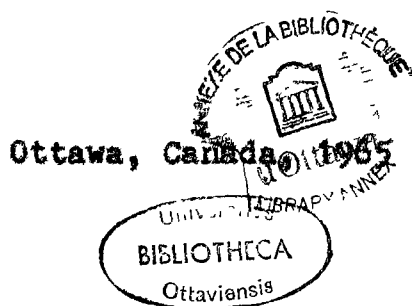


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PERCEPTUAL DIFFERENTIATION OF THE FIELD AS
RELATED TO DIFFERENTIATION OF THE
PERCEIVED SELF

By Ronald L. Trites

Thesis presented to the Faculty of
Psychology and Education of the
University of Ottawa as partial
fulfillment of the requirements
for the degree of Doctor of
Philosophy



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CURRICULUM STUDIORUM

Ronald L. Trites was born June 23, 1936, in Quesnel, British Columbia. He received the Bachelor of Arts degree in Education from Gonzaga University, Spokane, Washington, in 1958. He received the Master of Arts degree in Psychology from the University of Ottawa in 1963. The title of his thesis was, A Comparison between Psychiatric Patients and Non-patients on the Achromatic-Chromatic H-T-P Discrepancy Scores.

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INTRODUCTION

Since the early 1930's, there have been several approaches to the study of the problem of the relationship between perception and personality. Some of the investigators have been concerned with the influence of motivational factors, such as the drive for food, on perception. Others have been concerned mainly with the influence of cultural factors on perception. The physiological component of personality has also been studied as an influencing factor on perception.

One of the most detailed and productive investigations in this area has been concerned with studying the individual's increasing ability for differentiated perceptual and personality responses as development progresses. This approach has produced a wealth of data. However, the investigators eventually stated that all differences in ability for perceptual differentiation are due to the ability to overcome an embedding context. The meaning underlying this statement, although not spelled out by the authors, is that by reducing all differences in perceptual behaviour to the ability to overcome an embedding context, they are stating in effect that all individual differences in perceptual behaviour are due to differences in cognitive capacity. In addition, because personality factors have been reliably correlated with their perceptual measurements, and because of their

statements of a causal relationship between personality and perception, they would also have to state that the personality differences are caused by differences in cognitive capacity.

It is at this point, where individual differences are reduced to differences in ability to overcome an embedding context, that these investigators have been severely criticized. It has been pointed out frequently in the literature that their experimental investigations are lacking a foundation in theory, that they are being unduly reductionistic, and that they are making methodological errors.

The purpose of the study described on the pages that follow is to attempt to integrate or explain the findings on the relation between perceptual differentiation and personality differentiation within the framework of a theory.

The first chapter in the report of the present experimental investigation contains the review of the literature. The experimental approach to the study of perceptual differentiation as it is related to personality organization is reviewed first, and then a critical analysis of the work is presented. The theory central to this study is then discussed. After a brief description of the level of personality functioning to be investigated in this study, the theoretical hypotheses are stated.

The second chapter contains the discussion of the design of the experiment. The experimental hypotheses are enumerated, followed by a description of the sample, tools, methods of statistical analysis, and the procedure followed during the process of data gathering.

The results of the experiment are presented in the third chapter. Intelligence was a variable that was controlled for in this study and these results are presented first. The data on the reliability of the tools is presented next, followed by the group results obtained on the personality measurements. The last section of this chapter contains the results of the correlation between the perceptual and the personality measures.

The fourth chapter contains the discussion of the results. The discussion revolves around the hypotheses presented in the first chapter as well as a consideration of the 'bridge' between the facts and a theory. The limitations of this study in allowing generalizations to be formed are also considered.

The fifth section of this paper contains the summary and conclusions of the study. Suggestions for further research are also presented. This is followed by the appendices. The first appendix contains a copy of each of the personality tests used in this study and the second contains a sample

rating scale used in the original personality-perception studies. An abstract of the present experiment is presented in the third appendix.

CHAPTER I

REVIEW OF THE LITERATURE

In present day psychology there is a considerable amount of interest in the relationship between personality and perception. In fact, this is one area of psychological inquiry that is being vigorously investigated in both the clinic and the laboratory. Until the early 1940's, perception was studied either from the point of view of the nature of the observer or from the point of view of the nature of the perceptual field. Present day psychology owes much to these gestalt psychologists (the scientists who studied the nature of the perceptual field), and psychophysicologists (the scientists who studied the nature of the perceiving organism). They contributed a great deal of the knowledge of the general principles that govern perception.

However, beginning in the late 1930's, some investigators began to realize that a knowledge of structures can not fully explain all perceptual behaviour. The Fechnerians had to admit, that to say that all individual variances in responses was due to error, was an oversimplification. They had to admit the importance of motivational factors, even on the level of basic perceptual responses. It was at this time that Herman Rorschach published his book in which he clearly demonstrated individual differences based on visual

perception, in the response to ambiguous stimuli.¹ Other researchers began to realize that if the process of perception was to be understood it must be studied as an act involving the whole individual, even if the stimulus is structured. Several theorists, cognizant of the relationship between personality and perception, have developed theories which attempted to investigate the nature of the relationship. See, for example, the works of Bruner,² Klein,³ Frenkel-Brunswik,^{4,5} and Fisher and Cleveland.⁶

The remainder of this chapter will be devoted to a review of the theoretical and empirical foundations of the present study. The first section will contain a brief

1 H. Rorschach, Psychodiagnostics: A Diagnostic Test Based on Perception, Bern, Hans Huber, 1942, 226 p.

2 Jerome S. Bruner, "Personality Dynamics and the Process of Perceiving", in Robert R. Blake and Glenn V. Ramsey, eds., Perception: An Approach to Personality, New York, Ronald, 1951, p. 121-147.

3 G.S. Klein, "A Clinical Perspective for Personality Research", Journal of Abnormal and Social Psychology, 1949, Vol. 44, p. 42-50.

4 Else Frenkel-Brunswik, "Psychoanalysis and Personality Research", in G.W. Allport, ed., "Symposium on Psychoanalysis as seen by Analyzed Psychologists", Journal of Abnormal and Social Psychology, 1940, Vol. 35, p. 176-197.

5 -----, "Motivation and Behavior", Genetic Psychology Monographs, 1942, Vol. 26, p. 121-265.

6 S. Fisher and S. Cleveland, Body Image and Personality, Toronto, D. Van Nostrand Company (Canada), Ltd., 1958, xi-420 p.

exposition of the major attempt, to date, at investigating the relationship between perception and personality. The research referred to here, is that which was carried out by H.A. Witkin and his associates. The second section will contain criticisms of Witkin's work and the third section will contain a discussion of Werner's orthogenic theory. Werner's theory is discussed at this time because it provides the hypotheses, based upon Witkin's empirical findings, for the present study. The fourth section contains a discussion of the phenomenological approach in psychology and the fifth section contains a summary and presentation of the theoretical hypotheses to be investigated.

1. A Major Perception-Personality Investigation.

One of the first and most active group of investigators of the relationship between personality and perception is Professor H.A. Witkin and his associates. Witkin, et al. have spent twenty-three years investigating the relationships between personality organization and perceptual functioning. At this date the report of their findings covers some one thousand pages. In addition, hundreds of other studies by independent investigators, within the same perceptual framework outlined by Witkin, have added to this body of knowledge.

Postman states that Witkin has, through "(...)
precise and reliable measurements obtained under well-
controlled conditions (...)", demonstrated that people
differ in the way that they orient themselves in space.⁷

Witkin states specifically that,

(...)the way in which each person orients himself
in space is an expression of a more general pre-
ferred mode of perceiving which, in turn, is
linked to a broad and varied array of personal
characteristics involving a great many areas of
psychological functioning.⁸

Witkin's method of experimentation is to obtain a
series of perceptual and personality measurements from each
of his subjects. The personality measurements are obtained
from many different sources including projective drawings,
Rorschach, Thematic Apperception Test, observers' ratings,
etc. Witkin's use of projective data will be discussed
after the perceptual measures are described. The person-
ality measurements are correlated with what Witkin calls
the "perceptual index". The "perceptual index" for each
subject is arrived at by combining the subjects' scores
from three perceptual tests. They are:

⁷ Leo Postman, a review of Personality Through Per-
ception, by H.A. Witkin, et al., New York, Harper, 1954,
in Psychological Bulletin, 1955, Vol. 52, p. 80.

⁸ H.A. Witkin, R.B. Dyk, H.F. Faterson, D.R.
Goodenough and S.A. Karp, Psychological Differentiation:
Studies of Development, New York, John Wiley and Sons,
1962, p. 1.

- 1) Rod-and Frame Test (RFT).-- The apparatus consists of an illuminated frame inside of which is an illuminated rod. The subject is seated in a dark room facing the apparatus. The rod and frame are rotated independently to several different angles and the subject is instructed, sometimes while sitting erect and other times with his chair tilted, to return the rod to an upright position. The subject's score is the mean of his errors in degrees over eight trials. "This test evaluates the individual's perception of the position in relation to the upright of an item within a limited visual field."⁹
- ii) Tilting-Room--Tilting-Chair Test (TRTC).-- The apparatus consists of a tilting room inside of which is a tilting chair. The subject, when seated in the chair, cannot see outside of the room. There are two parts to this test:
 - a) The Room-Adjustment Test (RAT).-- The room and chair are tilted to various degrees and the subject is instructed to return the room to an upright position. There are eight trials. This test, although used in Witkin's early work was later excluded from the

⁹ Witkin, et al., Psychological Differentiation: Studies of Development, Op. Cit., p. 36.

perceptual index because it was discovered in a factor-analytic study by Linton that this was the one test in the perceptual test battery that had its major loading on another factor.¹⁰

- b) The Body-Adjustment Test (BAT). - The room and chair are tilted to various degrees and the subject is instructed to return the chair to an upright position. There are six trials.

In each series the score is the mean absolute error in degrees from the true upright. Witkin concludes that, "(...)these tests evaluate his [the subject's] perception of the position of his body and of the whole surrounding field in relation to the upright."¹¹ This point can be explained further by stating that the RFT, RAT, and BAT involve a conflict between the main determinants, visual and postural, of the perceived upright. Therefore, each presents the problem of integrating these conflicting sensory experiences and arriving at a unified perceptual impression.

¹⁰ H.B. Linton, "Relations Between Mode of Perception and Tendency to Conform", unpublished doctor's dissertation, Yale University, 1952, quoted by Witkin, et al., Psychological Differentiation: Studies of Development, New York, John Wiley and Sons, 1962, p. 46.

¹¹ Witkin, et al., Psychological Differentiation: Studies of Development, Op. Cit., p. 37.

- iii) The Embedded-Figures Test (EFT). - Witkin wanted to include some measures in his perceptual battery that do not involve perception of the upright. He selected the EFT as a measure of the ease in which a person can pick out a figure situated in a complex context. The EFT was originally developed by Gettschaltdt but Witkin found it necessary to develop a more difficult, chromatic, version because he found that the original achromatic version did not produce a wide enough distribution of scores.¹² In the EFT the subject is first presented with a drawing of a simple figure and later with the drawing of a more complex figure in which the simple figure is hidden. There are twenty-four complex figures. The subject's score is the mean amount of time taken to locate the simple figures. "This test also requires the subject to separate an item from the field in which it is incorporated, but it involves neither orientation toward the upright nor body position."¹³

¹² H.A. Witkin, "Individual Differences in Ease of Perception of Embedded Figures", Journal of Personality, 1950, Vol. 19, p. 1-15.

¹³ Witkin, et al., Psychological Differentiation: Studies of Development, Op. Cit., p. 39.

Witkin is interested in the formal rather than the material or content properties of organization. He is concerned with the study of the formal characteristics because it is his position that the results are more meaningfully comparable between and within individuals. On the other hand, the same content may have different meanings for two different people and even within the same individual on two different occasions. Witkin's definition of "formal" might best be given through the use of an illustration, for example, Witkin's analysis of a subject's response to the Rorschach is evaluated according to ten variables summarized by the following statement:

(...)is he willing to leave his percepts diffuse, ill-defined, indefinite, or does he achieve, or strive to achieve structure in his percepts? Is he able to respond differentially to the succession of stimuli presented to him, or do they tend to 'look alike' and to fuse with another. Is his 'hold' on his percepts sufficiently secure so that, in the inquiry, he can recall and specify what he saw? Or are his percepts unstable, so that he forgets what he has seen? Is he able to impose an organization, eliminating or otherwise actively handling distracting aspects of the stimulus material that do not fit in with his percept? Or does he become confused, allowing distracting aspects of the material to interfere with his thought process? What does the quality of his verbalizations suggest about the extent to which the whole experience is vague or structured for him?¹⁴

¹⁴ Witkin, et al., Psychological Differentiation: Studies of Development, Op. Cit., p. 82.

