

DAP AS A MEASURE OF  
ARTICULATION OF BODY CONCEPT

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## CURRICULUM STUDIORUM

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## INTRODUCTION

This study will seek construct validity for the Draw-A-Person test, hereafter referred to as the DAP, as a measure of body concept articulation within the framework of the evidence cited by Herman Witkin and his colleagues from which they postulate that the form pathology takes, or the types of defenses a person used, can be predicted from the level of differentiation that person has attained. This is based on the premise that human functioning reflects the integration, or functional relations, among parts of a psychological system and between the system and its environment, and that the breakdown of that functioning will be shaped in part by the previous specialization of function within the structure of the psychological system, referred to as the level of differentiation. Although measures of differentiation are not to be confused with the process of differentiation, the area of pathology appears as an appropriate framework in which to seek construct validity for the measures of differentiation. This has been undertaken to a large extent by Witkin and others in regard to the perceptual index, and to a lesser, and more indirect, degree with the DAP, as a measure of body concept articulation.

The DAP scores of body articulation have been correlated with the perceptual index, with the two measures showing a simultaneous growth pattern over time. Body articulation has also been correlated secondarily with the perceptual index in

the area of intelligence, with analytic ability following the same direction as level of differentiation. However, in the area of sex differences the relation between body articulation and the perceptual index appears to be reversed.

The major criticisms levelled at the body of Witkin's work are both theoretical and methodological. In terms of theory, Witkin is accused of being reductionistic and indeed, his postulation that articulation depends on the ability to overcome an embedding context, makes the logical relationship between the perceptual index and body articulation one of "circular reasoning". Similarly, as concerns his methodology, Witkin is accused of another kind of "circular reasoning" insofar as the tests he uses for determining articulation, either perceptual, or pertaining to body concept, or defenses, could be linked through a common factor of intelligence. On the other hand, the correlations found could be due to a perceptual contamination factor if one takes into account that Witkin used tests such as the DAP, the Rorschach and the Thematic Apperception Test. All these tests appear to have a high perceptual loading factor.

In order to obtain construct validity for the DAP as a measure of body articulation, this study will look at the level of body articulation within the pathological syndromes called hysteric, psychopathic and schizoid as they are

measured by the Minnesota Multiphasic Personality Inventory, hereafter referred to as the MMPI. The MMPI has been chosen for the criterion as the profile configurations defining the above mentioned pathological syndromes are commonly agreed upon in MMPI literature. As well, there does not appear to be the same perceptual contamination factor for subjects responding to a test of true and false questions. Thirdly, the MMPI within a wide scope, is not as conspicuously influenced by intelligence factors as the Rorschach and DAP appear to be.

Therefore, if body articulation scores significantly differentiate between the three pathological groups, as defined by the MMPI, this may be taken as a further proof of construct validity for the DAP as a measure of body articulation. Further logical support for this construct validity would be gained if intelligence factors for the three criterion groups were in the same direction of articulation as the DAP scores with the analytic factors, as described by Witkin on the Wechsler Adult Intelligence Scale, were significantly related with greater articulateness of body concept.

The first chapter presents a review of the literature under the headings of concept of body articulation, Witkin's research of differentiation, differentiation and pathology, criticisms of Witkin's approach, and concludes with a summary and the basic hypotheses.

The experimental design in Chapter II begins with a statement of the null hypotheses, followed by a description of the tools used and a description of the subjects. Then there is an explanation of the procedures followed and the statistical analysis.

The third chapter presents the results of this investigation.

Chapter IV contains a discussion of the results under the headings of differences between body articulation scores and MMPI scores for the three groups, intelligence and the MMPI groups, and thirdly, sex differences in regard to body articulation scores.

A summary of this investigation as it pertains to the construct validity of the DAP as a measure of body concept articulation, and suggestions for further research are presented in conclusion.

## CHAPTER I

### REVIEW OF THE LITERATURE

Generally speaking, nearly every developmental theory, whether the orientation is to Freud or Piaget, acknowledges the role of body identity in the developing personality of the child. Body identity, or body image, becomes a very complex underlying construct in the personality development of any individual, and it is perhaps, necessary to approach it somewhat schematically along, at least, two major parameters. In the first instance, we know that it is the parents reactions to the child in his bodily needs that first begins to tell him who he is, whether he is lovable, or whether he is secure. Through the sensations of pleasure and pain the child introjects into his body identity the many feeling patterns of those around him.

Secondly, this developing awareness of identity in terms of feeling patterns is simultaneous with the child's progress in individuation from a "motor" point of view. That is, his body, as an object in space, tells him he is different, or separate from, the other. Along with this growing experience of his uniqueness as an object in space, the child also begins to experience his own body differentiation so typically reflected in the game played with two year olds, "where are your eyes, where are your toes, etc.?"

In devising the Draw-A-Person test, hereafter referred to as the DAP, Machover<sup>1</sup> addressed herself, primarily, to the first parameter, namely the introjected feelings incorporated into one's body image.

We repeat the basic assumption, verified repeatedly in clinical experience, that the human figure drawn by an individual who is directed to "draw-a-person" relates intimately to the impulses, anxieties, conflicts, and compensations characteristic of that individual (...). The process of drawing the human figure is for the subject, whether he realizes it or not, a problem not only in graphic skill, but one of projecting himself in all of the body meanings and attitudes that have come to be represented in his body image.<sup>2</sup>

This assumption gave rise to two main areas of research which can be embodied under the headings of content analysis and qualitative analysis.

Content analysis has concerned itself with the relationship between certain signs, or features of the drawing, and the emotional, or conative factors being projected. A second way of looking at content analysis has been within the context of what is being projected, that is, whether the drawing is a projection of the real self, the ideal self, or

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1. Karen Machover, Personality Projection in the Drawing of the Human Figure, Springfield, Ill., Charles C. Thomas, 1949.

2. Ibid., p. 35.

the self as one feels about it.<sup>3,4</sup>

The qualitative approach, likewise, has two major emphasis in the literature. Again, using statistical and clinical validation, some have concerned themselves with certain factors such as placement, width and type of line, and their correlated psychological meanings. In this context, these factors have taken on meaning similar to the "sign" content. On the other hand, placement, along with size and organization of the drawing, lend themselves to a maturational hypothesis.<sup>5</sup>

In line with the maturational hypothesis, although not directly related to the DAP, there is a third body of research that has concerned itself with the process of differentiation, that is, the ability to see one's body as separate from the perceived outer environment and concomitantly to see one's own body image in a more or less articulated way. As this paper will concern itself with the DAP as a measure of body articulation, the following review of the literature

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3. D. Kamano, "An Investigation on the Meaning of Human Figure Drawing", Journal of Clinical Psychology, Vol. 16, No. 4, 1960, p. 429-430.

