not relate to parole success. One obvious possibility would be that the test



might have been unreliable in this administration. This possibility was checked by computing an internal-consistency reliability. The obtained  $r$  was .90, so that it would appear that the test reliability was adequate.

The results give some support to Witkin's hypothesis that a medium degree of field dependence makes for personal adequacy to a greater extent than do the extremes of field dependence, with personal adequacy defined in this study as success on parole. The scores made by the returnees tended to be either higher or lower than the scores made by the nonreturnees. Another way of stating this result is that, in this sample, a woman who is going to fail on parole is likely to have either a very "good" or a very "bad" EFT or WAIS score, and a woman who is going to succeed on parole is likely to have a medium EFT or WAIS score.

It is possible to interpret this set of results apart from Witkin's theory. One such interpretation would be that the EFT and the WAIS subtest scores reflect general intelligence. The greater variability in the experimental group might mean that the less intelligent women lack general competence and can't keep themselves out of trouble and that most of the more intelligent women are too bright to have blundered into criminal activity, hence the bright end of the returnee distribution perhaps could consist of professional criminals. If we assume that neither the intellectually feeble nor the bright professionals are likely to reform, the relationship between recidivism and the extremes of the score distributions is obvious. Contrary to this interpretation, however, would be the fact of the

restricted range of intelligence among the subjects in the sample, none of whom could be classified as intellectually below average, and also the factor analyses (Cohen, 1957, 1959) which show that the three WAIS subtests can be considered good measures of field dependence.

The meaning and interpretation of this set of results will depend to a considerable extent on whether they can be replicated.

#### Base Expectancy and Parole Outcome

A final area of interest in considering these data was to examine the base expectancy scores of subjects with different parole outcomes, thus in effect providing a further cross-validation of the base expectancy measure.

As shown by the data for returnees and nonreturnees in Appendix I, the base expectancy score discriminated between returnees and all three groups of nonreturnees. The mean base expectancy of the returnees differed significantly from the means of the first-released nonreturnees, of the matched-release-date nonreturnees, and of all nonreturnees, using a t-test of the difference of independent means ( $t$ 's = 4.29, 4.53, and 3.88 respectively; all  $p$ 's less than .01).

Observations about the relationships found in this study among field dependence, base expectancy, and parole success can be summarized as follows: (a) field dependence did not predict base expectancy; (b) field dependence did predict parole success; (c) base expectancy did predict parole success. The statistical meaning of these observations seems to be that base expectancy and field dependence both are predictors of parole success but that base expectancy and

field dependence do not have a significant amount of common variance. One might expect, therefore, the base expectancy score to be more accurate if a field dependence score were added to it. The sum of the differences between the expected and the actual percentage of non-returnees in the validation sample is 27% (Table 1), and it is in this area of error that the field dependence score might possibly be able to improve the prediction of parole success.

The conceptual meaning of the independence of base expectancy and field dependence may be that base expectancy is partly a social measure and field dependence is an organismic measure. Some of the measures that contribute to the base expectancy score, e.g., use of heroin and use of aliases, are social measures in the sense that they would be expected to occur more frequently in a criminal subculture than in a middle class subculture, whereas there is no reason to think that the same would be true of the field dependence measure.

## CHAPTER VI

### SUMMARY

This study tested Witkin's hypothesis that an intermediate level of field dependence, rather than either high or low field dependence, is associated with personal adequacy.

Witkin and other investigators have identified field dependence as a stable cognitive dimension. Different levels of field dependence are associated with different styles of perceptual, intellectual, and personality functioning. Witkin believes that a particular level of field dependence in an adult results from an interaction between constitutional factors and social experience in infancy and early childhood.

Field dependence was measured in this study by performance on the Rod and Frame Test (RFT), the Embedded Figures Test (EFT), and the Block Design, Picture Completion, and Object Assembly subtests of the Wechsler Adult Intelligence Scale (WAIS subtests). The RFT consists of a hollow square frame which encloses a rod; both rod and frame can be rotated. The luminous apparatus is presented in a darkened room. The subject's task is to adjust the tilted rod to true vertical while the frame is tilted as a distractor. The EFT consists of 12 Gottschaldt figures overprinted in color. The subject's task is to locate a simple geometric figure within the complex colored figure. The WAIS subtests are the standard Wechsler subtests in which the

subject's tasks are to reproduce printed designs with small cubes, to identify which important part is missing from an incomplete picture, and to assemble a jigsaw-type puzzle.