It can be readily seen that the common denominator underlying the points outlined above is that they are generally accepted by most psychodiagnosticians as indicators of general intelligence on the Rorschach. Witkin makes no note of this nor does he present a satisfactory rationale for the selection of these particular diagnostic features. These same general criticisms can be made of Witkin's way of analyzing all of the personality data.

As a result of the correlations between the perceptual index and the different personality measures, two general modes of perceiving, each with their characteristic clusters of behaviour, have been identified. At one end of the continuum lies the field dependent individual. Perceptually he is guided by the surrounding visual field and thus on the perceptual tests his performance is characterized by errors in judgment. Some of the psychological traits found to be associated with perceptual field dependence are poor sex identification, emotional lability, and rapid changing of ideas to conform with authority. On the other end of the perceptual continuum lies the field independent individual. Perceptually he is guided by sensations from within the body. Some of the psychological traits found to be associated with field independence are a clear and well articulated sex identity, controlled emotions, and a well structured ideational system.

For Witkin, the broad contrasting patterns of interrelated characteristics mentioned above reflect differences in the extent of psychological differentiation. He has formulated the "differentiation hypothesis" to account for the communality of behaviour in the individual based on his style of perception. He states that:

Specifically, the differentiation hypothesis proposes an association among the characteristics of greater or more limited differentiation, identified in the comparison of early and later functioning in each of several psychological areas: degree of articulation of experience of the world; degree of articulation of experience of the self, reflected particularly in nature of the body concept and extent of development of a sense of separate identity; and extent of development of specialized, structured controls and defenses. Implicit in this hypothesis is the view that greater inner differentiation is associated with greater articulation of the experience of the world.¹⁵

Witkin has investigated several hypotheses in his attempt to account for and explain the basis of the consistent individual differences in perception. Early in his work he rejected the hypothesis that individual differences in perception were due to differences in accuracy of perception.¹⁶ He also rejected the hypothesis that individual differences in the orientation tests reflect differences in body sensitivity.¹⁷ Finally, because of the consistently

¹⁵ Witkin, et al., Psychological Differentiation: Studies of Development, Op. Cit., p. 16.

¹⁶ Ibid., p. 42.

¹⁷ Ibid., p. 42.

high relationship found between the EFT and BAT-RFT, Witkin concluded that individual differences in perception are due to differences in ability to overcome an embedding context.¹⁸

2. Criticisms of Witkin.

When Witkin states, on the basis of the consistent correlational relationships found between the EFT and the other perceptual tests, that individual differences in perception are due to differences in ability to overcome an embedding context, he is making a basic error in statistical interpretation. Correlation does not prove causation. Also he seems to be making another error: equating perception with the operational definition of it. The EFT was initially used as just one of the tests in the perceptual battery, that is, one of the measures of perceptual differentiation. However, when the EFT turned out to be a highly reliable and valid perceptual measure, Witkin concluded that perceptual differentiation was the ability to overcome an embedding context. The point being emphasized here is that perceptual differentiation is not perception but is a response to a stimulus, a response that results from perception. The operational definition is not the phenomena, it only stands

¹⁸ Witkin, et al., Psychological Differentiation: Studies of Development, Op. Cit., p. 43.

for it. Gardner,¹⁹ although attesting to the "remarkable evidence of individual consistencies presented", also states that the conceptual scheme summarized by the term 'psychological differentiation' is not impressive because it seems to imply more generality than is warranted. Zimiles²⁰ points out that although Witkin has provided a great deal of very valuable empirical data, "The problem of conceptualizing psychological organization remains a lonely, unattended issue."²¹ Zimiles states further that,

Essentially, the differentiation construct posits consistency with respect to specificity of psychological functioning. It serves as a coordinating concept, an antecedent variable defined exclusively in terms of its consequences. Its vagueness and the absence of articulated theory about its antecedents restricts its generative potential and limits its usefulness as a concept.²²

At this point some of the other major criticisms of Witkin's work should be recounted. At the conclusion of the first major stage of his work, Witkin stated that one of his main goals was to determine the ways in which individual

19 R.W. Gardner, a review of Psychological Differentiation: Studies of Development, by H.A. Witkin, et al., New York, John Wiley and Sons, 1962, in American Journal of Psychology, 1963, Vol. 76, p. 709-711.

20 H.L. Zimiles, "The Problem of Individuality in Systematic Research", a review of Psychological Differentiation: Studies of Development, by H.A. Witkin, et al., New York, John Wiley and Sons, 1962, in Merrill-Palmer Quarterly of Behaviour and Development, 1964, Vol. 10, p. 375-383.

21 Ibid., p. 383.

22 Ibid., p. 382.

differences in perceiving are related to differences in personality.²³ But his attempts to link personality and perception have been severely criticized. Postman²⁴ states that Witkin uses "circular reasoning", that there has been "intemperate clinicizing of behaviour" and the "logic of inference is faulty and forced." Postman blames much of this on Witkin's use of projective techniques. He states that Witkin does not state a theoretical rationale for the selection of personality tests. Nor does Witkin demonstrate the reliability and validity of the projective tests as instruments in the way he is using them. Gruen,²⁵ in a twenty page review of Witkin's work, concurs with Postman and goes on further to state, that in the perception-personality relationship, "personality wasn't studied enough." Gruen means by this that only isolated personality traits were studied. More detailed interviews of the subjects should have been conducted and complete analyses of the Rorschach, TAT, DAP, and other personality tests should have been carried out in order to provide a more complete personality analysis.

23 H.A. Witkin, H.B. Lewis, M. Hertzman, K. Machover, P. Brettnall Meissner and S. Wapner, Personality Through Perception, New York, Harper, 1954, p. 464.

24 Postman, Op. Cit., p. 79.

25 A. Gruen, "A Critique and Re-evaluation of Witkin's Perception and Perception-Personality Work", Journal of General Psychology, 1957, Vol. 56, p. 73-93.

Gruen states that Witkin's approach fails to reflect phenomenologically different events by lumping different kinds of behaviour along one continuum.

This method of reporting very likely conceals the possibility that the body can be used in many different ways by the same as well as different individuals in these situations.²⁶

Coming back to a point mentioned earlier regarding Witkin's reduction of differences in the personality-perception relationship as being due to differences in ability to overcome an embedding context, Gruen states that "(...) using the perceptual end result as a kind of behavioural entity with a meaning all its own is invalid."²⁷ Gruen spells this out further by saying in effect that what looks like perceptual performance may for some people have very little to do with perception as we understand the term and if we look no further than the perception we may actually only be dealing with epiphenomena and not the process underlying the behaviour we are observing. Gruen states in effect that complexly interrelated variables at many different levels of psychological organization may be combining to produce the behavioural end results observed by Witkin on both the perception and personality tests. Thus, what looks like

²⁶ Gruen, Op. Cit., p. 85.

²⁷ Ibid., p. 85.

perceptual differentiation in one individual may have an entirely different meaning for another.

Zigler,²⁸ in a paper titled "A Measure in Search of a Theory?", reviews Witkin's latest book and makes some further pertinent points. Zigler points out that because of the significance and consistency of the relationships, it is evident that there is something meaningful in Witkin's work. However, "(...) the theoretical superstructure built on these relationships left much to be desired."²⁹ Zigler goes on to say that "(...) it is precisely here, in their theoretical efforts, that the Witkin group promises so much and delivers so little."³⁰ By way of one approach to the solution of this inadequacy, Zigler states that "The concept of differentiation could have been used as a bridge to join Witkin's interesting empirical work with that of such investigators as Piaget and Werner."³¹

This last point requires further elaboration. Witkin began his experimental investigations with the idea of investigating Werner's orthogenic principle that development preceeds from a state of relative globality and lack of

28 E. Zigler, "A Measure in Search of a Theory", Journal of Contemporary Psychology, 1963, Vol. 8, p. 133-135.

29 Ibid., p. 134.

30 Ibid., p. 135.

31 Ibid., p. 135.

differentiation to a state of increasing differentiation, articulation, and hierarchic integration. The constant recurrence in Witkin's writings of terms such as articulation, primitive thinking, and concreteness as well as the emphasis on formal characteristics rather than the content of thought, give support to the idea that Werner's writings have been influential in his work. However, differentiation for Witkin has now become just an explanatory concept that is used only to signify consistency in an individual's behaviour. Some people are more differentiated than others and if they are differentiated in one area of functioning such as perception, they will also be differentiated in other areas of functioning such as defences, emotions, and values. By stating that individual differences in the perception-personality relationship are due to differences in ability to overcome an embedding context, Witkin has become unduly reductionistic and has divorced himself from Werner's theory. The concept of overcoming embeddedness is only one of a whole number of lower order constructs that may one day be derived from Werner's orthogenic principle. Zigler's statement that a bridge is needed to join Witkin's findings to a theory is an important and timely one. Or,

as Bruner and Postman³² state the problem, Witkin's stated aim was to develop a theory and body of empirical knowledge concerned with the motivational dynamics of perception. However, he has not sufficiently concerned himself with the mechanisms that intervene between the central factors (such as past learning or physiological structure or need states) and perception.

3. Werner's Orthogenic Theory.

Werner's orthogenic theory presents the most complete and systematic account to date of the relationship between differentiation and perception. Werner states that a fundamental law of development that can be applied to mental functions and which has been demonstrated in the genesis of the nervous system is that "An increasing differentiation and refinement of mental phenomena and functions and a progressive hierarchization may be accepted as a basic principle."³³ Regarding the process of differentiation during development, he states that "(...) organization is less differentiated, more homogenous at earlier levels than at more advanced

32 J.S. Bruner and L. Postman, "Perception, Cognition, and Behaviour", in J.S. Bruner and D. Krech, eds., Perception and Personality: A Symposium, Duke University Press, Durham, North Carolina, 1950, p. 14-31.

33 H. Werner, Comparative Psychology of Mental Development, New York, International Universities Press, Inc., 1948, p. 51.

stages. This seems to hold even for the most general relationships between mind and body."³⁴ This concept of differentiation as described by Werner seems to have become axiomatic in psychology.

Regarding the objects of perception, Werner states that

Things do not stand out there, discrete and fixed in meaning with respect to the cognitive subject. They are intrinsically formed by the psycho-physical organization of which they constitute an integral part, by the whole vital motor-affective situation.³⁵

By this statement, Werner means that there is a high degree of unity between the subject and the object and that differentiation takes place within the total 'life space'. By way of an illustration of the unity between the subject and the object, Werner points out that if the stimuli overwhelm the individual and he can no longer keep himself apart from them, for example noises so loud that the subject feels vibration within him (Werner's "vital sensations"), then they are undifferentiated perceptions and "(...) they are psychophysically undifferentiated and involve pervasive bodily reactions to the stimuli."³⁶ The research evidence of the type

³⁴ Werner, Op. Cit., p. 56.

³⁵ Ibid., p. 59.

³⁶ Ibid., p. 96.

discovered by Bruner and Goodman³⁷ on the size estimation of coins by rich as compared to poor children is consistent with Werner's emphasis on the unity between the individual and the environment.

Werner states that as part of his explanation of the concept of differentiation that the younger the child, the greater the influence of the totality of the organization in his percept. He states that there is a development from a diffuse perceptual organization to an organization in which the essential feature is a decisiveness of parts standing in clear relationship. In the visible world of the undifferentiated individual, things have meaning insofar as they are integral parts of the context in which they function. It is hardly possible for the undifferentiated individual to conceive of a thing detached from the totality of the concrete situation in which it is embedded. The embedding of things in the concrete situation demonstrates clearly what is meant by a relatively global, or diffuse type of organization.³⁸

As the spheres of reality become differentiated with respect to one another through the child's release

³⁷ J.S. Bruner and C.C. Goodman, "Value and Need as Organizing Factors in Perception", Journal of Abnormal and Social Psychology, 1947, Vol. 42, p. 33-44.