4. Claire Dusseault, *Concepts de Soi et Niveaux de Conscience Refletes par les Dessins de H.T.P.*, Unpublished Doctoral thesis presented to the University of Ottawa, 1965, vi-98 p.

5. V. J. Bieliauskas and W. L. Pennington, "Developmental Trends in Children's H-T-P Drawings of a Person", Journal of Science, Vol. 4, 1954, p. 323.

will consider more closely the concept of body articulation, Witkin's empirical research concerning perceptual differentiation and body articulation, differentiation and pathology, criticisms and problems in Witkin's approach, and the summary and hypotheses to be investigated in this study.

### 1. Concept of Body Articulation

The concept of body articulation appears to grow out of both motor and affective elements in the developing differentiation of the child. While the child begins to differentiate himself from "the other" in his environment through motor and kinesthetic sensations, he is also introjecting certain meanings and patterns of interaction concerning his relationship to others into his body identity. The fact that interiorized systems can be readily transformable into modes of body perception is supported by two large bodies of research which have shown that, first, body distortions, as often reflected in the DAP, accompany psychopathology,<sup>6</sup> and secondly, that the actual physical structure or deformity of an individual's body has little to do with his projected body image.<sup>7</sup>

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6. S. Fisher and G. Cleveland, Body Image and Personality, Toronto, D. Van Nostrand Company (Canada) Ltd., 1958, p. 353.

7. Ibid., p. 353.

However, besides the conative meaning reflected in the body image, Fisher and Cleveland<sup>8</sup> suggest that within the patterns of interaction that are interiorized, there are other dimensions such as the stability of the introjected relationship and its degree of articulateness. For example, if the mother is clear and consistent in her dealings with the child, so that his expectations of her would similarly become clear, then it is likely that the interiorized system growing out of the relationship would have definite, well-articulated boundaries. These interiorized systems, involving the affective, play a part as well, in determining the degree to which one can separate out elements in the world and feel capable of dealing with them or defending oneself from them.

The work of Fisher and Cleveland supports the assumption that articulateness, as an introjected quality in the pattern of relationship, is reflected in one's body identity, as well as the more explicit conative overtones. They have used the Barrier test, in which a subject reflects his experience of his own body boundary definiteness, and found that there are distinct differences in the way people perceive their body boundaries ranging from very loosely

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8. Ibid., p. 352.

organized and vulnerable to the highly organized and defensible.

...Thus the boundary may be conceptualized as playing an important role in maintaining homeostasis in the course of the individual's psychological transactions with the world. It is a projection of certain assumptions about life to an area of behavioral space which separates the individual from what is "out-there". If experiences with primary figures have been meaningfully well-contoured, the introjections representing these experiences will be of like nature, and the body-image boundary will in turn reflect this quality. But if experiences with prototypes of introjections have emphasized the irrationality and inconsistency of the world, the individual does not have a basis for projecting a stabilizing image pattern onto the boundary.<sup>9</sup>

Briefly then, Fisher and Cleveland argue that because the body image as an object in space, is so closely linked to the interiorization process, the articulateness of the perceived stimuli is reflected in the degree of body articulateness, as well as in the degree of articulateness with which the environment in general is perceived.

Werner, on the other hand, has tried to investigate body articulation from a slightly different point of view. He has looked at the fact that some individuals seem to have a greater experience of the separateness, or line of demarcation, between themselves as an object in space and other objects within the perceptual field. This ability to make spatial judgments in relation to one's own body has been stated by

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9. Ibid., p. 355.

Werner this way:

...things do not stand out there, discrete and fixed in meaning with respect to the cognitive subject. They are intrinsically formed by the psychophysical organization of which they constitute an integral part, by the whole vital motor-affective situation.<sup>10</sup>

In this, Werner seems to be saying that the process of differentiation in the development of the individual takes place within the total "life space" of that individual. Or another way of saying it is in the total "motor-affective" situation the degree of body articulation one experiences within oneself allows one to perceive "out-there" in a more differentiated way, while the reverse is simultaneously true, insofar as what is "out-there" cannot be separated from the perceiving individual.

This very complex problem of differentiation in perception has been very succinctly stated in the orthogenetic principle. "It is the psychophysical organization of the genetic totality which is the cause of differentiation in perception."<sup>11</sup> In this, Werner alludes to the biological state, the need and drive states underlying motivation, the development of body identity through motor skills, and the affective introjection of the environment into one's body

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10. H. Werner, Comparative Psychology of Mental Development, New York, International Universities Press, Inc., 1948, p. 59.

11. Ibid., p. 419.

identity, with all the complexity that that implies.

The broad based concept of perceptual differentiation as proposed by Werner, and the more specific, though complimentary, aspects of the introjection of more or less articulated affective patterns as seen in Fisher and Cleveland, while not giving us a well-articulated theory, do give some clues as to the consistency across measures of differentiation.

Differentiation, apparently, does not belong solely to the realm of the physiological, neurological and motor aspects of the developing individual, but is a differentiation of affective elements as well, which in their turn influence the total sense of articulateness with which the individual perceives himself within his world. In support of this concept, the most comprehensive body of research of an empirical nature that has been built up investigating the notion of differentiation and its significance as a clinical measure has been done by Hermann Witkin and his colleagues.

Drawing upon Werner's research, Witkin<sup>12</sup> has investigated the measurement of perceptual articulateness, and has also lent support to the hypothesis that such articulateness is consistent with body image articulateness, though perhaps, not entirely identical with it.

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12. H. Witkin, R. Dyk, H. Faterson, D. Goodenough, and S. Karp, Psychological Differentiation, New York, John Wiley and Sons, Inc., 1962, xii-418 p.

## 2. Witkin's Research of Differentiation

Witkin took over and refined many of the tests used by Werner and devised a "perceptual index".<sup>13</sup> Since 1962 on, this index has consisted of (1) the Body-Adjustment-test (BAT) from which the subject is said to be perceptually field independent if he is able to separate his body from the field, such as remaining upright in a tilted room. In the Rod-and-Frame test (RFT) he is field independent if he can separate an external object (the rod) from the field. Similarly, the subject is field independent if he can separate out a figure from the surrounding pattern in the Embedded Figures test (EFT). With the use of such tests, Witkin has proceeded to build up a body of empirical knowledge through his discovery of self-consistent perceptual ways of functioning. While the correlations between these three tests are generally significant at the .01 level, the actual correlations fall between .11 and .61 over various populations, which, incidentally, should provide a note of caution in using the three tests interchangeably.<sup>14</sup>

Taking this basic combined tool, the perceptual index,

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13. H. Witkin, "Psychological Differentiation and Forms of Pathology", Journal of Abnormal and Social Psychology, Vol. 70, 3, 1965, p. 318.