The 90 volunteer subjects were female adult inmates of a women's prison. They had a mean I. Q. of 106 and a mean age of 33.5 years; 59 were Caucasian, 26 Negro, and 5 Mexican-American.

Personal adequacy was defined as success on parole. Three measures were used to predict parole success: the number of disciplinary reports received by each subject, the number of letters and visits for each subject, and the base expectancy score, which is an empirically derived predictor of parole success. None of the foregoing predictors of parole success showed a relationship to field dependence. However, actual success on parole, measured by return or nonreturn to prison, was related to an intermediate level of field dependence as measured by the EFT and the WAIS subtests, but was not related to RFT scores. Women who returned to prison tended to have either high or low scores on the EFT and on the WAIS subtests. Women who did not return to prison tended to have intermediate scores on the EFT and on the WAIS subtests.

The results provided cross-validation evidence in favor of the base expectancy as a predictor of parole success.

The results were interpreted as partial confirmation of Witkin's hypothesis that an intermediate level of field dependence is associated with personal adequacy.

Appendix A

Number of Subjects by  
Month and Year of Release

<u>Month</u>	<u>Total Group Released</u>	<u>Total Nonreturnees</u>	<u>Nonreturnees</u>	<u>Returnees</u>
	N = 81	N = 68	N = 13	N = 13
August 1966	1	1	1	
September 1966	2	2	2	
October 1966	2	2	2	
November 1966	7	5	5	2
December 1966	8	4	3	4
January 1967	2	1		1
February 1967	2	2		
March 1967	4	3		1
April 1967	4	4		
May 1967	6	5		1
June 1967	5	3		2
July 1967	4	4		
August 1967	2	2		
September 1967	4	4		
October 1967	2	2		
November 1967	6	5		1
December 1967	1	1		
January 1968	2	1		1
February 1968	2	2		
March 1968	3	2		
April 1968	4	5		
May 1968				
June 1968	2	2		
July 1968	2	2		
August 1968				
September 1968				
October 1968	1	1		
November 1968	2	2		
December 1968	1	1		

Appendix B

Months of Released Time

<u>Months</u>	<u>Group</u>		
	<u>All Nonreturnees</u>	<u>First-Released Nonreturnees</u>	<u>Returns</u>
29	1	1	
25 - 28	13	12	
20 - 24	15		2
15 - 19	15		1
10 - 14	11		2
5 - 9	9		5
1 - 4	4		3
Mean	17	26	10
Median	18	26	8

Appendix C

Characteristics of Returnees and  
First Released Nonreturnees

	<u>Returnees</u>	<u>Nonreturnees</u>
Mean Age, Years	32.2	35.2
Race	8 Caucasian 5 Negro	9 Caucasian 4 Negro
Total Number of Disciplinary Reports for Group	6	3
Mean Base Expectancy	34	74
Mean Months on Parole	10	26



Appendix D

Dates of Release of Returnees and Nonreturnees  
Matched for Release Date

<u>Returnees</u>	<u>Matched Release Date Nonreturnees</u>
November 3, 1966	November 3, 1966
November 3, 1966	November 7, 1966
December 19, 1966	December 2, 1966
December 20, 1966	December 13, 1966
December 21, 1966	December 20, 1966
December 22, 1966	December 27, 1966
January 31, 1967	January 24, 1967
March 3, 1967	February 27, 1967
May 22, 1967	May 24, 1967
June 5, 1967	June 9, 1967
June 19, 1967	June 15, 1967
November 15, 1967	November 17, 1967
January 10, 1968	January 3, 1968

Appendix E

Rod and Frame Test Scores  
(Mean Degrees of Absolute Deviation)

<u>Score</u>	<u>Frequency</u>
0 - 1.99	11
2 - 3.99	32
4 - 5.99	11
6 - 7.99	7
8 - 9.99	9
10 - 11.99	3
12 - 13.99	4
14 - 15.99	2
16 - 17.99	2
18 - 19.99	1
20 - 21.99	0
22 - 23.99	3
24 - 25.99	1
26 - 27.99	2
28 - 29.99	<u>2</u>
	90