³⁸ Werner, Op. Cit., p. 135.

from his uniform, diffuse reality, there is at the same time an internal differentiation within the regions of each sphere. "And these intra-differentiations come predominantly into being through differential behaviour, rather than in any intellectual way."³⁹

Regarding the personality of the primitive or undifferentiated individual, Werner states that the diffuseness of the primitive personality has an internal and an external aspect. Internally the structure of the primitive personality is more homogeneous; more globally determined. There is a certain lack of discrimination between essential and therefore constant elements, and peripheral, transient elements. The undifferentiated personality is diffuse in its external relations. The boundary between self and other is blurred. Thus the process of differentiation applies to both factors of ego and surrounding world.⁴⁰

Piaget, as reported by Flavell, is saying essentially the same thing as Werner when he states:

(...) there is simultaneously a centrifugal process of gradual objectification of external reality and a centripetal process of burgeoning self awareness (...)⁴¹

³⁹ Werner, Op. Cit., p. 401.

⁴⁰ Ibid., p. 419-439.

⁴¹ J.H. Flavell, The Developmental Psychology of Jean Piaget, New Jersey, D. Van Nostrand Company, 1963, p. 61.

Knowledge of self and knowledge of objects are thus the dual resultants of the successive differentiation and equilibration of the invariant functions which characterize sensory-motor development.⁴²

Before leaving the discussion of Werner's theory it may be interesting to describe some of the studies that have been carried out within the framework of Werner's orthogenic theory. There have been very few direct experimental studies of these developmental principles in the area of perception but the studies that have been done have produced consistent and significant results. Hemmendinger,⁴³ in a normative study using nine groups of normal subjects ranging in chronological age from three to forty years, conceptualized Rorschach responses according to Werner's developmental levels. He found, for example, that the "W%" decreases to age eight and then increases. Hemmendinger interprets this as being due to the fact that young children see the world in a global fashion and by age eight the child is able to see details in the world. In Werner's framework, this would be evidence of perceptual differentiation. After age eight there is a gradual increase in "W%" indicating the process of hierarchic integration. Hemmendinger was able

⁴² Flavell, Op. Cit., p. 62.

⁴³ Larry Hemmendinger, "Perceptual Organization and Development as Reflected in the Structure of Rorschach Test Responses", Journal of Projective Techniques, 1953, Vol. 17, p. 162-170.

to demonstrate statistically several other age trends in response to the Rorschach. He was able to conclude that there is a positive relationship between age and maturity of perception as outlined in Werner's theory.

Friedman⁴⁴ wanted to see if Werner's theory would hold up if other sense modalities were investigated. He studied audition and designed what is now known as the Auditory Projective Test which is comprised of twenty sets of three stimuli. As each set of three recorded sounds is played, the subject is asked to tell a story about them. In Werner's framework this demands that the subject must first differentiate the sounds and then synthesize or hierarchically integrate them. Friedman found that schizophrenics, or de-differentiated individuals in Werner's terms, performed significantly more globally, and they gave more stimulus bound responses than normals. In another study, investigating a different area of differentiation, Friedman⁴⁵ found that the ability for organized psychomotor behaviour, as measured by the ability to take circuitous action; the ability to plan action; the ability to use personal motives; etc.; is

⁴⁴ Howard Friedman, "The Structural Aspects of Schizophrenic Responses to Auditory Stimuli", The Journal of Genetic Psychology, 1956, Vol. 89, p. 221-230.

⁴⁵ -----, "A Comparison of Action Patterns of Schizophrenic and Normal Adults", Journal of Clinical Psychology, 1958, Vol. 14, p. 142-148.

correlated with level of differentiation. This finding is in keeping with Werner's theoretical statements previously mentioned, that in the action patterns of the undifferentiated individual there is a lack of separation of subject and object, the undifferentiated individual acts immediately and acts on the basis of what the objects suggest to him. This finding is consistent with Allport's⁴⁶ statements of a close relationship between action patterns and personality and is demonstrated in his studies of expressive movement.

Wilensky,⁴⁷ on the basis of the relationship between Rorschach responses and developmental level as outlined in the above studies, tested the relationship between Rorschach responses and overt behaviour. Using hospitalized chronic schizophrenics, Wilensky found a relationship between Rorschach responses and ward status (that is whether the patient was on an open ward with privileges, or confined to a closed ward) and social participation. Patients giving more differentiated responses were allowed more freedom for individual choice and participated more in group activities. Wilensky concluded that "(...) the application of Werner's

⁴⁶ G.W. Allport and P.E. Vernon, Studies in Expressive Movement, New York, MacMillan, 1933, xiii-269 p.

⁴⁷ Harold Wilensky, "Rorschach Developmental Level and Social Participation of Chronic Schizophrenics", Journal of Projective Techniques, 1959, vol. 23, p. 87-92.

developmental theory to Rorschach performance may provide a basis for the more accurate prediction of overt behaviour."⁴⁸

Lebowitz⁴⁹ categorized subjects' behaviours involving visual perception, auditory perception and motor functioning according to level of differentiation. Using groups of schizophrenics, ulcer patients, and normals, she found that the normals evidenced a higher degree of differentiated perceptual functioning than schizophrenics in all three areas of activity. Normals also evidenced a greater degree of differentiated visual and auditory functioning than the ulcer patients. Thus, it is clear from the above studies that Werner's theory of differentiation is bearing some fruit.

To come back to the present study, and in response to Zigler's remark that a bridge is needed between Witkin's empirical findings and a theory, it seems that Werner's orthogenic theory would be an interesting starting point. Werner is very specific regarding his statements about perception and his theoretical statements are based on a strong empirical foundation. One possible starting point in looking for a bridge would be to extend a hypothesis that Witkin has already rejected, namely that individual differences in

⁴⁸ Wilensky, Op. Cit., p. 92.

⁴⁹ Anne Lebowitz, "Patterns of Perceptual and Motor Organisation", Journal of Projective Techniques, 1963, Vol. 27, p. 302-308.

perception reflect differences in the extent of body sensitivity. Keeping in mind Werner's theoretical statements that it is the psychophysical organization of the genetic totality which is the cause of differentiation in perception, one could look beyond the extent of body sensitivity and into areas of psychological sensitivity or differentiation. One possibility would be to investigate the differentiation of the self and body image on the phenomenological level as it is related to perceptual differentiation.

4. The Phenomenological Approach.

Wylie states that, "(...) all theories of personality which have been put forth within the last two decades assign importance to a phenomenal and/or nonphenomenal self-concept with cognitive and motivational attributes."⁵⁰ The phenomenologists generally agree that the self may be regarded as the individual's 'internal frame of reference' or as defined by Combs and Snygg, "(...) the phenomenal self has the feeling of complete reality to the individual. It is himself from his own point of view."⁵¹ The body image, or visual memory image

⁵⁰ R.C. Wylie, The Self Concept: A Critical Survey of Pertinent Research Literature, Lincoln, University of Nebraska Press, 1961, p. 2.

⁵¹ A.W. Combs and D. Snygg, Individual Behaviour: A Perceptual Approach to Behaviour, New York, Harper, 1959, Rev. Ed., p. 145.

one has of his own body, is generally considered to be part of the self.^{52,53} Sarbin and Jones state that the self, as a phenomenological object, is a cognitive product and "The assessment of the self can be made from statements of the person under instructions to describe himself."⁵⁴

In perception-personality research the measures of phenomenological personality are particularly suitable because in phenomenal theories the self is one aspect of the perceptual field.⁵⁵ The self has the conceptual properties of a phenomenal object, thus, in the present study, the term differentiation as applied to perception will have the same meaning when it is applied to the 'self' and the 'body image'. They are from the same conceptual universe. The other reason for using measures of the phenomenal self and body image in the present study has already been mentioned in passing. That is, as Gruen,⁵⁶ Postman,⁵⁷ and also

⁵² D.P. Ausubel, Ego Development and the Personality Disorders, New York, Grune and Stratton, 1952, p. 13.

⁵³ Combs and Snygg, Op. Cit., p. 77.

⁵⁴ T.R. Sarbin and D.S. Jones, "An Experimental Analysis of Role Behaviour", Journal of Abnormal and Social Psychology, 1955, Vol. 51, p. 237.

⁵⁵ Combs and Snygg, Op. Cit., p. 20 and 44.

⁵⁶ Gruen, Op. Cit., p. 73-93.

⁵⁷ Postman, Op. Cit., p. 79-83.

Arnhoff and Damianopoulos⁵⁸ point out, if projective tests are used as measures of the self and body image, the subject's responses are complex, a combination of many variables, and thus very difficult to analyze statistically.

Regarding the usefulness of the phenomenological approach, Smith points out that

It furnishes the basis for certain valuable theoretical constructs; it does not give birth to them in full concreteness. It sets some problems and provides some clues; the psychologist, theorist, or clinician, must infer the answers.⁵⁹

Thus it would seem that the phenomenological approach is particularly suited for exploratory research like the present study in which one of the problems, as has been mentioned by Gruen,⁶⁰ is to find out at what levels of behaviour performance is really mediated.

5. Summary and Theoretical Hypotheses.

A review of a major empirical investigation into the relationship between personality and perception was presented. Then several criticisms of this series of experiments were

⁵⁸ F.N. Arnhoff and E.N. Damianopoulos, "Self-Body Recognition and Schizophrenia", The Journal of General Psychology, 1964, Vol. 70, p. 353-361.

⁵⁹ M.B. Smith, "The Phenomenological Approach in Personality Theory: Some Critical Remarks", Journal of Abnormal and Social Psychology, 1950, Vol. 45, p. 517.

⁶⁰ Gruen, Op. Cit., p. 89.

reviewed. It was seen that although most of the reviewers were impressed by the significance and consistency of the correlations found between the perceptual and personality measurements, there was an unanimity of agreement over the fact that the empirical findings have not been integrated with a theory.

The concept of differentiation as outlined by Werner was then discussed as a possible bridge to join the empirical findings to Werner's orthogenic theory.

The method of investigating the personality-perception relationship within the framework of Werner's theory was then discussed. It was seen that the phenomenological approach to the study of personality has particular merits in personality-perception research.

The theoretical hypotheses for the present study can now be presented. Werner's theory leads to the expectation that greater ability for perceptual differentiation will be associated with greater differentiation of the phenomenological self and body image. Because of the intimate unity between the subject and object described by Werner and also because of his statement that differentiation takes place within the 'genetic totality', it is expected that subjects who are capable of perceptual differentiation will also have a differentiated phenomenological self and body image. On the other hand, individuals who are perceptually

undifferentiated, that is, individuals whose approach to the environment is diffuse and global, will have an undifferentiated phenomenological self and body image.

CHAPTER II

EXPERIMENTAL DESIGN

This chapter presents a discussion of the procedures undertaken to experimentally test the hypotheses presented at the conclusion of the last chapter. The first section of this chapter presents the experimental hypotheses. In the second section the sample is described; this is followed by the third section in which the psychometric battery for this study is described. In the fourth section a discussion of the statistical procedures to be carried out for the purposes of data analysis is presented. The fifth and final section presents a description of the procedures followed during the process of data gathering.

1. Experimental Hypotheses.

It was stated at the conclusion of the last chapter that Werner's theory leads to the expectation that greater ability for perceptual differentiation will be associated with greater differentiation of the phenomenological self and body image. Stated in null form for the purposes of statistical evaluation, the hypotheses read as follows:

- A. The correlation between EFT scores and BC variability scores is not significantly different from zero.

- B. The correlation between EFT scores and SC variability scores is not significantly different from zero.

In this study both male and female subjects were used and as will be seen in section two of this chapter, sex differences in performance on the EFT can be expected. Therefore, the general statistical hypotheses stated above were broken down to allow for these possible differences. The sub hypotheses were:

- C. The correlation between EFT scores and BC variability scores for males is not significantly different from zero.
- D. The correlation between EFT scores and BC variability scores for females is not significantly different from zero.
- E. The correlation between EFT scores and SC variability scores for males is not significantly different from zero.
- F. The correlation between EFT scores and SC variability scores for females is not significantly different from zero.