14. Witkin, 1962, Op. Cit., p. 44.

Witkin proposed using it as the criterion measure for the assessment of broader dimensions of personality functioning. The broader dimensions of personality singled out by Witkin are the body concept, sense of separate identity, and specialized defenses. The basic hypothesis conceived by Witkin, namely that greater inner differentiation leads to greater articulation has been stated by him in the differentiation hypothesis which:

...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 self, reflected particularly in the nature of body concept and the extent of the development of a sense of separate identity; and extent of development of specialized structured defenses and controls.<sup>15</sup>

What Witkin is assuming here is that the ability to orientate oneself in space, or separate out objects from the surrounding field, including one's own body is a reliable criterion for predicting the degree of articulation reflected within one's own body image and therefore, as a predictor of the kinds of defenses one will, or can, use to protect oneself.

In order to study the relationship between perceptual

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15. Ibid., p. 16.

differentiation and body articulation, Witkin, through the work of Machover and Marlens, has adapted the DAP as an indicator of degree of articulation of body image.<sup>16</sup>

The formal characteristics of the DAP (form level, sex identification and level of detailing) as measured by the Sophistication-of-Body-Concept scale, hereafter referred to as the SBCS, appears to be a precise measure of body differentiation insofar as it has a correlation of 0.71 (.01 level of significance) with the perceptual index.<sup>17,18</sup>

Perhaps, more interestingly, is the fact that perceptual differentiation and body image articulation appear to be linked, as seen in the paralleled increase during the growth years. For both articulation of body concept and perceptual field independence, the age curves follow a similar sequence, showing most rapid changes between eight and fourteen years and with little change thereafter.<sup>19</sup>

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16. Ibid., p. 120-121.

17. Ibid., p. 125.

18. N. Bogo, et.al., "Ego Defenses and Cognitive Styles", Perceptual and Motor Skills, Vol. 30, 1970, p. 601.

19. H. Faterson and H. Witkin, "Longitudinal Study of Development of the Body Concept", Developmental Psychology, Vol. 2, No. 3, 1970, p. 434.

In terms of further correlations between perceptual differentiation and body articulation, Witkin has attempted to show that both measures are consistent with a particular analytic factor in intelligence. That is, the DAP appears to be correlated with the more analytic factors of intelligence, as is the perceptual index. A significant correlation of 0.55 between figure drawing articulation scores and total Weschler I.Q. is carried by the subtests of block design, picture completion and object assembly. There are also low, non-significant relations between figure-drawing articulation scores and scores for the Weschler vocabulary, information, and comprehension subtests.<sup>20,21</sup>

This is in accord with earlier studies undertaken by Goodenough and Karp, in which field independence scores were highly related to the triumvirate of block design, picture completion, and object assembly, but did not relate to the triumvirate of vocabulary, information and comprehension.<sup>22,23</sup>

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20. Witkin, 1965, Op. Cit., p. 326.

21. Faterson and Witkin, 1970, Op. Cit., p. 320.

22. D. R. Goodenough and S. A. Karp, "Field Dependence and Intellectual Functioning", Journal of Abnormal and Social Psychology, Vol. 63, 1961, p. 241-246.

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

There is a lot of controversy surrounding the meaning of intelligence in the whole approach to perceptual and/or body articulation. Witkin has tried to use perceptual differentiation as the stable, consistent criterion upon which one makes predictions. In this he appears to have, in effect, set up a speculative cause-effect relationship with certain types of intelligence being dependent upon the degree and type of perceptual differentiation. Such an inference becomes tantalizingly simple to take issue with.

Many have stood on the other side of the fence and contended that the perceptual index is merely reflecting the "g" factor in intelligence. In particular, Zigler maintains that the relationship between field dependency and the Thematic Apperception Test, hereafter referred to as the TAT, Rorschach, DAP and other behavioral measures is due to the known general intelligence factor that is contained in all of them. He goes on to substantiate this position by citing incidents in Witkin's own research of 1962 where some perceptual measures were more highly correlated with the verbal index, and where a high significant correlation was found between field dependency and the Stanford-Binet vocabulary score.<sup>24</sup>

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24. E. Zigler, "A Measure in Search of a Theory", Contemporary Psychology, 1963a, Vol. 8, p. 135.

Recent studies have tried to resolve this contention, but still the question remains somewhat undecided. For example, Yamada<sup>25</sup> administered the Otis Intelligence test and ten of Guilford's tests: Gestalt completion, Word Combination, Wide Range Vocabulary, Auditory Number Span, Match Problems, Hidden Figures, Additions, Identical Pictures, Finding A's, and Nonsense Syllogisms. Correlating these scores with the RFT, he found a high correlation between field independence and general intelligence. However, in partial support of Witkin's findings, the tests weighted with analytical ability were correlated consistently higher with field independence scores across both male and female subjects.

Investigating the problem from the standpoint of verbal skills, Roy<sup>26</sup> argued that theoretically verbal skills should require a higher level of differentiation. However, in his study he found no significant difference between psychological differentiation (as measured by the RFT) and verbal skills. He concluded, perhaps rightly, that the results may be due to a lack of a way of assessing verbal skills.

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25. K. T. Yamada, *Extent of Psychological Differentiation as Related to Intelligence*, Unpublished Doctoral thesis presented to the University of Ottawa, 1968, viii-100 p.

26. R. T. Roy, *Extent of Psychological Differentiation as Related to Verbal Skills*, Unpublished Master's thesis, presented to the University of Ottawa, 1970, viii-139 p.

Dubois<sup>27</sup> using the RFT and EFT with subtests of the State University Admissions Examination found that

...significant correlations were found between field independent measures and measures of past achievement which ostensibly have little relationship to embedded contexts, spatial-perceptual skills or non-verbal organization. The size of these correlations, however, is about the same as the intercorrelations typically found between disparate measures of intellectual achievement; these are not atypical if one views field-independence simply as a "semi-specific" factor of ability or intelligence. 28

These findings led Dubois to the basic position stated earlier by Zigler, namely, that if the obtained generality and stability as well as the external correlates of measures of field-dependency rest in part on their sizable correlations with indices of more generalized intellectual ability, then field independency minus the intellectual component may not have sufficient power in generating differences on certain other dimensions.