Mean = 7.30

Median = 4.50

Range = 0.88 - 28.75

Appendix F

Embedded Figures Test Scores  
(Mean Seconds Per Design)

<u>Score</u>	<u>Frequency</u>
0 - 29.9	1
30 - 59.9	3
60 - 89.9	15
90 - 119.9	21
120 - 149.9	18
150 - 179.9	23
180	<u>9</u>
	90

Mean = 124

Median = 126

Range = 29.5 - 180

Appendix C

WAIS Subtest Scores  
(Sums of Scaled Scores for Picture Completion,  
Block Design and Object Assembly Subtests)

<u>Score</u>	<u>Frequency</u>
16 - 17	1
18 - 19	3
20 - 21	3
22 - 23	5
24 - 25	6
26 - 27	16
28 - 29	15
30 - 31	8
32 - 33	10
34 - 35	4
36 - 37	8
38 - 39	3
40 - 41	5
42 - 43	2
44 - 45	1
	<hr/>
	90

Mean = 30

Median = 29

Range = 16 - 45

Appendix H

Number of Disciplinary  
Reports Per Subject

<u>Number of Reports</u>	<u>Frequency</u>
0	70
1	16
2	3
3	<u>1</u>
	90

Mean = 0.3

Median = 0

Range = 0 - 3

Appendix I

Number of Letters and  
Visits Per Subject

<u>Number of Letters and Visits</u>	<u>Frequency</u>
0 - 19	16
20 - 39	24
40 - 59	22
60 - 79	8
80 - 99	7
100 - 119	7
120 - 139	3
140 - 159	1
/	
/	
200 - 219	1
/	
/	
240 - 259	<u>1</u>
	90

Mean = 54

Median = 46

Range = 4 - 245

Appendix J

Base Expectancy Scores

<u>Base Expectancy</u>	<u>Frequency</u>
Less than 10	7
10 - 19	3
20 - 29	5
30 - 39	9
40 - 49	8
50 - 59	5
60 - 69	11
70 - 79	20
80 - 89	15
90 - 99	6
100	<u>1</u>
	90

Mean = 58

Median = 67

Range = 0 - 100

Appendix K

Selected Means: EFT and RFT

<u>Reference</u>	<u>Subjects</u>	<u>Sex</u>	<u>N</u>	<u>EFT Mean Seconds per Design</u>	<u>RFT Series 3, Degrees Absolute Deviation</u>
Dickstein	Field Dependent Students	F	20	72.9	
	Field Independent Students	F	20	21.7	
Rhodes, Carr, & Jurji	Alcoholic TB Patients	M	15	133.2	
	Non-alcoholic TB Patients	M	15	104.5	
Kato	Students	M	40		7.15; 5.45 (retest)
Barclay & Cusmano	Adolescents, white (father present in home)	M	10		4.36
	Adolescents, Negro (father present in home)	M	10		5.63
	Adolescents, white (father absent)	M	10		6.99
	Adolescents, Negro (father absent)	M	10		9.53
Witkin, et al., 1954	Students	F	51	58.2	
	Women	F	258		11.0
CIW Sample	Inmates	F	90	124	7.30



Appendix L

Base Expectancy Scores for  
Returnees and Nonreturnees

<u>Score</u>	<u>Returnees</u>	<u>First- Released Non- returnees</u>	<u>Matched- Release Date Non- returnees</u>	<u>All Non- returnees</u>
0 - 9	3			4
10 - 19	2			1
20 - 29				3
30 - 39	3			4
40 - 49	1	2	1	6
50 - 59	1			3
60 - 69	1	3	3	10
70 - 79	2	1	4	17
80 - 89		5	3	13
90 - 99		1	2	6
100		1		1
Mean	34	74	74	64
Median	33	82	74	71
Range	0 - 77	41 - 100	41 - 96	0 - 100