2. The Sample.

The sample consisted of one hundred and fifty subjects drawn from a college population and was comprised of

an equal number of males and females. It was necessary to control for sex differences because Witkin reports consistent sex differences in mode of field approach in that females as a group are more field dependent than males.¹ The groups were combined for part of the statistical analysis for as Witkin states, "The sex differences that have been observed are clear-cut and pervasive, but they are relatively slight, compared to the range of individual differences within each sex."²

Intelligence was also a variable that was controlled in this study. As will be seen below in section three when the EFT is discussed, the degree of perceptual differentiation is related to scores on intelligence tests. Thus, only individuals within a ten to fifteen point range of intelligence test scores, best described as being probably within the Bright Normal classification, were used as subjects in this study. For this reason it was necessary to test at least two hundred individuals initially so that the extremely high and low scorers could be omitted.

There was no need to control for the degree of psychological adjustment of the subjects in this study

¹ H.A. Witkin, et al., Psychological Differentiation: Studies of Development, New York, Wiley, 1962, p. 214-221.

² Ibid., p. 221.

because as Witkin reports,³ and other studies have confirmed,⁴ perceptual differentiation is unrelated to the presence or absence of pathology.

3. The Psychometric Battery.

The tests in the psychometric battery included the Shipley Institute of Living Scale (S-H), the EFT, and the Body-Cathexis (B-C) and Self-Cathexis (S-C) tests. They are discussed in this section in that order.

It was mentioned above that it was necessary to control for intelligence in this study. The S-H was used as the measure of intelligence. This test consists of two sub-tests, a forty item multiple choice vocabulary test, and a twenty item completion-type abstraction test. Each sub-test has a time limit of ten minutes. It is a sufficiently reliable instrument⁵ and studies by Sines and Simmons⁶ and

3 Witkin, et al., Op. Cit., p. 204-213.

4 R.H. Dana and B. Goocher, "Embedded Figures and Personality", Perceptual and Motor Skills, 1959, Vol. 9, p. 99-102.

5 Walter C. Shipley, "A Self-Administering Scale for Measuring Intellectual Impairment and Deterioration", Journal of Psychology, 1940, Vol. 9, p. 371-377.

6 Lloyd K. Sines and Helen Simmons, "The Shipley Hartford Scale and the Doppelt Short Form as Estimators of WAIS I.Q. in a State Hospital Population", Journal of Clinical Psychology, 1959, Vol. 15, p. 452-453.

Wahler and Watson⁷ found it to be a good predictor of W.A.I.S. I.Q. scores. The correlations between the S-H and the W.A.I.S. found in the last two studies mentioned above are .90 and .88 respectively.

The chromatic EFT developed by Witkin⁸ was used as the measure of perceptual differentiation in this study. The EFT consists of a series of five simple figures and twenty-four complex chromatic figures. There are twenty-four trials. In each case the subject is presented with a simple figure and fifteen seconds later, after the simple figure has been removed, the individual is presented with the complex figure. The subject is asked to locate the simple figure and his score is the number of seconds it takes him to do so. The maximum time given to locate any one figure is five minutes. The subject's score is the total number of seconds it takes him to locate the simple figures in all twenty-four trials. Witkin found that the subjects' times ranged from one to 72 minutes when he standardized the test.⁹ There were fifty-one men and 51

7 H.J. Wahler and L.S. Watson, "A Comparison of the Shipley Hartford as a Power Test with the WAIS Verbal Scale", Journal of Consulting Psychology, 1962, Vol. 26, p. 105.

8 Herman A. Witkin, "Individual Differences in Ease of Perception of Embedded Figures", Journal of Personality, 1950, Vol. 19, p. 1-15.

9 Ibid., p. 9.

women in Witkin's initial standardization study. The mean time for men was 15'54" with a standard deviation of 12'48" and for women was 23'18" with a standard deviation of 15'12".

The EFT has consistently correlated significantly with measures of intelligence. A summary of the studies reporting on the relationship between mode of perceptual field approach and intellectual functioning has already been presented.¹⁰ In fact the EFT occupies one of the cells in Guilford's model of intelligence. The operation is convergent thinking, the product is transformation, and the content is figural. In this frame of reference, overcoming embeddedness involves a figural redefinition. Certain lines must take on new roles. Guilford refers to this kind of ability as concrete intelligence.¹¹

The EFT has proven to be a consistently reliable instrument. In Witkin's original study the odd-even reliability was +.87 for men and +.74 for women.¹² A summary of the studies on the reliability of the EFT has been

¹⁰ Witkin, et al., Psychological Differentiation: Studies of Development, Op. Cit., p. 59-80.

¹¹ J.P. Guilford, "Three Faces of Intellect", The American Psychologist, 1959, Vol. 14, p. 469-479.

¹² Witkin, "Individual Differences in Ease of Perception of Embedded Figures", Op. Cit., p. 15.

reported elsewhere.¹³ The correlations range from .89 to .95 even after three years.

In the present study a short form of the EFT was used. Jackson¹⁴ has found that by using only twelve of the twenty-four complex figures, the short form will still correlate .99 with the total test. On two cross validation studies the correlations of the short form with the total test were .96 and .98 respectively. In addition, if the time limit on each figure is reduced from the original five minutes to three minutes, the test still correlates .97 for males and .96 for females. Thus, if twelve figures with a three minute time limit is used, the total testing time is cut in half and very little possibility of error is introduced.

Regarding the validity of the EFT as a measure of perceptual differentiation, Witkin states that, "(...) an ability to deal with the field analytically, as evaluated in the embedded-figures test, appears to be the main determinant of performance in the body-adjustment tests(...)"¹⁵ Witkin reports the results of several studies in which the scores

¹³ Witkin, et al., Psychological Differentiation: Studies of Development, Op. Cit., p. 40.

¹⁴ D.N. Jackson, "A Short Form of Witkin's EFT", Journal of Abnormal and Social Psychology, 1956, Vol. 53, p. 254-255.

¹⁵ H.A. Witkin, et al., Personality Through Perception, New York, Harper, 1954, p. 88.

on the perceptual tests were intercorrelated.¹⁶ Although the EFT is a poorer predictor of perceptual differentiation for female subjects than for male subjects, the correlations with the perceptual index are still significant at the 0.01 level of confidence, that is, .46 and .66 respectively.¹⁷ Karp, in a factorial study of eighteen perceptual tests using 150 male college students found the EFT, RFT, and BAT to load .82, .78, and .74 respectively on the first factor. He concluded that "Tests involving ability to overcome embeddedness clearly define Factor I and suggest a high degree of overlap between measures of field dependence(...)"¹⁸

It seems then, that for research purposes, the EFT is an adequate measure of mode of perceptual field approach.

The tests to be described now are those used to measure differentiation of the phenomenological self and body image. Secord and Jourard¹⁹ have devised a self report method of appraising the feelings of an individual toward his body. The test consists of two scales, Body Cathexis (BC) and Self Cathexis (SC). The authors define cathexis as the

¹⁶ Witkin, et al., Personality Through Perception, Op. Cit., p. 84-89, 114-118.

¹⁷ Ibid., p. 85.

¹⁸ Stephen A. Karp, "Field Dependence and Overcoming Embeddedness", Journal of Consulting Psychology, 1963, Vol. 27, p. 299.

¹⁹ P.F. Secord and S.M. Jourard, "The Appraisal of Body-Cathexis: Body-Cathexis and the Self", Journal of Consulting Psychology, 1953, Vol. 17, p. 343-347.

degree of feeling of satisfaction (positive cathexis) or dissatisfaction (negative cathexis) with various parts or processes of the body and self.²⁰ There are forty six items in the BC test and fifty-five items in the SC test. Each item is rated on a five point scale by the subject. A copy of each of the tests is to be found in Appendix 1.

The BC and SC scales have been found to be sufficiently reliable for research purposes. Secord and Jourard²¹ found the split-half reliability of the BC to be .81 and of the SC to be .90. Johnson²² found the test-retest reliability over a six to eight week interval to be .72 for the BC and .74 for the SC. Piccinin found the odd-even reliability of the BC to be .86.²³

To date, some general trends in the results from this test are emerging. Females obtain higher or lower intratest item mean scores on the BC test, that is, they cathect their bodies more, irrespective of direction, than males.^{24,25}

20 Secord and Jourard, Op. Cit., p. 343.

21 Ibid., p. 347.

22 L.C. Johnson, "Body Cathexis as a Factor in Somatic Complaints", Journal of Consulting Psychology, 1956, Vol. 20, p. 145-149.

23 S. Piccinin, Assessment of Body Attitudes of Normal Individuals by Direct and Indirect Measures, unpublished master's thesis presented to the School of Psychology and Education, University of Ottawa, 1960, vii-40 p.

24 Secord and Jourard, Op. Cit., p. 343-347.

25 -----, "Body Cathexis and Personality", British Journal of Psychology, 1955, Vol. 46, p. 130-138.

For males, there is a significant relationship between actually large body size and positive ratings on the BC test.²⁶ For women, it is just the reverse, positive cathexis is associated with relatively small size and, except for the bust measurement, negative cathexis is associated with relatively large size.²⁷ In addition to the finding that women cathect their bodies more highly than men, the additional fact that they show more variability in their ratings has been interpreted that the body is more likely to be a source of greater satisfaction or dissatisfaction for women.²⁸ Some of the other general findings to date can be summarized as follows. There is a low but significant correlation between the BC and SC ratings for both males ($r = .58$; $p > .01$) and females ($r = .66$; $p > .01$).^{29,30} Although females show greater variability on the BC ratings than males, there

26 S.M. Jourard and P.F. Secord, "Body Size and Body-Cathexis", Journal of Consulting Psychology, 1954, Vol. 18, p. 184.

27 -----, "Body-Cathexis and the Ideal Female Figure", Journal of Abnormal and Social Psychology, 1955, Vol. 50, p. 243-246.

28 R.G. Hunt and M.J. Fellman, "Body Image and Ratings of Adjustment on Human Figure Drawings", Journal of Clinical Psychology, 1960, Vol. 16, p. 35-38.

29 Jourard and Secord, "Body Cathexis and Personality", Op. Cit., p. 130-138.

30 Johnson, Op. Cit., p. 145-149.

are no sex differences on SC ratings.³¹ However, in terms of within sex differences, males show significantly greater variance on SC ratings as compared to BC ratings whereas females show no difference.^{32,33}

Recently this type of self report or phenomenological approach to the measurement of the self concept has come in for some criticism. Combs, et al.³⁴ state that the self report is not a complete measure of the self concept because for one thing, the individual is not completely aware of his self concept and also, adequate symbols for representing one's feelings are not always present. Combs also states that the subject may be unwilling to communicate his self perceptions because he may feel threatened, and also the subject may wish to conform to social expectancy and thus not reveal his true self perceptions.

In order to demonstrate experimentally that their criticisms of the self report technique are valid, Combs, et al. devised an experiment using fifty-nine sixth grade

31 Jourard and Secord, "Body Cathexis and Personality", Op. Cit., p. 130-138.

32 Ibid., p. 130-138.

33 Johnson, Op. Cit., p. 145-149.

34 A.W. Combs, D.W. Soper and C.C. Courson, "The Measurement of Self Concept and Self Report", Journal of Educational and Psychological Measurement, 1963, Vol. 23, p. 493-500.

children as subjects. They compared the self ratings given by the children with the ratings of four 'trained' observers. The observers rated each child after a one and one-half hour observation period. The correlations between the children's self ratings and the observers' ratings ranged from $-.199$ to $+.333$ with a mean correlation of $+.11$. On this basis the authors concluded that self ratings are not an adequate measure of self concept.

There are several points to be considered in evaluating this study. First of all, the authors give no reasons why children rather than adults were used as subjects in this study. Most authors agree that the child's self concept is only in a state of formation and thus lacks enduring and stable qualities. Several methodological weaknesses of this study could also be enumerated. First, self ratings were based on only eighteen items and perhaps this affords the subject, even a young child, little opportunity to describe himself adequately. Secondly, three half-hour observations for a total observation period of one and one-half hours seems to afford an observer little opportunity for making an adequate assessment of a child's self concept. Thirdly, a great deal of faith is given to the reliability and validity of observers' ratings and yet no evaluative data, even inter-rater agreement, is reported.