Conclusions such as these do not highly challenge Witkin's position regarding the relationship between perceptual style and intelligence. It appears to date that field - independence and a high level of body concept articulation,

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27. T. E. Dubois and W. Cohen, "Relationship Between Measures of Psychological Differentiation and Intellectual Ability", Perceptual and Motor Skills, Vol. 31, 1970, p. 411-416.

28. Ibid., p. 414.

are more closely related to the analytic factors within the realm of general intelligence. At best, such overlap renders the conceptualization of field dependency, and/or differentiation, unclear. Such confusion can be looked upon as raising questions about the independent existence of body image articulation variables, or if one adopts a broader theoretical base, than Witkin<sup>29</sup> proposes, the possibility of such correlations could begin to provide bridges between spheres of perception and cognition which have ordinarily not been juxtaposed. For the purposes of this study, suffice it to say that there does appear to be a consistency between certain types of intellectual development and measures of perceptual and body differentiation.

The confused arena of cognition versus perception is further confounded, or clarified, depending on one's point of view, by the fact that sex differences are linked to different abilities in intellectual tasks. Anastasi<sup>29</sup> has reported the fact that males appear to have greater spatial abilities than females, and since Witkin would argue that males, generally, are more field independent in perceptual i.e. spatial, tasks, this is consistent with his hypothesis.

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29. A. Anastasi, cited in Dubois, Ibid., p. 414.

To discuss the meaning of this in terms of cognition and/or perception is beyond the scope of this paper, but to look more particularly at body articulation, it is in this area of sex differences that there appears to be some overt discrepancy with the perceptual style. Within the realm of perceptual style, the findings have consistently shown men to be more field independent than women.<sup>30,31</sup> However, in the area of body articulation, Faterson and Witkin<sup>32</sup> found higher mean scores for females than for males. Also, in his study on defensive styles, Bogo<sup>33</sup> found that while men were significantly more field independent on the RFT, the females produced more sophisticated drawings.

In order to retain the basic consistency of his measures, Witkin explains this discrepancy between perceptual index and SBCS scores for female subjects on the basis of the SBCS as it is now formulated.

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30. Witkin, 1965, Op. Cit., p. 319.

31. Bogo, 1970, Op. Cit., p. 602.

32. Faterson and Witkin, 1970, Op. Cit., p. 433.

33. Bogo, 1970, Op. Cit., p. 602.

...details of clothing, hair treatment, special adornments such as jewelry, amounting to a special investment in the social appearance of the figures, contributes heavily to ABC (SBCS) ratings. Such an emphasis is much more characteristic of human figures, especially female figures, drawn by girls than by boys. Thus female figures may be expected to earn higher ABC (SBCS) ratings on the basis of stylistic differences alone.<sup>34</sup>

In other words, since girls are more interested in the details of clothing, they will produce drawings with more detail. This is a possible, though perhaps too simplistic, explanation of the differences. One suspects, other, unfortunately, more complex alternatives are at work. The fact that females appear to be more field dependent would be consistent with what Werner calls permeable boundaries that might allow the female to be more closely identified with other persons, as opposed to objects, in her environment. This notion could find some support in a study done by Crutchfield, Woodworth and Albrecht<sup>35</sup> in which they found that persons with a global cognitive style were relatively better at recognizing and recalling faces of people they had been with earlier. Similarly, Messick and Damarin<sup>36</sup> conducted

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34. Faterson and Witkin, 1970, Op. Cit., p. 433.

35. R. S. Crutchfield, D. G. Woodworth and R. E. Albrecht, Perceptual Performance and the Effective Person, Lackland AFB, Texas, USAF, WADC technical Note, 1958, p. 58-60.

36. S. Messick and F. Damarin, "Cognitive Styles and Memory for Faces", Journal of Abnormal and Social Psychology, Vol. 51, 1955, p. 502-507.

a study in which they found field dependent subjects showed greater incidental learning than field-independent subjects when the incidental material consisted of human faces; while the relation is in the opposite direction with nonhuman incidental material.

It is interesting to note that the longitudinal study undertaken by Witkin with the DAP reports only the intelligence scores for the boys in terms of the correlation with body articulation scores.<sup>37</sup> His analysis shows that the body articulation scores are significantly correlated with the analytic factors of the Weschler test. There is no reported data for the girls, nor is there any study looking at the variables of sex difference, intelligence and body articulation scores together.

In summary, the relationship between the SBCS and the perceptual index in terms of their parallel development over the growth years does lend support to the DAP as a reliable indicator of body articulation. As well, the DAP as a measure of articulation does, generally, fall in the same direction as the perceptual index in their correlation with the more analytic factors of intelligence. The fact that there is some discrepancy between the measures of perceptual differentiation and body articulation in the realm of sex differences

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37. Faterson and Witkin, 1970, Op. Cit., p. 434.

may suggest that while there is some consistency between measures of differentiation, there are also some parameters that are unique, especially as regards the articulation of the body image. Another way of looking at these measures in terms of their consistency and in terms of their relation to the construct of differentiation is within the realm of pathology. The next section, therefore, will deal with some expectations and subsequent research in this area before going on to the critical analysis of Witkin's work.

### 3. Differentiation and Pathology

The area of psychopathology suggests itself as a particularly fruitful area to look for confirmation of the measures of differentiation. This would be based on the assumption that the degree of stability and articulateness with which a person deals with his environment would reflect itself in the kinds of defenses he would use when under stress. That is to say, that whether or not pathology occurs depends on the integration a person is able to maintain, but once that integration gives way, the particular defenses that become prominent depend more on the level of differentiation.

Witkin, in conducting his longitudinal study of body articulation, indeed found that pathology occurred among those at both extremes of the differentiation continuum, but

that those at the articulate end had very different defense patterns, or pathological symptoms, than those at the inarticulate end of the continuum. These findings led him to formulate the following hypothesis:

...knowledge of level of differentiation provides no direct grounds for predicting whether pathology will develop, or if it does develop, when it will occur...(however) while sheer occurrence of psychological disturbance or pathology is unrelated to level of differentiation the form which the pathology takes when it occurs is a function of level of differentiation and is therefore predictable from it.<sup>38</sup>

This conclusion is partly based on evidence by way of illustrated cases concerning two samples of drawings within the longitudinal study. At age twenty-four one young man was extremely field independent and the other extremely field dependent, yet both had severely incapacitating pathology. The limitations of such an isolated observation are obvious. However, Witkin and his colleagues were also formed in their conclusion by evidence obtained on other measures of articulation besides the DAP, and the support of other researchers.