#### REFERENCES

- Adelson, J., Personality. Annual Review of Psychology, 1969, 20, 243-244.
- Adevai, G., Silverman, A. J., & McGough, W. E., MMPI findings in field-dependent and field-independent subjects. Perceptual and Motor Skills, 1968, 26, 3-8. (a)
- Adevai, G., Silverman, A. J., & McGough, W. E., Perceptual correlates of the rod-and-frame test. Perceptual and Motor Skills, 1968, 26, 1055-1064. (b)
- Alexander, J. B., & Gudeman, H. E., Perceptual and interpersonal measures of field dependence. Perceptual and Motor Skills, 1965, 20, 79-86.
- Bailey, W., Hustmyer, F., & Kristofferson, A., Alcoholism, brain damage and perceptual dependence. Quarterly Journal of Studies on Alcohol, 1961, 22, 387-393.
- Barclay, A., & Cusmano, D. R., Father absence, cross-sex identity, and field-dependent behavior in male adolescents. Child Development, 1967, 38, 243-250.
- Barrett, G. V., & Thornton, C. L., Two methods of determining body sensitivity. A comparison and evaluation. Perceptual and Motor Skills, 1967, 25(2), 374-376. (a)
- Barrett, G. V., & Thornton, C. L., Cognitive style differences between engineers and college students. Perceptual and Motor Skills, 1967, 25(3), 789-793. (b)
- Barrett, G. V., Cabe, P. A., & Thornton, C. L., Visual function and Embedded Figures Test performance. Perceptual and Motor Skills, 1968, 26, 40.
- Barrett, G. V., & Thornton, C. L., Relationship between perceptual style and driver reaction to an emergency situation. Journal of Applied Psychology, 1968, 52, 169-176. (a)
- Barrett, G. V., & Thornton, C. L., Relationship between perceptual style and simulator sickness. Journal of Applied Psychology, 1968, 52(4), 304-308. (b)

- Bell, D. R., & McManis, D. L., Perceptual differences of subjects classified as reward seekers and punishment avoiders. Perceptual and Motor Skills, 1968, 27, 51-56.
- Benfari, R., & Vitale, P., Relationship between vertical orientation in the Rod and Frame Test and in a compensatory tracking task. Perceptual and Motor Skills, 1965, 20, 1073-1080.
- Bloomberg, M., Anagram solutions of field-independent and field-dependent persons. Perceptual and Motor Skills, 1965, 21, 766.
- Bloomberg, M., Field independence and susceptibility to distraction. Perceptual and Motor Skills, 1968, 20, 805-813.
- Burdick, J. A., Eye movements during the Embedded Figures Test. Perceptual and Motor Skills, 1965, 21, 726.
- Cabe, P. A., Note on response sets on the Rod-and-Frame Test. Perceptual and Motor Skills, 1968, 26, 94.
- Campbell, D. R., Dyer, F. N., & Boersma, J. J., Field dependency and picture recognition ability. Perceptual and Motor Skills, 1967, 25, 713-716.
- Clark, S. L., Authoritarian attitudes and field dependence. Psychological Reports, 1968, 22, 309-310.
- Cohen, J., The factorial structures of the WAIS between early adulthood and old age. Journal of Consulting Psychology, 1957, 21, 283-290.
- Cohen, J., The factorial structure of the WISC at ages 7-6, 10-6, and 13-6. Journal of Consulting Psychology, 1959, 23, 285-299.
- Conklin, R. C., Muir, W., & Boersma, F. J., Field dependency-independency and eye-movement patterns. Perceptual and Motor Skills, 1968, 26, 59-65.
- Dickstein, L. S., Field independence in concept attainment. Perceptual and Motor Skills, 1968, 27, 635-642.
- Dinnerstein, A. J., Marijuana and perceptual style: a theoretical note. Perceptual and Motor Skills, 1968, 26, 1016-1018.
- Evans, F. J., Field dependence and the Maudsley Personality Inventory. Perceptual and Motor Skills, 1967, 24, 526.
- Fiebert, M., Cognitive styles in the deaf. Perceptual and Motor Skills, 1967, 24, 319-329.