Perhaps the most important question to ask in evaluating this study is with regards to the conclusion. The authors concluded that self ratings are not an adequate measure of the self concept. On the basis of their study this seems to be an unwarranted generalization for the reasons given above. In addition, even the question of expecting self ratings, if they are valid, to agree with observers' ratings could be discussed in terms of phenomenological theory^{35,36} but this discussion would not be germane to the present study.

The original SC and BC tests have been extended, in terms of statistical treatment at least, for use in measuring another concept in self theory, the concept of differentiation. Jourard and Remy³⁷ assumed that an individual who is highly differentiated would show more variability in his ratings of self and body image. Using the same items and the same five point rating scale as in the original BC and SC tests, they now computed a variance score for each individual instead of the original intratest mean of ratings. Jourard and Remy

³⁵ A.W. Combs and D. Snygg, Individual Behaviour: A Perceptual Approach to Behaviour, New York, Harper, Rev. Ed., 1959, p. 416.

³⁶ F.H. Allport, Theories of Perception and the Concept of Structure, New York, Wiley, 1955, p. 14-57.

³⁷ S.M. Jourard and R.M. Remy, "Individual Variance Score: An Index of the Degree of Differentiation of the Self and the Body Image", Journal of Clinical Psychology, 1957, Vol. 13, p. 62-63.

found that females show more variability than males when rating their bodies but there are no sex differences in the variability of self ratings. Females show no differences in the variability of self versus body image ratings but males vary their ratings of the self significantly more than their ratings of their body. There have been no cross validation studies, nor indeed, any other studies using this technique.

In 1961, Wylie stated that this is the only study reported in the literature that has "specifically concerned itself with 'differentiation' within the phenomenal self."³⁸ No new tests of this nature have appeared in the literature since that time. However, Wylie questions the discriminant validity of the index of differentiation:

The construct validity of such a measure for indexing differentiation within the phenomenal self has not been demonstrated, however, for the reason we shall now explain. Since Jourard and Remy's traits are evaluative, the mean of the self-ratings from all the items (traits) is a self-esteem score. The S whose self-ratings vary a great deal from trait to trait must necessarily get a lower mean self-esteem score than does a S who rates himself consistently at the high end of every trait scale. This implies that the self-concept differentiation score (interitem variance) must correlate with the self-esteem score (item mean).³⁹

³⁸ R.C. Wylie, The Self Concept: A Critical Survey of Pertinent Research Literature, Lincoln, University of Nebraska Press, 1961, p. 113.

³⁹ Ibid., p. 113.

This objection is valid only to the extent that all individuals who show little variability in self ratings tend, as a group, to use the extreme upper or on the other hand, the lower points on the rating scale. There is, to date, no empirical evidence to suggest that this is the case. However, in the present study correlations between the interitem variance and the intratest item mean on the BC and SC tests were computed in an attempt to assess the validity of Wylie's objection. The results will be presented in chapter three.

For the purposes of this study then, differentiation of the phenomenal self and body image is defined operationally as the amount of variability in the individual's rating of items having to do with his self and body image. An individual is considered as having a highly differentiated self and/or body image to the extent that he varies his self ratings of one or both. An individual is considered to be lacking in differentiation to the extent that his ratings of each item having to do with the self and body image, consistently occupy one spot on the rating scale.

4. Statistical Analysis.

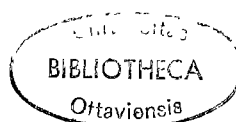
The reliability of the EFT, the BC test, and the SC test were computed. The reliability of the EFT was obtained by the split-half method and the coefficient was arrived at through the rank difference correlation technique. It

was felt that the split-half method was sufficient for the EFT because the reliability of this tool has been demonstrated many times in the literature. The rank difference correlation technique was used because of the relatively small number of EFT's selected for this part of the data evaluation.

The reliability of the variability scores on the BC and SC tests were obtained by the test-retest method with an interval of five weeks. The reliability coefficients were computed by the rank difference method. The test-retest method was used because the reliability of the variability scores on the BC and SC tests has not been demonstrated and thus a demanding technique was used. The rank difference correlation technique was used because of the relatively small sample selected and also because it is a conservative estimation of reliability.

Since the primary purpose of this study was to investigate the relationship between EFT scores and variability scores on the self rating scales, Pearson r correlations between these scores were obtained. The measure of variability for each individual was a modified variance (σ^2) of his ratings on the items within the BC and the SC tests. The formula was:

$$\text{Variability} = \frac{N \sum X^2 - (\sum X)^2}{N}$$



It can readily be seen that if the "N" in the denominator was changed to " N^2 ", this would be a standard formula for obtaining a measure of variance. The "N" was not squared in this study merely for the purpose of having larger variability numbers to work with. A measure of the variance instead of the standard deviation was used in this study to simplify computation. Also, variance scores were used because there was no reason to assume that each individual's distributions were not part of the same universe. For this study then, the larger the variability score on the self rating tests, the more differentiated the individual.

The distributions were positively skewed and therefore normalized for this stage of the data analysis. The C-scale method as described by Guilford was used. The reason for the non-normality of distribution is discussed in section four of the following chapter.

5. Procedure.

All of the tests in the psychometric battery can be administered in group form except for the EFT. Thus, the S-H, the BC, and the SC was given to 211 subjects and, on the basis of the S-H scores obtained, 150 subjects including an equal number of males and females were selected as the experimental population. Each of the 150 subjects was then seen individually and given the EFT.

In a small 'captive' population word travels fast, especially when tests are involved. There was a possibility, especially regarding the self-rating tests, that communication between individuals may have influenced the final results. For this reason all of the initial 211 subjects were tested in one day.

Before initiating group testing each subject was assigned a prearranged number and directed to use only the number and not a name, on the test blanks. Prearranged numbers were necessary because the subjects had to be contacted for an individual testing session. Numbers were used in the hope of facilitating frankness and subsequent comments supported this interpretation. In fact some subjects added a note on the test blank stating that they hoped no one, besides the examiner, finds out the identity of the respondent.

A brief talk on the necessity of honesty of report preceded each of the three group testings. Subjects were reassured that no one would see their names.

The first test administered to each group was the S-H. This is a timed test and the test sheets were collected when the time period had expired. Then the subjects were instructed to read the directions to the BC test and proceed. As mentioned earlier, a copy of this test along with the SC test is to be found in Appendix 1 of this report. The average group testing time was approximately one hour.

Approximately five weeks after the initial group testing period, sixty of the original subjects who had been chosen at random, were reassembled for the purpose of obtaining the reliability data. The directions and procedure described above were repeated.

This chapter has presented a statement of the statistical hypotheses which were formulated on the basis of the theory presented in the first chapter. Then the procedure for testing the hypotheses was presented including a discussion of the sample, tools, statistical procedures, and data gathering process. The next chapter will contain the presentation of the results of the experiment.

CHAPTER III

PRESENTATION OF RESULTS

This chapter presents the results of the experiment described in the previous chapter. The results are presented in four sections. The first section contains the intelligence test score results. The second section contains the test reliability data which is followed by a comparison of the male and female groups on the BC and SC variability scores presented in the third section. The third section also contains the correlation coefficients computed to test Wylie's assumption of a relationship between interitem variance and intratest item means on the BC and SC tests. The fourth and final section contains the results of the correlations computed between the EFT and the BC-SC tests.

1. The Intelligence Test Results.

Intelligence was a variable controlled for in this study. It was found that by using the S-H raw scores of 55 and 75 as cut-off scores, 157 of the total 211 subjects tested were retained. The S-H raw scores of 55 and 75 correspond to WAIS I.Q.'s of 110 and 124 respectively. Thus, all subjects in this sample obtained scores within a range of 14 I.Q. points.

For descriptive purposes, the S-H results are presented in Table I. It can be seen that the male and female groups obtained quite similar scores. It is interesting to note that a large proportion of subjects who were dropped from the sample because their S-H scores were below the cut-off point were individuals whose first language was not English. The S-H seems to be a highly culture-bound test. This includes the Performance section as well as the Verbal section.

2. Reliability of the Tools.

The reliability of the EFT will be discussed first in this section and following this there will be a discussion of the reliability of the BC and SC tests.

The reliability of the EFT was determined by the odd-even method. Thirty EFT's were selected at random from the sample and a correlation coefficient arrived at by the rank-difference method. A coefficient of +.66 which is significant at the .01 level of confidence was obtained. Then the Spearman-Brown formula for estimating the reliability of scores based on the whole test was computed. The resulting coefficient of +.80 is also significant at the .01 level of confidence. Although the Spearman-Brown estimation is generally a little high, in this case the difference may

Table I.-

Means, Standard Deviations, Ranges, and Converted WAIS I.Q.'s
of the S-H Scores Obtained.

	M	σ	Range	The Range Convert- ed to <u>WAIS</u> I.Q.'s
Males (N = 75)				
Verbal Score	32.08 ^a	2.92	25-38	106 - 125
Performance Score	32.00	4.86	20-40	98 - 128
Females (N = 75)				
Verbal Score	32.28	3.42	23-40	103 - 128
Performance Score	32.03	4.58	20-40	98 - 128
Total (N = 150)				
Verbal Score	32.18	3.18	23-40	103 - 128
Performance Score	32.01	4.72	20-40	98 - 128

^a All scores in this column convert to a WAIS I.Q.
of 116.

be compensated for through the initial use of the rank-difference technique which is usually an under-estimation of the Pearson coefficient.

This odd-even reliability of the short form of the EFT for the combined group of males and females compares favourably with the odd-even reliability coefficient of $+ .87$ for men ($N = 51$) and $+ .74$ for women ($N = 51$) reported by Witkin in the initial standardization study using all twenty-four test designs.¹ As Witkin² reports in his summary of the reliability data that has been obtained on the EFT, Bauman has found the test-retest correlation over a three year interval to be $.89$ for men and women. Dana and Goocher found the test-retest correlation to be $.92$ after a one week interval. Regarding further reliability data, Witkin reports that corrected odd-even correlations for the EFT of $.88$ to $.95$ have been found.

The coefficient reported in the present study is slightly lower than those consistently reported in other studies. This lowered figure is quite probably due to the homogeneity of the present sample. Scores on the EFT are

1 H.A. Witkin, "Individual Differences in Ease of Perception of Embedded Figures", Journal of Personality, 1950, Vol. 19, p. 9.

2 H.A. Witkin, et al., Psychological Differentiation: Studies of Development, New York, Wiley, 1962, p. 40.

related to intelligence and as was seen above, this sample is quite homogeneous along this variable. However, for group research, the .80 obtained here is adequate.

The mean EFT score, in terms of the number of seconds required to locate the twelve simple figures, for males is 568.78 and for females is 682.39. The difference between the means of 113.61 seconds is significant at the .05 level of confidence, ($CR = 2.3$). This can be compared to the CR of 2.7 ($p > .01$) obtained by Witkin in the standardization study.³ Both findings are supported by a large number of independent investigations using subjects from eight years and older and also subjects from other cultures.⁴ The fact that women as a group, are significantly more field dependent than men, will be discussed in chapter four.

The reliability of the variability scores of the BC and SC tests was determined by the test-retest method with an interval of five weeks. All coefficients were obtained by the rank difference technique. Thirty males and thirty females were selected at random from the sample for retesting. All of the coefficients turned out to be significant at the .01 level of confidence. The test-retest

³ Witkin, "Individual Differences in Ease of Perception of Embedded Figures", Op. Cit., p. 8.

⁴ Witkin, et al., Psychological Differentiation: Studies of Development, Op. Cit., p. 214.

reliability coefficients for the BC test were .76 for the males, .85 for the females, and .81 for the combined group of sixty subjects. The test-retest reliability coefficients for the SC test were .57 for the males, .71 for the females, and .70 for the combined group of sixty subjects.