Field dependent perception has been linked with severe

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38. Ibid., p. 434.

dependency problems and appears to be prominent among alcoholics.<sup>39,40</sup>

Zukman,<sup>41</sup> also found that a global cognitive style was linked with an hysterical character structure. More specifically, Fishbein<sup>42</sup> found that asthmatic children tended to be field dependent. Such studies have been carried out with various groups and the results have been consistent in linking field dependency with the somatization of problems such as ulcer patients<sup>43,44</sup> and obese people<sup>45</sup> as well.

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39. W. Bailey, F. Hustmyer, and A. Kristofferson, "Alcoholism, Brain Damage and Perceptual Dependence", Quarterly Journal of Studies on Alcohol, Vol. 22, 1961, p.387-393.

40. S. A. Karp, H. Witkin, and D. Goodenough, "Alcoholism and Psychological Differentiation", Quarterly Journal of Studies on Alcohol, Vol. 20, 1959, p. 493-504.

41. L. Zukman, Hysterical Compulsive Factors in Perceptual Organization, Unpublished Doctoral thesis presented to the New School of Social Research, 1957, as cited in Witkin, 1962, Op. Cit., p. 207-208.

42. G. M. Fishbein, "Perceptual Modes and Asthmatic Symptoms: An Application of Witkin's hypothesis", Journal of Consulting Psychology, Vol. 27, 1963, p. 54-58.

43. B. Gordon, An Experimental Study of Dependence-Independence in a Social and Laboratory Setting, Unpublished Doctoral thesis presented to the University of Southern California, 1953, as cited in Witkin, 1965, Op. Cit., p. 317.

44. A. Lebowitz, "Patterns of Perceptual and Motor Organization", Journal of Projective Techniques, Vol. 27, 1968, p. 302-308.

45. H. Pardes and S. A. Karp, "Field Dependence in Obese Women", Psychosomatic Medicine, Vol. 27, 1965, p.238-244.

Only one study appears to have used the DAP as an instrument per se, and the results are consistent with other studies using the perceptual index. That is, alcoholic women had less sophisticated drawings than women abstainers.<sup>46</sup> Given that women seem to have more articulated drawings than men, it would have been interesting if the investigators had looked at sex differences across groups of men and women alcoholics versus abstainers.

In terms of degree of articulation and pathology, Korchin, in a personal communication to Witkin,<sup>47</sup> confirms findings of field dependency among character disorders who tend to somatize their problems. However, those that were more field independent, on the other hand, were neurotics with well structured defenses and ambulatory schizophrenics.

Most of the findings concerning field independency have been concerned with schizophrenics. Both Janucci<sup>48</sup>

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46. S. A. Karp, D. Poster, A. Goodman, "Differentiation in Alcoholic Women", Journal of Personality, Vol. 3, 31, 1963, p. 294-302.

47. S. Korchin, Personal Communication in Witkin, 1962, Op. Cit., p. 209.

48. G. Janucci, Size Constancy in Schizophrenics: A Study of Subgroup Difference, Unpublished doctoral thesis presented to Rutgers State University, 1964, as cited in Witkin, 1965, Op. Cit., p. 315.

and Powell<sup>49</sup> report an articulated cognitive style among paranoids. Bryant<sup>50</sup> found reactive schizophrenics significantly more field independent than process schizophrenics. However, these results were not confirmed by Cancro<sup>51</sup> or Hellkamp.<sup>52</sup> Accordingly, Hellkamp found no significant differences among hallucinatory versus delusional schizophrenics, whereas an earlier study by Taylor<sup>53</sup> reported delusional psychotics as more field independent than hallucinatory schizophrenics interpreting this state as an attempt at logical structure. Some of the inconsistency may be due to difficulties entailed in classifying actively psychotic patients along accurate, or consistent, criterion.

The above studies have looked at cognitive style in relationship to clinically diagnosed categories. Another

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B. J. Powell, A Study of the Perceptual Field Approach of Normal Subjects and Schizophrenic Patients Under Conditions of an Oversize Stimulus, Unpublished Doctoral thesis presented to the University of Washington, 1964, iii-81 p.

50. A. R. Bryant, An Investigation of Process-Reactive Schizophrenics with Relation to Perception of Visual Space, Unpublished Doctoral thesis presented to the University of Utah, 1961, vi-147 p.

51. R. Cancro, A Comparison of Process and Reactive Schizophrenics, Unpublished Doctoral thesis presented to the State University of New York, 1961, cited in Witkin, 1965, Op. Cit., p. 327.

52. D. Hellkamp, Extent of Psychological Differentiation Among Hospitalized Male Schizophrenics Classified along the Process-Reactive and Delusional-Hallucinatory Dimension, Unpublished Doctoral thesis presented to the University of Ottawa, 1967, vi-104 p.

53. J. Taylor, A Comparison of Delusional and Hallucinatory Individuals Using Field Dependency as a Measure, Unpublished Doctoral thesis, presented to Purdue University, 1956, vii-61 p.

way of describing pathology is in terms of the particular type of defense mechanism being used. Bertini<sup>54</sup> found that field independent people had the capacity to separate and isolate an idea from its emotional content, or to separate two ideas that belong together. Such analytical perceiving he concluded is seen in the defense of isolation. In line with this, Minard and Mooney<sup>55</sup> report an experiment in perceptual defense which is understood in terms of the difference between the probability of accuracy when the presented word was emotionally arousing and the corresponding presented word was non-emotionally arousing, but otherwise similar. The results were consistent with the assumption that greater differentiation is associated with greater separation of perception from emotion. However, in a later study in looking at the correlation between perceptual defense and psychological defense, no significant correlation was found between perceptual defense and the RFT, DAP and EFT combined scores. However, the latter three tests did correlate at the .005 level of significance with repression or lack of co-operation in the

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54. M. Bertini, as cited in Witkin, 1965, Op. Cit., p. 312.

55. J. Minard and W. Mooney, "Psychological Differentiation and Perceptual Defense: Studies of the separation of Perception from Emotion", Journal of Abnormal and Social Psychology, Vol. 74, 1969, p. 131-139.

test situation.<sup>56</sup>

Again, dealing with field independent subjects, Schimek<sup>57</sup> conducted a longitudinal study of twenty-eight males who were administered the Rorschach and RFT at ages 14, 17, and 24. The WAIS was also administered at age 17. The results report that Rorschach ratings of intellectualization tend to remain stable from childhood to young adulthood and that intellectualization ratings were positively related to field independence and I.Q.

One of the more complete studies has been done by Bogo<sup>58</sup> who administered the RFT, DAP and Defense Mechanisms Inventory, hereafter referred to as the DMI, to forty-five male and fifty-two female undergraduate students. The combined measures of differentiation and the subcategories of the DMI show a tendency for men and women field dependent subjects to score higher on turning against oneself and reversal (repression and denial) and lower on turning against an object and projection. More specifically, among the male subjects, the more field independent they were the more they used

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56. Ibid., p. 579.