- Fitzgibbons, D., Goldberger, L., & Eagle, M., Field dependence and memory for incidental material. Perceptual and Motor Skills, 1965, 21, 743-749.
- Gardner, R., Holzman, P. S., Klein, G. S., Linton, H., & Spence, D. P., Cognitive control. Psychological Issues, 1959, I, No. 4.
- Gardner, R. W., Jackson, D. N., & Messick, S. J., Personality organization in cognitive controls and intellectual abilities. Psychological Issues, 1960, II, No. 4.
- Gesell, A., & Amatrude, C. S., Developmental Diagnosis, New York, Harper and Row, 1941.
- Goldstein, G., & Chotlos, J. W., Stability of field dependence in chronic alcoholic patients. Journal of Abnormal Psychology, 1966, 71, 420.
- Goodenough, D. R., & Karp, S. A., Field dependence and intellectual functioning. Journal of Abnormal and Social Psychology, 1961, 63, 241-246.
- Gorman, B. S., Field dependence and visual maze learning. Perceptual and Motor Skills, 1968, 27, 142.
- Gottfredson, D. M., Ballard, K. B. Jr., & Bonds, J. A., Base expectancy California Institution for Women. Sacramento, California: Research Division, California Department of Corrections, 1962.
- Hein, P., Cohen, S., & Shmavonian, B. M., Perceptual mode and Pavlovian typology. In Wortis, J., ed. Recent Advances in Biological Psychiatry, v. 7, 71-78. New York, Plenum Press, 1965.
- Hellkamp, D. T., Perceptual response sets on the Rod-and-Frame task in a college sample. Perceptual and Motor Skills, 1968, 27, 591-594.
- Hellkamp, D. T., & Marr, J. N., Dogmatism and field-dependency. Perceptual and Motor Skills, 1965, 20, 1046-1048.
- Higgins, N., & Gage, G., Perceptual mode and reading improvement of college students. Perceptual and Motor Skills, 1968, 26, 1249-1250.
- Jackson, D. N., A short form of Witkin's Embedded Figures Test. Journal of Abnormal and Social Psychology, 1956, 53, 254-255.
- Jackson, D. N., Messick, S., & Myers, C. T., Evaluation of group and individual forms of embedded-figures measures of field-independence. Educational Psychological Measurement, 1964, 24, 177-192.

- Jacobson, G. R., Effect of brief sensory deprivation on field dependence. Journal of Abnormal Psychology, 1966, 71, 115-118.
- Karp, S. A., Field dependence and overcoming embeddedness. Journal of Consulting Psychology, 1963, v. 27, No. 4, 294-302.
- Karp, S. A., Field dependence and occupational activity in the aged. Perceptual and Motor Skills, 1967, 24, 603-609.
- Karp, S. A., Poster, D. C., & Goodman, A., Differentiation in alcoholic women. Journal of Personality, 1963, 31, 386-393.
- Karp, S. A., Witkin, H. A., & Goodenough, D. R., Alcoholism and psychological differentiation: effect of achievement of sobriety on field dependence. Quarterly Journal of Studies on Alcohol, 1965, 26, 580-585.
- Kaswan, J., Haralson, S., & Cline, R., Variables in perceptual and cognitive organization and differentiation. Journal of Personality, 1965, 33, 164-177.
- Kato, N., A fundamental study of Rod and Frame Test. Japanese Psychological Research, 1965, 7, 61-68. (a)
- Kato, N., The validity and reliability of new Rod and Frame Test. Japanese Psychological Research, 1965, 7, 120-125.
- Klein, G. S., Barr, H. L., & Wolitzky, D. L., Personality. Annual Review of Psychology, 1967, 18, 508-510.
- Konstadt, N., & Forman, E., Field dependence and external directedness. Journal of Personality and Social Psychology, 1965, 1, 490-493.
- Korchin, S. J., More on Zigler on Witkin (letter). Contemporary Psychology, 1963, VIII, 365-366.
- Kristofferson, M. K., Effect of alcohol on perceptual field dependence. Journal of Abnormal Psychology, 1968, 73, 387-391.
- Lester, G., The Rod-and-Frame Test: some comments on methodology. Perceptual and Motor Skills, 1968, 26, 1307-1314.
- Levinson, B. M., Field dependence in homeless men. Journal of Clinical Psychology, 1967, XXIII, 152-154.
- Lyons, J., & Thomas, D. R., Influence of postural distortion on the perception of visual vertical in pigeons. Journal of Experimental Psychology, 1968, 76, 120-124.
- Messick, S., & Damarin, F., Cognitive styles and memory for faces. Journal of Abnormal and Social Psychology, 1964, 69, 313-318.