From the results reported here, the BC test would seem to be a more reliable test than the SC even though all coefficients are significant at or beyond the .01 level of confidence. These reliability coefficients of the interitem variability scores on the BC and SC tests cannot be directly compared to the reliability coefficients obtained from any other studies because the one study that was interested in the variability of an individual's ratings, that is the study by Jourard and Remy, does not report reliability data. The results can, however, be compared favourably to the reliability coefficients reported in the studies using the intratest item means of the BC and SC tests. When this kind of comparison is made, the present findings are comparable to the test-retest coefficients over a six to eight week interval of .72 for the BC test and .74 for the SC test reported by Johnson.⁵ Generally the split-half coefficients reported are slightly higher than those reported

⁵ L.C. Johnson, "Body-Cathexis as a Factor in Somatic Complaints", Journal of Consulting Psychology, 1956, Vol. 20, p. 145-149.

here. Secord and Jourard in the initial standardization study in which they were interested in only the reliability of the intratest item means and not the reliability of the interitem variability scores, report the split-half reliability of the BC test to be .81 and of the SC test to be .90.⁶

One factor which could have contributed to whatever unreliability is present in the interitem variability scores on the BC and SC tests is that both the male and female group showed significantly less variability on the retest ratings on the SC test. The t value, for the difference between correlated means for the male group is 2.24 and for the female group is 2.35. Both are significant at the .05 level of confidence. In addition the male group also showed less variability on the BC retest ratings. The t value for the difference between correlated means is 2.15 which is significant at the .05 level of confidence. As can be seen from the test-retest reliability coefficients reported, it is just on these three scores that the reliability coefficients, although significant at the .01 level of confidence, are the lowest. One possible explanation for the decrease in variability where it was found on the retest ratings, is that it could have been due to the fact that the

⁶ P.F. Secord and S.M. Jourard, "The Appraisal of Body-Cathexis: Body-Cathexis and the Self", Journal of Consulting Psychology, 1953, Vol. 17, p. 343-347.

subjects had all rated themselves previously and perhaps had adopted a casual attitude. Other factors may be at play, such as changes in self perception during the interval. Due to a lack of experimental control for these and other possible variables the hypotheses cannot be checked at this time.

All other comparisons between the means of the retest sample and their original scores, and also the retest sample and the original scores of the total group, indicated that the differences between the means were not statistically significant. Thus, with the exception of the three differences mentioned above, the retest sample is similar to the original sample.

3. The Variability Scores.

Regarding the results of the variability scores on the BC and SC tests, it can be seen from Table II that there are no sex differences on either the BC or SC tests. The ranges and standard deviations are also nearly identical. Thus, it can be said of the sample used in this study that the males and females, as groups, do not differ in the amount of phenomenological or self reported differentiation of the self and body image. The findings in regards to the scores on the SC test are consistent with those reported

Table II.-

The Means, Standard Deviations and Ranges of the Variability-Scores for Males and Females on the BC and SC Tests.

	Mean	Critical Ratio of Means	Standard Deviation	Range
<u>BC</u> Test				
Males (N = 75)	43.08	1.50 ^a	24.06	9.65 - 119.65
Females (N = 75)	48.75		22.36	14.00 - 121.52
Total (N = 150)	45.91		23.40	9.65 - 121.52
<u>SC</u> Test				
Males (N = 75)	69.06	1.78 ^a	27.74	13.71 - 131.93
Females (N = 75)	77.12		27.64	14.18 - 128.90
Total (N = 150)	73.09		27.98	13.71 - 131.93

a Difference between the means is not statistically significant.

by Jourard and Remy.⁷ That is, they also found no difference between the mean variability scores for the male and the female group on the SC test. However, they found that the female subjects showed significantly more variability ($t = 2.13; p > .05$) on the BC test than did the male group. The results of the present study do not support this latter finding.

It was mentioned in the introduction to this chapter that the results of the statistical procedures carried out to test Wylie's hypotheses about the nature of the variability scores would be discussed in this section. Wylie, it will be remembered, states that the variability scores on the BC and SC tests must correlate with the item mean scores. However, Wylie's criticism was questioned because it seems that she is assuming that subjects who do not vary their self ratings tend as a group to consistently use the upper, or perhaps the lower end of the rating scale. To test Wylie's assumption, twenty-two BC test records and twenty-two SC test records were selected at random from the total group of data. In both cases, the samples included an equal number of males and females. Rank difference correlations were computed between the item mean and the interitem variance scores for

7 S.M. Jourard and R.M. Remy, "Individual Variance Scores: An Index of the Degree of Differentiation of the Self and the Body Image", Journal of Clinical Psychology, 1957, Vol. 13, p. 62-63.

both tests. The correlation between the item mean and interitem variance scores on the BC test was $-.22$ and on the SC test was $-.17$. Neither correlation approaches significance statistically. Hence, as far as the present sample is concerned, Wylie's objection does not seem to be a valid one.

4. The Relationship Between the EFT and the BC-SC Tests.

Before presenting the results of the correlations between the EFT and the BC-SC tests it must be mentioned that because of the significant correlation between performance on the EFT and intelligence test scores, one would expect to find a considerable positive skewedness in the distribution of EFT scores in this study. The reason for this statement has already been discussed and is that there is an inverse relationship between EFT scores and intelligence test scores. The present sample is a select group on the upper end of the intelligence scale, thus the EFT scores would tend to be grouped on the lower end of the EFT time scale. It was evident in the initial stages of statistical evaluation that this had happened. For this reason, the distributions of scores on the EFT, BC test, and SC test were normalized for this stage of the statistical analysis. The C-scale system as described by Guilford was used.

The results of the Pearson r correlations between the normalized EFT scores and the normalized BC and SC test scores are presented in Table III. For males, no relationship was found between the ability to differentiate perceptually and the amount of phenomenological differentiation on either the BC test or the SC test. In fact there is a very small tendency toward a negative relationship, that is, the greater the ability for perceptual differentiation, the greater the tendency to show little variability in self ratings.

However, for females the results are in the predicted direction. There is a statistically significant relationship between the ability to differentiate perceptually and the tendency to vary self ratings for females. Also then, females who have a lower ability for perceptual differentiation tend to show less variability in self ratings of the body image and self.

When the male and female groups are combined there is still a small but significant relationship between perceptual style and differentiation of either the phenomenological self or the phenomenological body image. However, it seems that these coefficients are carried entirely by the relationship found in the female sample.

Further analysis, by inspection of the scattergrams, showed no trends toward curvilinearity. In all six graphic

Table III.-

The Pearson r Coefficients between the Normalized EFT Scores and the Normalized BC-SC Variability Scores.

	Variables Correlated	
	EFT and BC	EFT and SC
Males(N = 75)	-.026	-.046
Females(N = 75)	+.361 ^a	+.487 ^a
Total(N = 150)	+.168 ^b	+.214 ^a

a Significant at the .01 level of confidence.

b Significant at the .05 level of confidence.

distributions, the frequencies were evenly dispersed and located within an area that can best be described as elliptical in shape. Therefore no further statistical tests were indicated.

This chapter has contained a presentation of the results of the experiment described in chapter two. The presentation has included reliability data, construct validity data, and data on the relationship between the variables under investigation. The next chapter will present an interpretative discussion of this data.

CHAPTER IV

DISCUSSION OF RESULTS

This chapter will present a discussion of the results outlined in the previous chapter. The first section contains a discussion of the hypotheses in light of the statistical results. The second section presents a discussion of the experimental findings as they have to do with the relation between psychological differentiation and specialization of functioning. In light of the findings discussed in section two, it seems necessary to extend the differentiation hypothesis as described by Werner and this is discussed in the third section. The fourth section presents the limitations of this study in allowing conclusions and generalizations to be formulated. The fifth and final section presents a discussion of the results of the study in terms of the 'bridge' mentioned in chapter one.

1. The Hypotheses.

The results of the statistical analysis of the female sample in this study permit the rejection of the null hypothesis of no relationship between perceptual differentiation and phenomenological self differentiation. Also, the hypotheses of no relationship between perceptual differentiation and phenomenological body image differentiation for females can

be rejected. It can be said that there is a moderate correlation indicating a substantial relationship between perceptual differentiation and differentiation of either the phenomenological self or the phenomenological body image.

More specifically, it can be stated that the female subjects who have the most ability to overcome a distracting context, who are most able to quickly redefine figures, who are less strongly influenced by the structure and direction of the prevailing visual field, are the individuals who give the most differentiated ratings of their self and body image. On the other hand, field dependent female subjects, that is, those more strongly influenced by the structure and direction of the prevailing visual field, tend to show less variability in their self ratings. Hence, for this group, the style of visual perception of external events is related to the style of perception of themselves.

The null hypotheses for the male group in this study could not be rejected. They could not be rejected because no relationship was found between perceptual differentiation and differentiation of the phenomenological self, nor was a relationship found between perceptual differentiation and differentiation of the phenomenological body image. The lack of relationship was not due to a lack of variability of self ratings among male subjects because they demonstrated as a group, as much variability in self ratings as did the

female group. Other factors seem to be at play here and they will be discussed below.

If one were to interpret the findings of this study in the light of Werner's theory, before considering other factors, one could conclude that the data supports the hypothesis of a unity between the subject and object, that is, as far as the female group is concerned. The undifferentiated female makes undifferentiated perceptions and the differentiated individual makes differentiated perceptions. Although the relationship just described is a significant one statistically, it is far from being perfect. But as Guilford states, findings of the order presented here are "(...) often very indicative of a psychological law."¹ However, within the framework of the design of the present study, the relation between subject and object as proposed by Werner is not evident for the male group.

One point that should again be emphasized before entering into a further discussion of the results is that the males, as a group, are significantly more analytical or field independent than females. This is the case even though there is a complete overlapping of the distributions of scores on the EFT between the male and female groups.

¹ J.P. Guilford, Fundamental Statistics in Psychology and Education, New York, McGraw-Hill, 1956, p. 147.

This point is of particular importance here because Witkin has demonstrated experimentally that a greater sense of separate identity and a more highly articulated body concept accompanies, or is related to, analytical functioning in perception. This experimental data was gathered from several sources, including the Draw-A-Person Test and the Thematic Apperception Test. For example the dimension of 'articulation of the body concept', one of the measures of sense of separate identity, was measured through the use of a rating scale devised for the purpose of rating human figure drawings. For illustrative purposes, a copy of the rating scale, obtained from Witkin, has been placed in Appendix 2 of this report. Witkin concludes by stating that in subjects with an analytical field approach, "The self is experienced as segregated and structured; stable internal frames of reference are available for self-definition and for interpreting and reacting to the world."²

On this basis, one possible explanation for the sex differences in this study is that for females the boundary between the self and the environment is not as clearly defined as it is for males.

2 H.A. Witkin, et al., Psychological Differentiation: Studies of Development, New York, Wiley, 1962, p. 155.

Considered as a group, the perceptual behaviour of females is characterized by a greater lack of separation of objects in the perceptual field. It was reported on page 26 of this report that the phenomenological self and body image can be considered as being from the same conceptual universe as the perceptual stimuli in the EFT. The point being made here then is that, in undifferentiated individuals, the responses to perceptual objects are uniform in style because of the lack of articulation of boundaries between the objects in the conceptual universe.

Thus, one way of interpreting the results found in the female sample would be to state that along with the generally less defined or more permeable boundary between the self and environment, there is a greater identity in the mode of perception of 'self' and 'other'. In other words, the less articulated boundary between 'self' and 'other' for females results in a greater similarity between the way the self is perceived and the way the environment or 'other' is perceived. The more permeable boundary or lesser degree of articulation being discussed here in relation to the female group is also discussed by Werner. It will be remembered from chapter one of this paper that Werner states that to the degree that the individual is undifferentiated there is an increasing lack of separation of subject and object.

The concept of vital sensations as described by Werner may have meaning here. By vital sensation, Werner means that the undifferentiated individual, that is, the individual who can not maintain the boundary between the self and the object, when presented with strong stimulation will experience an inner sensation on the physiological level. This point has experimental support in that Lebowitz³ has demonstrated that ulcer patients are more undifferentiated than normals and Fisher and Cleveland⁴ have demonstrated that the boundary between the self and the environment of ulcer patients is permeable. For this reason, ulcer patients react on the physiological level and conflict is expressed through the viscera. Using the concept of vital sensation within the framework of the present study, it would seem that the reverse of the above is also true. It seems plausible that undifferentiated individuals, because of the lack of separation of subject and object, cannot prevent inner feelings, cognitions, and conations from affecting the perception of external events.

The average male subject, at least on the perceptual level, experiences a greater separation between the self

³ Anne Lebowitz, "Patterns of Perceptual and Motor Organization", Journal of Projective Techniques, 1963, Vol. 27, p. 302-308.