57. J. G. Schimek, "Cognitive Style and Defenses: Longitudinal Study of Intellectualization and Field Dependence", Journal of Abnormal and Social Psychology, Vol. 73, 1968, p. 575-580.

58. Bogo, 1970, Op. Cit., p. 603.

intellectualization in fantasy behavior whereas the more field dependent turned against others in affect behavior significantly less often than did those with a more articulated perceptual style.

Witkin postulates a third dimension of personality that may be investigated through cognitive style, namely sense of separate identity. That is to say, people who are field dependent and have global representations on the DAP tend to rely on external sources for self definition in terms of attitudes, judgements and sentiments. Part of this ability for field dependent people to get caught up with other persons in their environment has been dealt with in the context of sex differences. Although the relationship between cognitive style and attitude formation, group pressure, etc. is an interesting area, little has been formulated on the exact nature of "sense of separate identity" along this line. In terms of its relationship with field dependency, body concept and defense mechanisms, it will only be dealt with incidentally in this study.

In this way then, the investigations of Witkin may be summarized around three main conclusions: (i) field independents, or people with an articulated cognitive style, tend to organize actively and direct their experiences; (ii) use relatively complex and specialized controls and defenses, that is isolation, intellectualization and projection, as opposed

to repression and denial. When pathology occurs such defenses would lead to distinct forms of pathology; and (iii) experience their own bodies in a structured manner, resulting in an articulated body-concept and a well-developed sense of separate identity.

#### 4. Criticisms of Witkin's Approach

##### Theoretical Considerations:

One of the strongest critics of Witkin's work is Zigler,<sup>59</sup> who feels that Witkin and his colleagues deliver so little through their lack of a theory to adequately explain or give directionality to the body of correlations they have summarized in their research.

In particular, the relationship between the DAP as a measure of body image articulation and the Perceptual Index as a measure of field differentiation has been stated in terms of correlations found between them, and between them and other measures of intelligence. However, in stating a theoretical rationale as to why such relationships should exist, Zigler states of Witkin that "all the relationships found are ultimately explained with that venerable developmental concept of differentiation."<sup>60</sup> The venerable concept he is referring to is

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59. Zigler, 1963a, Op. Cit., p. 135.

60. Ibid., p. 135

Werner's heuristic definition, the orthogenetic principle, that states that development proceeds from a state of relative globality and lack of differentiation to a state of increasing differentiation, articulation, and hierarchic integration.

Indeed, it is probably more true to say that the orthogenetic principle does allow one to theoretically conceive of a level of differentiation that cuts across areas of functioning such as defenses, emotions and values and if criticism is to be laid against Witkin it should be more in the line that he has not concerned himself with developing this theory, but has contented himself with building up a body of empirical research that substantiates overall the consistency between measures of differentiation.

On the other hand, it is true that Witkin has left himself open to criticism from a theoretical point of view by being unduly reductionistic. He has stated that "individual differences in the perception-personality relationship are due to differences in ability to overcome an embedding context."<sup>61</sup> With this explanation, that field dependency is due to the inability to overcome an embedding context, Witkin has indulged

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61. R. Trites, Perceptual Differentiation of the Perceived Self, Unpublished Doctoral thesis presented to the University of Ottawa, 1965, p. 16.

in circular reasoning.

Perhaps, Witkin's greatest contribution has been to develop some tools that have validity as measures of differentiation. With these tools the task ahead may be to explore and substantiate certain hypotheses such as contained in the works of Fisher and Cleveland and others concerning the developmental influences upon, and interaction between, a person's degree of projected body articulateness, with both its motor-affective components, and one's ability to deal with the external environment in certain predictable ways.

In particular, the aim of this study is to seek construct validity for the DAP as a measure of body articulation by looking at its power to reflect differences within the realm of pathology. To bring as much validity to this measure as possible, the "circular reasoning" that Witkin has been accused of by his lack of a theoretical rationale must also be avoided in the specific criticisms brought against his research methodology as well.

#### Methodological Considerations:

In criticisms of his early work, Postman<sup>62</sup> accuses Witkin of giving no theoretical rationale for the selection of

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

the personality tests used, and secondly, for not demonstrating the reliability and validity of the projective tests as instruments in the way he is using them. In recent years, Witkin has given some reliability for the DAP in his longitudinal study which has been very good with test-retest correlations between 0.78 and 0.86 over several years.<sup>63</sup>

Validity again raises the problem as to what the correlations between measures is related to, for example, the correlation over time between body image and field dependency. Zigler<sup>64</sup> would attribute the relationship between these two tests to the common factor contained in both of them, namely general intelligence.

More recently, Adevai<sup>65</sup> has pointed out that Witkin's assumptions about the correlates of field dependency based on material derived from the Rorschach, DAP and TAT are due to the fact that to a considerable degree they are all end-products of the process of perceptual organization and defense.

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63. Faterson and Witkin, 1970, Op. Cit., p. 432.

64. Zigler, 1963a, Op. Cit., p. 134.

65. G. Adevai, et.al., "MMPI Findings in Field Dependent and Field-Independent Subjects", Perceptual and Motor Skills, Vol. 26, 1968, p. 3-8.

Therefore, one could expect high correlations between them. This explanation is offered by Adevai in interpreting the lack of results in a study in which she administered the RFT and MMPI to 185 college undergraduates. As she pointed out, the lack of results in this case could be due to the fact that the MMPI is based on a pathological population. Also, the MMPI scales were analysed separately. It would, perhaps, have been more meaningful to look at the MMPI in terms of pattern analysis. However, the fact that the MMPI is not correlated with a test of perceptual differentiation in an normal population lends some creditability to the fact that it is not contaminated with a perceptual loading. Besides providing a consistent criterion for the pathological syndromes, this may make the MMPI a good criterion for looking at forms of pathology and articulation. Also, besides not having the same perceptual content as the Rorschach, for example, the MMPI is not as influenced by general intelligence in the format of the questions it asks. Thus, it seems like an appropriate tool for achieving a measure of construct validity for the DAP as a measure of body articulation.

##### 5. Summary and Basic Hypotheses

In reviewing the literature on differentiation, we have considered the concept of body articulation within Werner's

framework of the "psychophysical organization of the genetic totality which is the cause of differentiation in perception." It is both the motor and affective aspects of the developing child which enables him to become more or less differentiated in his perception of his total life space.