- Mueller, P. F. C., The development and use of parole outcome base expectancies by the California Department of Corrections. Sacramento, California: Research Division, California Department of Corrections, 1966.
- Oltman, P. K., & Capobianco, F., Field dependence and eye dominance. Perceptual and Motor Skills, 1967, 25, 645-646.
- Pillsbury, J. A., Meyerowitz, S., Salzman, L. F., & Satran, R., Electroencephalographic correlates of perceptual style: Field orientation. Psychosomatic Medicine, 1967, 29(5), 441-449.
- Postman, L., (Review). Psychological Bulletin, 1955, 51, 79-83.
- Proshansky, H., Proshansky on Zigler on Witkin (letter). Contemporary Psychology, 1963, VIII, 362-363.
- Rhodes, R. J., Carr, J. E., & Jurji, E. D., Interpersonal differentiation and perceptual field differentiation. Perceptual and Motor Skills, 1968, 27, 172-174.
- Rosenblum, L. A., Witkin, H. A., Kaufman, I. C., & Broscole, L. Perceptual disembedding in monkeys: note on method and preliminary findings. Perceptual and Motor Skills, 1965, 20, 729-736.
- Rudin, S. A., Figure-ground differentiation under different perceptual sets. Perceptual and Motor Skills, 1968, 27, 71-77.
- Schimek, J. G., Cognitive style and defenses: a longitudinal study of intellectualization and field independence. Journal of Abnormal Psychology, 1968, 73, 575-580.
- Schwartz, D. W., & Karp, S. A., Field dependence in a geriatric population. Perceptual and Motor Skills, 1967, 24, 495-504.
- Siegel, S., & Tukey, J. W., A nonparametric sum of ranks procedure for relative spread in unpaired samples. Journal of the American Statistical Association, 1960, 55, 429-445.
- Smith, J. G., (Review). Journal of Abnormal and Social Psychology, 1955, 51, 349-351.
- Spotts, J. V., & Mackler, B., Relationships of field-dependent and field-independent cognitive styles to creative test performance. Perceptual and Motor Skills, 1967, 24, 239-268.
- Stuart, I. R., Perceptual style and reading ability: implications for an instructional approach. Perceptual and Motor Skills, 1967, 24, 135-138.

- Thornton, C. L., & Barrett, G. V., Psychological differentiation and WISC "analytical I.Q.", methodological note. Perceptual and Motor Skills, 1967, 25(3), 704.
- Vaught, G. M., The relationship of role identification and ego strength to sex differences in the Rod-and-Frame Test. Journal of Personality, 1965, 33, 271-283.
- Wachtel, P. L., Style and capacity in analytic functioning. Journal of Personality, 1968, 36, 202-212.
- Wechsler, D., Manual for the Wechsler Adult Intelligence Scale. New York: The Psychological Corporation, 1955.
- Weissenberg, P., & Gruenfeld, L. W., Relationships among leadership dimensions and cognitive style. Journal of Applied Psychology, 1966, 50, 392-395.
- Wendt, G. R., Vestibular functions. In Stevens, S. S. ed., Handbook of Experimental Psychology. New York: Wiley, 1951.
- Willoughby, R. H., Field-dependence and locus of control. Perceptual and Motor Skills, 1967, 24, 671-672.
- Witkin, H. A., Psychological differentiation and forms of pathology. Journal of Abnormal Psychology, 1965, 70, 317-336.
- Witkin, H. A., & Asch, S., Studies in space orientation: IV Further experiments on perception of the upright with displaced visual fields. Journal of Experimental Psychology, 1948, 40, 762-774.
- Witkin, H. A., Birnbaum, J., Lomonačo, S., Lehr, S., & Herman, J. L., Cognitive patterning in congenitally totally blind children. Child Development, 1968, 39, 767-786.
- Witkin, H. A., Dyk, R. B., Faterson, H. F., Goodenough, D. R., & Karp, S. A., Psychological Differentiation. New York: Wiley, 1962.
- Witkin, H. A., Dyk, R. B., Faterson, H. F., Goodenough, D. R., & Karp, S. A., Witkin et al. on Zigler on Witkin et al. (letter). Contemporary Psychology, 1963, VIII, 363-365.
- Witkin, H. A., Lewis, H. B., Hertzman, M., Machover, K., Meissner, P. B., & Wapner, S., Personality through Perception. New York: Harper, 1954.
- Zigler, E., A measure in search of a theory? Contemporary Psychology, 1963, VIII, 133-135.
- Zuckerman, M., Field dependency as a predictor of responses to sensory and social isolation. Perceptual and Motor Skills, 1968, 27, 757-758.

**END**