⁴ S. Fisher and S. Cleveland, Body Image and Personality, Toronto, D. Van Nostrand Company (Canada), Ltd., 1958, xi-420 p.

and the object or environment. Because of the more highly articulated sense of separate identity the possibility exists that the style of perceptual differentiation of external events may be unrelated, divorced, or at least separated from the style of perception of inner 'reality'. Stated in terms of Werner's orthogenic theory, the adult male subjects in this study were able to respond to the dynamic visual properties of their environment independently of their perceptions of inner events. Thus, even though for Werner, differentiation during the long period of ontogenesis culminates in hierarchic integration, it would seem that specialization and independence of functioning still exists. The studies cited below support this claim and in doing so point to the fact that the differentiation hypothesis in its present state of formulation must be extended or at least spelled out more specifically.

2. Differentiation and Specialization.

Wyer⁵ has recently demonstrated that differentiation is not related to integration in the cognitive functioning of adult subjects. He found that the ability for cognitive differentiation, measured in terms of the ability to analyze

⁵ R.S. Wyer, "Assessment and Correlates of Cognitive Differentiation and Integration", Journal of Personality, 1964, Vol. 32, p. 495-509.

an experimentally constructed event into a number of distinct concepts, was unrelated to the ability for cognitive integration. Cognitive integration was measured in terms of the subject's ability to integrate experimental events into a meaningful whole. The findings in Wyer's study, that measures of the ability for cognitive differentiation are unrelated to measures of cognitive integration, both being abilities found in Werner's differentiated and hierarchically integrated individual, will be discussed further in section three of this chapter.

Another study having to do with the separation and specialization of function evidenced by the male sample in this study is an investigation carried out by Palmer.⁶ Palmer set out to investigate the hypothesis that individual differences in degree of differentiated handedness is part of a more general process of psychobiological development. He cites the theoretical statements of Werner, Penfield and Roberts, Bonin, Gesell, and others, who state that handedness develops according to cultural demands out of initially undifferentiated movement patterns. Palmer quotes Bonin's statement that morphological asymmetries between the hemispheres in the adult cannot account for the great

⁶ R.D. Palmer, "Hand Differentiation and Psychological Functioning", Journal of Personality, 1963, Vol. 31, p. 445-461.

differences in hemisphere function, hence learning or other factors must be important. From these statements, Palmer views one-sidedness as a differentiation from the whole. He hypothesizes that the degree of lateralization in motor functioning achieved by the adult is an index of the extent of total personality development. Palmer's experimental procedure was to instruct adult male subjects to balance a wooden dowel with alternately different hands. His index of laterality was the time ratio. An individual was considered to be ambidextrous and thus not one-sided if he could balance the dowel about as long with one hand as he could with the other. On the other hand, the higher ratio of balancing time with one hand as compared to the other, for example 31/1, the more laterality the subject was considered to have. Palmer used group personality tests including the Minnesota Multiphasic Personality Inventory, Taylor Scale of Manifest Anxiety, and the Gough Adjective Check List, as his tests of personality development. Palmer found that the results of the initial experiment, plus the results from two cross validation studies, supported the hypothesis that differentiation in handedness is related to psychological development. He concluded that the non-specialists or ambidextrous individuals have less ego strength, are more self derogatory, withdrawn, brooding, and phenomenologically they feel more awkward. He states that the lower ego strength of the

nonspecialists is reflective of poorer integration on the psychological and motor level. Palmer states that the non-specialist or ambidextrous individuals have failed to maximize their developmental potential and, on the other hand, he states that there is a correspondence between strong lateralization and 'developmentally later' personality functioning.

The major criticism of Palmer's study is that it is questionable how adequate his measure of laterality is. Requesting a subject to balance a wooden rod is only one aspect of handedness. Other tests of lateral proficiency should have been used. It is also unfortunate that only male subjects were studied. It is possible that sex differences may have been found which would have allowed Palmer to form his conclusions with more certainty and to make broader generalizations.

Notwithstanding the methodological problems just mentioned, the results obtained by Palmer along with the results obtained by Wyer, are consistent with the results obtained in the present study. Even though Wyer's study was concerned with cognitive differentiation, Palmer's study with psychomotor differentiation, and the present study with perceptual and personality differentiation, each study led to the conclusion that within the differentiated individual the various structures retain their specialization and independence of functioning.

3. The Differentiation Hypothesis Extended.

This question of specialization and hierarchic integration is not spelled out adequately in Werner's theory. The interpretation of hierarchic integration generally accepted is that, following the process of differentiation that takes place during development, a complex interrelation of structures within the individual takes place. This is what the personality theorists call the integrated personality.

The results of the present study along with those by Wyer and Palmer suggest that the explanation cannot end with just the notion of hierarchic integration. It must also be emphasized that in the differentiated individual the various structures retain their specialization and the individual is capable of functioning on one level to the exclusion of all others. The less differentiated individual is not capable of this complete separation of response to stimuli.

4. Limitations to Interpretation.

The interpretation of the findings of this study must be limited to individuals in the upper ranges of intellectual ability. In addition, the sample was drawn from a college population and thus interpretations must be limited to individuals of that age.

Another limiting factor in this study is that only one measure of perceptual differentiation was used. Even though this measure correlates highly with other measures available, complete generalization must await the replication of this study using other perceptual measures.

Also, only one level of personality, the phenomenological, was studied. Different levels of personality and their relation to perceptual differentiation will need to be studied within the framework of Werner's theory. The same can be said for the different levels of personality adjustment as well as different kinds of pathology.

5. The 'Bridge' between Witkin's Facts and Werner's Theory.

The findings of this study are something of an addition to the body of facts that has been established by Witkin. This study needs to be cross validated, but provisionally at least, it can be stated that for females, perceptual differentiation is related to differentiation of the phenomenological self and body image. The same statistical relationship was not found for males. However, a tentative reason for the results found in the male sample, in terms of Werner's theory, was presented.

In giving a complete explanation of the findings, it is evident that to just accept Witkin's statement that the individual differences observed are due to differences

in ability to overcome an embedding context, is not adequate. A more plausible account of the facts can be made in terms of Werner's theory. In this light, the ability to make differentiated perceptions is seen as reflective of the total maturational process. Individual differences in the ability for differentiation is not due just to differences in cognitive capacity as Witkin states, but are more credibly seen as Werner states, as the end result of differential behaviour. In other words, keeping in mind the sex differences in the ability for perceptual differentiation found in this study, the genesis of differentiation can be seen as being due to many kinds of differentiated activity, for example, differentiated social behaviour. Rabban,⁷ in a study pertinent to this point, demonstrated that boys develop an awareness of sex roles earlier than girls. This was interpreted as reflecting in part the prestige and other advantages associated with the masculine role in our culture. In this light then, the results of the present study as well as the results of the research carried out by Witkin, Palmer, Hemmendinger, and others, can be explained in terms of Werner's theory. Thus, the capacity for differentiated

⁷ M. Rabban, "Sex-role Identification in Young Children in Two Diverse Social Groups", Genetic Psychology Monographs, 1950, Vol. 42, p. 81-158.

behaviour can be interpreted as the end product of differentiated activity during the process of development.

This chapter has presented a discussion of the results of the experiment given in chapter three. The discussion revolved around the theory and hypotheses presented in chapter one. A summary and conclusions to this study, as well as suggestions for further research, are presented on the following pages.

SUMMARY AND CONCLUSIONS

The purpose of this study has been to examine, within the framework of an orthogenic theory of personality, perceptual differentiation as it is related to differentiation of either the phenomenological self or the phenomenological body image. The orthogenic theory investigated in this paper leads to the expectation that perceptual differentiation is related to differentiation of the perceived self and body image.

The study was designed in a way that the measures of differentiation were measures of differentiation of objects in the same conceptual universe. The reason for this was to assure comparability of results. Also, in light of the consistent sex differences in perceptual differentiation reported in the literature, allowances were made for separate analysis of the results from the male and the female group.

An analysis of the results of the experiment demonstrated that statistically significant relationships were present. The male sample had a significantly greater ability for perceptual differentiation than the female sample even though there was a complete overlap in the distributions of scores. The null hypotheses of no relationship between perceptual differentiation and differentiation of either the phenomenological self or the phenomenological body image could be rejected in the female sample. In the male sample the

the null hypotheses of no relationship could not be rejected.

These results were seen as being consistent with the orthogenic theory of personality development. Undifferentiated individuals have a more permeable boundary between the objects in their conceptual universe. Thus, the same emotional, cognitive, and conative factors play a role in shaping their perceptions of all of the objects investigated. More differentiated individuals, on the other hand, have more highly structured or articulated barriers between the objects in their conceptual universe. Thus, the possibility exists that in the differentiated individual, perception of one object in the perceptual field, can be entirely separated from the perception of another object. It was felt that this specialization of response seen in differentiated individuals is a point that needs more emphasis in current theories of personality.

Regarding the genesis of differentiation, the emphasis was placed on the role of differential behaviour during development. It was seen that this is a more plausible explanation, in light of the existing theories and experimental data, than attributing differences in ability to make differentiated perceptions as being due just to differences in cognitive capacity. These latter points were presented in the attempt to link the existing experimental facts, which

have been gathered on the relationship between perception and personality, to a theory.

Further research is indicated in this area. First of all, it may prove fruitful to replicate this study using a sample more heterogeneous with regards to the variables of age, level of intellectual ability, and level of adjustment. This would allow the experimenter to formulate generalizations including a wider variety of individuals. In addition, the time seems ripe for a factor analytic study of the measures of individual differentiation. It is important to determine with more certainty if the measures of differentiation which have been established for the different levels of personality are really measuring one thing. The insight gained from this kind of study could prove to be of considerable value to the personality theorists.

It would also be interesting to replicate existing studies on the relationship between personality factors and perception. For example, in the study of the size estimation of coins by rich versus poor children, the results should indicate that the influence of motivational factors will decrease with increasing differentiation. Further investigation on the relationship between measures of differentiation and theories of personality may prove valuable as a link between research carried out in the laboratory and research carried out in the clinic.

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Jourard, S.M. and R.M. Remy, "Individual Variance Scores: An Index of the Degree of Differentiation of the Self and the Body Image", Journal of Clinical Psychology, 1957, Vol. 13, p. 62-63.

The only study reported in the literature on the use of variability scores of self ratings as a measure of differentiation of the phenomenological self and the phenomenological body-image. Their procedure was followed in the present study.

Lebowitz, Anne, "Patterns of Perceptual and Motor Organization", Journal of Projective Techniques, 1963, Vol. 27, p. 302-308.

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Palmer, R.D., "Hand Differentiation and Psychological Functioning", Journal of Personality, 1963, Vol. 31, p. 445-461.

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Postman, Leo, a review of Personality through Perception, by H.A. Witkin, et al., New York, Harper, 1954, in Psychological Bulletin, 1955, Vol. 52, p. 80.

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Presents the strong as well as the weak points of the phenomenological measures of personality.

Werner, H., Comparative Psychology of Mental Development, New York, International Universities Press, Inc., 1948, xii-564 p.

A classic in the field of developmental psychology. Werner unites research evidence from the fields of psychophysiology, anthropology, sociology, general psychology, and genetic psychology, into a clear and consistent theory. This book provided the theory for the present study.

Witkin, H.A., "Individual Differences in Ease of Perception of Embedded Figures", Journal of Personality, 1950, Vol. 19, p. 1-15.

This article contains the standardization data of an important test of perceptual differentiation. This test was used in the present study.

Witkin, H.A., R.B. Dyk, H.F. Fatterson, D.R. Goodenough, and S.A. Karp, Psychological Differentiation: Studies of Development, New York, John Wiley and Sons, 1962, xii-418 p.

This book, the most recent publication of the Witkin group, contains a wealth of data on the relationship between personality and perception. The work lacks the unity it would have if it were based on a theoretical foundation. Nonetheless, no serious student of developmental psychology can afford to overlook these findings. Many of the findings are incorporated into the present study.

Witkin, H.A., H.B. Lewis, M. Hertzman, K. Machover, P.B. Meissner and S. Wapner, Personality Through Perception, New York, Harper, 1954, xxvi-571 p.

The first book published by the Witkin group. Most of the findings presented have either been included or updated in the most recent book. However, when studying adults, there is some work that can only be found here.

Wyer, R.S., "Assessment and Correlates of Cognitive Differentiation and Integration", Journal of Personality, 1964, Vol. 32, p. 495-509.