This concept of differentiation enables one to conceive of a consistency between measures of differentiation, and the work of Witkin and his colleagues supports this notion of consistency across measures of differentiation within the field, the intellectual functioning, body image and defenses as projected by the individual. In reviewing Witkin's research, the perceptual index has been described, along with the individual differences it detects on a perceptual continuum from globality, or embeddedness, to articulation, or ability to separate out elements. The poles of this continuum have been termed field dependency - field independency respectively. Accordingly, in the intellectual realm, Witkin maintains that field independency and an analytical approach are consistent across individuals as opposed to the global approach of field dependents, and he has applied a broader cognitive concept of global - articulate in describing his subjects. Cognitive style is significantly correlated with broader personality dimensions designated by Witkin as body concept, defenses, and a sense of separate identity. Such consistent levels of differentiation

have been especially researched in the area of pathology, both in the form of investigating the relationships between forms of pathology and measures of articulation, and defenses and articulation measures. For the most part, these investigations have been between measures of the perceptual index (BAT, RFT, and EFT) and diagnosed pathology and/or defenses. However, there have been a few investigations that have been carried out with the DAP as a measure of body articulation, and the results have generally fallen in the same direction. This is not surprising considering the fact that the DAP is significantly related to the perceptual index and to other parameters of the perceptual index such as intelligence.

In other words, if level of differentiation can predict the form pathology will take and the DAP is one measure of articulation, then it should reflect the form of pathology. However, all of Witkin's measures have been criticized in that they are said to reflect "circular reasoning". For some this has meant that all his measures are related in that they partake of a common intelligence factor and/or all his tests are perceptually contaminated, such as the Rorschach, TAT, as well as the DAP. Since the MMPI appears to be relatively free of perceptual contamination, and not overly influenced by general intelligence within a wide range, it is hypothesized

that the pathological syndromes of hysteria, psychopathy, and schizoid as measured by the MMPI will reflect different levels of body concept articulation as measured by the DAP.

Secondly, according to the literature, it is hypothesized that intelligence measures should follow the same progressive level of articulateness as body concept articulation measures. Therefore, the pathological group with the highest level of body concept articulation should have the highest score on the analytic factors contained in the WAIS performance subtests of block design, picture completion, and object assembly.

Thirdly, although males are generally more articulate than females in the perceptual realm, the DAP scores of body articulation tend to be higher for females within the normal population. It appears that the DAP is strongly influenced by the acculturation process, with females more sensitized to bodily awareness, and consequently has slightly different or additional parameters than the perceptual index. In order to investigate this assumption within a pathological population, it is hypothesized that within the groups hysteric, psychopathic and schizoid as measured by the MMPI, the females will have higher body articulation scores than the males.

These hypotheses will be investigated in terms of the experimental design as outlined in the following chapter.

## CHAPTER II

### EXPERIMENTAL DESIGN

This chapter presents the procedures involved in conducting an experiment to test the hypotheses proposed in the preceding chapter. It begins with a statement of the hypotheses in the null form, followed by a description of the three tests involved in the testing of the hypotheses. A description of the sample population is given with emphasis on the principle of selection. The procedure by which the data was obtained is then described, followed by the statistical procedures employed in both the major and sub-hypotheses.

#### 1. Hypotheses

As body articulation and perceptual differentiation develop along a simultaneous age curve over the first fourteen years of life and have been shown to be highly correlated, and as perceptual differentiation has been associated with different pathological syndromes, it is hypothesized that the DAP as a measure of level of body concept articulation will distinguish between the pathological syndromes of hysteric, psychopathic, and schizoid personalities as measured by the MMPI.

1. There are no significant differences in body concept articulation scores as measured by the DAP among the MMPI groups, hysteric, psychopathic, and schizoid.

In the literature, an analytic approach in intelligence is correlated with perceptual articulateness.

Therefore, it is hypothesized that:

2. There are no significant differences among the pathological groups as measured by the MMPI on their scores obtained on the performance subtests, Block Design, Picture Completion, and Object Assembly of the WAIS.

According to DAP body articulation scores, females tend to have a higher degree of articulateness than males.

Therefore, it is hypothesized that:

3. There is no significant difference between body concept articulation scores as measured by the DAP and the MMPI groups, hysteric, psychopathic and schizoid for male and female subjects.

## 2. The Tools

In order to test the hypotheses adequately, three psychometric tools were used, namely the DAP, the MMPI, and the WAIS.

The DAP in its inception form was to be a projective technique that provided some insight into the self image and attitudes of the person drawing. However, as previously stated, the DAP is being used in this study in its formal

contents in Witkin's frame of reference. To this end, a scale has been adopted that proposes to measure the degree of body articulation, or as Witkin describes it, the Sophistication-of-Body-Concept Scale, referred to in this study as the SBCS. This scale grew out of an earlier scale devised by Machover. Several clusters of items based on graphic features of the drawings were labelled by Machover as being a "lack-of-body-esteem cluster" as well as clusters in other areas such as "uncontrolled or primitive expression of anxiety, lack of self-assurance, lack of struggle for sexual identification, and lack of drive or drive modification".<sup>1</sup> As reported by Witkin, this original scale successfully distinguished differences in extent of perceptual field dependence among groups of boys 10 to 14 years of age with a correlation of 0.41 ( $P < .05$ ).<sup>2</sup>

Marlen<sup>3</sup> developed this scale into its present form by zeroing in on those features more closely related to articulation. The drawings of twenty-three boys were grouped together on the basis of an overall impression of level of

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1. Witkin, Psychological Differentiation, 1962, Op. Cit., p. 117.

2. Ibid., p. 117.

3. Ibid., p. 118.

sophistication. Then each of these drawings were studied intensively "in order to identify the specific graphic features that provided the basis for the global impressions of degree of primitivity or sophistication".<sup>4</sup> This resulted in the three formal characteristics identified as (i) form level of drawings (ii) identity and sex differentiation, and (iii) level of detailing. Finally these characteristics were combined into a single five-point scale, the SBCS, for which a drawing would receive a single score.<sup>5</sup>

The SBCS has been found to distinguish between perceptual field dependence and field independence. A correlation as high as 0.71 between the perceptual index and DAP as a measure of articulation for twenty-three 10 year old boys has been reported by Witkin.<sup>6</sup> With adults, the SBCS and the perceptual index score for forty-one college male undergraduates was correlated at 0.50 ( $P < .01$ ). Secondly, there was a correlation of 0.53 ( $P < .01$ ) for twenty-four hospitalized males. Thirdly, the DAP was rated by four psychiatrists with interrater reliability between 0.83 and 0.92 for sixteen college males, and a correlation

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4. Ibid., p. 119.