This study demonstrated that the ability for analyzing data into its component parts is not correlated with the ability to form generalizations. An important reference for the discussion of the findings of the present study.

Wylie, R.C., The Self Concept: A Critical Survey of Pertinent Research Literature, Lincoln, University of Nebraska Press, 1961, xiii-370 p.

Contains carefully conceived criticisms of the approaches to the measurement of the self concept. Useful to the researcher when choosing tests.

Zigler, E., "A Measure in Search of a Theory?", Journal of Contemporary Psychology, 1963, Vol. 8, p. 133-135.

A highly critical review of Witkin's latest book. Emphasizes Witkin's lack of theory and thus this was a helpful article in formulating the theory and design of the present study.

Zimiles, H.L., "The Problem of Individuality in Systematic Research", a review of Psychological Differentiation: Studies of Development, by H.A. Witkin, et al., New York, John Wiley and Sons, 1962, in Merrill-Palmer Quarterly of Behaviour and Development, 1964, Vol. 10, p. 375-383.

Commends Witkin for the excellence of his research designs, but feels he is weak when it comes to theorizing. Some of the criticisms were helpful to the design of the present study.

APPENDIX 1

BODY-CATHEXIS TEST AND SELF-CATHEXIS TEST

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BODY-CATHEXIS TEST AND SELF-CATHEXIS TEST

Body-Cathexis Test

Number _____

Age _____

Sex _____

Education _____

On the following pages are listed a number of things characteristic of yourself or related to you. You are asked to indicate which things you are satisfied with exactly as they are, which things you worry about and would like to change if it were possible, and which things you have no feelings about one way or the other.

Consider each item listed below and encircle the number which best represents your feelings according to the following scale:

1. Have strong feelings and wish a change could somehow be made.
2. Don't like but can put up with.
3. Have no particular feelings one way or the other.
4. Am satisfied.
5. Consider myself fortunate.

Hair:	1	2	3	4	5
Facial complexion:	1	2	3	4	5
Appetite:	1	2	3	4	5
Hands:	1	2	3	4	5
Distribution of hair over body:	1	2	3	4	5

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Number					
Nose:	1	2	3	4	5
Fingers:	1	2	3	4	5
Elimination:	1	2	3	4	5
Wrists:	1	2	3	4	5
Breathing:	1	2	3	4	5
Waist:	1	2	3	4	5
Energy Level:	1	2	3	4	5
Back:	1	2	3	4	5
Ears:	1	2	3	4	5
Chin:	1	2	3	4	5
Exercise:	1	2	3	4	5
Ankles:	1	2	3	4	5
Neck:	1	2	3	4	5
Shape of head:	1	2	3	4	5
Body build:	1	2	3	4	5
Profile:	1	2	3	4	5
Height:	1	2	3	4	5
Age:	1	2	3	4	5
Width of shoulders:	1	2	3	4	5
Arms:	1	2	3	4	5
Chest:	1	2	3	4	5
Eyes:	1	2	3	4	5
Digestion:	1	2	3	4	5
Hips:	1	2	3	4	5
Skin texture:	1	2	3	4	5

<u>Number</u>					
Lips:	1	2	3	4	5
Legs:	1	2	3	4	5
Teeth:	1	2	3	4	5
Forehead:	1	2	3	4	5
Feet:	1	2	3	4	5
Sleep:	1	2	3	4	5
Voice:	1	2	3	4	5
Health:	1	2	3	4	5
Sex activities:	1	2	3	4	5
Knees:	1	2	3	4	5
Posture:	1	2	3	4	5
Face:	1	2	3	4	5
Weight:	1	2	3	4	5
Sex (male or female):	1	2	3	4	5
Back view of head:	1	2	3	4	5
Trunk:	1	2	3	4	5

Self-Cathexis Test

Number _____

Age _____

Sex _____

Education _____

On the following pages are listed a number of things characteristic of yourself or related to you. You are asked to indicate which things you are satisfied with exactly as they are, which things you worry about and would like to change if it were possible, and which things you have no feelings about one way or the other.

Consider each item listed below and encircle the number which best represents your feelings according to the following scale:

1. Have strong feelings and wish a change could somehow be made.
2. Don't like but can put up with.
3. Have no particular feelings one way or the other.
4. Am satisfied.
5. Consider myself fortunate.

First name:	1	2	3	4	5
Morals:	1	2	3	4	5
Ability to express self:	1	2	3	4	5
Taste in clothes:	1	2	3	4	5
Sense of duty:	1	2	3	4	5
Sophistication:	1	2	3	4	5
Self-understanding	1	2	3	4	5
Life goals:	1	2	3	4	5

<u>Number</u>					
Artistic talents:	1	2	3	4	5
Tolerance:	1	2	3	4	5
Moods:	1	2	3	4	5
General knowledge:	1	2	3	4	5
Imagination:	1	2	3	4	5
Popularity:	1	2	3	4	5
Self-confidence:	1	2	3	4	5
Sensitivity to opinions of others:	1	2	3	4	5
Ability to lead:	1	2	3	4	5
Last name:	1	2	3	4	5
Impulses:	1	2	3	4	5
Manners:	1	2	3	4	5
Handwriting:	1	2	3	4	5
Intelligence level:	1	2	3	4	5
Athletic skills:	1	2	3	4	5
Happiness:	1	2	3	4	5
Creativeness:	1	2	3	4	5
Love life:	1	2	3	4	5
Strength of conviction:	1	2	3	4	5
Conscience:	1	2	3	4	5
Skill with hands:	1	2	3	4	5
Ability to express sympathy:	1	2	3	4	5
Emotional control:	1	2	3	4	5
Self-consciousness:	1	2	3	4	5
Generosity:	1	2	3	4	5

<u>number</u>					
Ability to accept criticism:	1	2	3	4	5
Thoughts:	1	2	3	4	5
Artistic and literary taste:	1	2	3	4	5
Memory:	1	2	3	4	5
Thriftiness:	1	2	3	4	5
Personality:	1	2	3	4	5
Self-respect:	1	2	3	4	5
Ability to concentrate:	1	2	3	4	5
Ability to take orders:	1	2	3	4	5
Fears:	1	2	3	4	5
Capacity for work:	1	2	3	4	5
Conscientiousness:	1	2	3	4	5
Ability to meet people:	1	2	3	4	5
Self-discipline:	1	2	3	4	5
Suggestibility:	1	2	3	4	5
Heatness:	1	2	3	4	5
Vocabulary:	1	2	3	4	5
Procrastination:	1	2	3	4	5
Will power:	1	2	3	4	5
Self-assertiveness:	1	2	3	4	5
Ability to make decisions:	1	2	3	4	5
Dreams:	1	2	3	4	5

APPENDIX 2

**RATING SCALE FOR JUDGING THE DEGREE OF
ARTICULATION OF THE D.A.P.**

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RATING SCALE FOR JUDGING THE DEGREE OF ARTICULATION OF THE D.A.P.

Ratings of I:

This group consists of the most primitive drawings; these drawings characteristically manifest most of the following signs of absence of differentiation (reflecting either complete lack of development and extreme immaturity, or disintegration of a depressive nature):

1. Primitive Integration

- a. body parts stuck on to each other (head, neck, rump, limbs), appendages stuck on to torso or superimposed upon body outline (i.e., transparencies of limbs).
- b. disintegration of figure or appendages, i.e. discontinuing of body and/or appendages, fading out into confused scribbles or nothingness.
- c. arms (and/or feet) abruptly ended by claws.
- d. sex characteristics and other features arbitrarily superimposed, e.g., square representing female torso with two circles for breasts or dot for bellybutton; circles on limbs representing joints, etc.
- e. scribbled hair, or hat, stuck on the top of head outline.

2. Primitive Forms, Shape

- a. circle or oval heads, with no attempt at shaping hairline, etc.
- b. facial features represented by ovals, circles, dots, with no attempt at expression.
- c. no, or very poor, attempt to approximate human shape, predominant use of rectangles and circles or ovals, representing all body parts. Unsophisticated use of scribbles, sticks, for limbs.

3. No Attempt at Realistic or Symbolic Representation by Means of Detailing

- a. empty drawings, bare outlines.
- b. no representation either of clothing or of nude body, or inconsistency in representation (e.g. buttons, but no other indication of clothing, no neckline, cuffs, etc.).
- c. Gross body outlines, representation of barest essentials, i.e. head, torso, appendages, with all minor and many major omissions (all but 2 subjects omit ears, all but one omit hands, 2 omit neck).
- d. barest essentials of facial features, i.e., eyes, nose, mouth, often eyebrows, occasionally ears, all represented by primitive forms.

4. Unmodulated, Uncontrolled Line

Ratings of II:

This group consists of slightly less primitive drawings. While still quite undifferentiated in nature and quality, drawings in this group show a markedly higher level of integration of body parts, (all subjects at least attempt to integrate arms, legs, neck, and head, though some succeed very poorly). Some attempt at representation of the human body shape is manifest, with either some indication of clothing or some isolated basic detail of the bare body. Facial features are generally more detailed, a bit less primitive, with some drawings in this group showing definite facial expression. There are no omissions of basic features (all figures have ears, neck, hands - or at least a somewhat rationalized omission of only one of these features). Lines are more consistent and deliberate.

Ratings of III:

This group consists of drawings which are intermediate in all the areas evaluated in the primitivity-sophistication scale. Characteristically, these drawings are adequate in level of integration, form, detailing, and individual facial expressions. These productions manifest no relatively outstanding sophistication or complexity on the one hand, nor signs of extraordinary lack of differentiation or of disintegration on the other.

Ratings of IV:

This group contains drawings which, while not superior in all areas of the rating scale, show a relatively high degree of sophistication in one or several aspects. The level of integration is good and the attempt at representation of the human shape and of realistic proportions is marked; there is an emphasis on detailing and facial expression. However, the end product appears less deliberate, the lines less decisive, the drawings less skillful and in particular the head treatment is less sophisticated than that of drawings placed in Group V.

Ratings of V:

This group consists of the most sophisticated drawings. These drawings are characterized by great emphasis on detail of head, face, expression, as well as clothing and/or body features, shape, and sex characteristics, (often excessively narcissistic), combined with not only an attempt at, but very skillful achievement of rational, consistent integration of body parts, clothing, and accessories, decisively and purposefully drawn.

APPENDIX 3

ABSTRACT OF

Perceptual Differentiation of the Field as Related
to Differentiation of the Perceived Self.

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Perceptual Differentiation of the Field as Related to Differentiation of the Perceived Self¹

A large body of experimental findings on the relationship between personality and perception has been gathered by Witkin, et al. However, their work has been severely criticised for the lack of a theoretical foundation.

A review of Witkin's work, along with the criticisms of it, has led to the possibility that the concept of differentiation may serve as a bridge between Witkin's work and a theory. On this basis, an experiment was designed using personality and perceptual tools which measure concepts from the same conceptual universe. The problem of major concern was to investigate, within the framework of a theory, the relationship between perceptual differentiation and differentiation of phenomenological self ratings. Werner's orthogenic theory was selected because of its close relationship to the problem under study.

One hundred and fifty subjects within a narrow range of intellectual ability were selected as the sample. An equal number of males and females were included in the study.

¹ Ronald L. Trites, doctoral thesis presented to the Faculty of Psychology of the University of Ottawa, Ontario, June, 1965, ix-94 p.

Analysis of the statistical results indicated that males had a significantly greater ability for perceptual differentiation than females. A significant relationship between perceptual differentiation and differentiation of the phenomenological self-ratings was found for the female group. However, a statistically significant relationship was not found for the male group.

The results were seen as being consistent with Werner's theory. Werner postulates a lack of separation of subject and object in the conceptual universe of the undifferentiated individual because the boundaries between the concepts are permeable. The fact that perceptual differentiation was related to differentiation of self-ratings in the less differentiated group was interpreted as being due to the lack of separation of objects in their perceptual field. The lack of relationship in the differentiated group was seen as possibly reflecting a complete separation of objects in their perceptual field. In the differentiated individual, the ratings of one object are completely independent of the ratings of another object because of the structured boundaries.

The specialization of functioning, observed in the differentiated group in this study, is supported by two other studies recently reported in the literature. On this basis, it seems that Werner's theory must be revised to give more emphasis to this fact.

The genesis of differentiation was discussed and recommendations for further research were suggested.