5. For description of SBCS see Appendix 1.

6. Witkin, Psychological Differentiation, 1962, Op. Cit., p. 122.

was found of 0.64 ( $P < .01$ ) between pooled ratings of the four judges and the perceptual index scores.<sup>7</sup>

Bogo<sup>8</sup> in his study reported significant correlations between the RFT and the DAP for male and female undergraduate college students. However, the correlation between the RFT and the DAP for males was 0.47 ( $P < .01$ ) and for female subjects was 0.31 ( $P < .05$ ).

Along with other measures of articulation, the DAP has been found to be a consistently reliable measure over time. Witkin reports test-retest correlations for the SBCS ratings for one group from ten years to twenty-four years of age, and a second group from eight to thirteen years of age consisting of both male and female subjects to be significant for all eleven correlations with ten of the correlations at better than the 0.005 level. The test-retest correlation for males from ten to twenty-four years is 0.78, while the test-retest correlation for girls from ten to seventeen years is 0.89.<sup>9</sup>

The MMPI is a structured test for assessing personality along nine dimensions. It is composed of 550 items to which

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7. Ibid., p. 125.

8. Bogo, Ego Defenses, Op. Cit., p. 601.

9. Fateron and Witkin, Longitudinal Study, 1970, Op. Cit., p. 432.

one must answer true or false. The answers to the items may not be taken at face value as equivalent to behaviors, but rather items are grouped together in empirically derived scales based on known psychological and psychiatric characteristics of patients who respond to the items in a certain way. There are four validity scales besides the nine derived scales.

In terms of this study we are looking for a criterion of basic personality disorders and defenses which has little perceptual contamination. For research purposes it was felt that the most accurate criterion could be set in terms of an actuarial description of personality assessment and to this end Marks and Seeman's atlas entitled The Actuarial Description of Abnormal Personality was used.<sup>10</sup> As the authors state, the Atlas contains "an extensive set of personality descriptions of adult psychiatric patients for whom the descriptions have been empirically derived... Based on the testing of over 1,200 male and female clinic and hospitalized patients, explicit rules have been derived which identify sixteen personality test configurations which collectively represent approximately eighty per cent of all adults encountered in a major psychiatric setting."<sup>11</sup>

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10. P. A. Marks and W. Seeman, The Actuarial Description of Abnormal Personality, Baltimore, Williams and Wilkins Company, 1963, p. vi-331.

11. For details of Coded Profile derivation see Appendix 2.



The second classification follows the rules:

MMPI scales: 4 and 9 above 70 Ts  
 4 greater than 8  
 4 greater than 9 (or 9 minus 4 less than 5 T-scores)  
 6 less than 8  
 9 minus 8 more than 5 T-scores  
 2 and 7 below 70 Ts  
 0 below 60 Ts  
 F greater than L and K, F below 70 Ts 13

Eighty per cent of the patients with this profile fall into the classification of Sociopathic; Emotionally unstable. Forty per cent are in-patients while sixty per cent are outpatients for both male and female. The major area of conflict is emotional dependency, while the prominent defense mechanism is undercontrol of impulses, verbal or behavioral acting-out, and rationalization.

The third classification has been derived from profiles following two sets of rules. The largest percentage follow the rule:

MMPI scales: 8,6,4,2 above 70 Ts  
 1 and 3 less than 2,6,7,8  
 2 minus 1 more than 10 T-scores  
 6 minus 5 more than 25 T-scores  
 6 greater than 7  
 8 minus 7 more than 10 T-scores  
 8 minus 9 more than 10 T-scores  
 F greater than L and K, L and K below 60 T-scores 14

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13. Ibid., p.179.

14. Ibid., p.193.

Some subjects followed a second set of rules:

MMPI scales: 8 and 9 above 70 Ts  
5 above 40 Ts  
8 minus 7 more than 5 T-scores  
8 greater than 9 (or 9 minus 8 less  
than 5 T-scores)  
0 below 70 Ts  
F greater than L and K 15

For both these profiles, the major classification is schizoid and paranoid features and the major area of conflict is sexuality. For the former set of rules the major defense mechanism is projection, while for the latter set of rules the defense mechanism is projection and acting-out. Also there is more of a tendency for regression in those whose profiles resemble the second one suggested.

In the last category of schizoid, the psychological reports were referred to more frequently in order to eliminate elevated profiles due to the influence of drugs. Also, those who appeared to be actively psychotic at the time of testing were eliminated.<sup>16</sup>

The WAIS is an adult intelligence test made up of two main sections, verbal and performance. Within the verbal section there are six subtests: Information, Comprehension, Arithmetic, Similarities, Digit Span and Vocabulary. The

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15. Ibid., p. 200.

16. For representative MMPI profiles for the three pathological groups see Appendices 3, 4, and 5.

Performance tests consist of Digit Symbol, Picture Completion, Block Design, Picture Arrangement and Object Assembly. It was chosen for this study as the WAIS is the main tool used in the literature by Witkin and others as a measure of intelligence within the context of cognitive style. That is, through factor analytic studies, Witkin has proposed that the triumvirate of Block Design, Picture Completion, and Object Assembly represent the analytic factors associated with perceptual differentiation, while the triumvirate of Information, Vocabulary and Comprehension represent the verbal factors. In order to compare the findings of this study with previous findings, these subtests will be dealt with in the same manner, while additionally looking at overall intelligence scores.

### 3. Subjects

In order to investigate whether or not distinct crystallized forms of pathology reflected different levels of body articulation on the DAP, patient files were drawn from a general hospital in Toronto, and a psychiatric hospital in Ottawa. The patients in the general hospital had been referred to the Psychology Department by the Department of Medicine (Gastroenology and Endocrinology) and the Department of

Psychiatry. Those patients classified as hysteric and/or psychosomatic according to their MMPI profiles were mainly Department of Medicine referrals, while those classified as psychopathic and schizoid were Department of Psychiatry referrals. The patients drawn from the psychiatric hospital fell into the latter two categories as well. As presented in Table I, the total number of patients involved is ninety (thirty in each classification of hysteric, psychopathic, and schizoid). The overall age range was between fifteen and fifty-five years with a mean age of 28.3 years. In the hysteric group the ages were sixteen to fifty-five with a mean age of 31.4 years. In the psychopathic group the ages were between fifteen and fifty years with a mean age of 26.1 years. Thirdly, the ages in the schizoid group were between fifteen and fifty-five years with the mean age being 27.4 years.

Overall the sample included sixty-one female patients and twenty-nine male patients with a distribution of nineteen female and eleven male schizoid patients; fifteen male and female patients in the psychopathic group; and four male to twenty-six female in the hysteric group. Although the original intention was to achieve equal numbers of male and female patients in all groups in order to look at sex

TABLE I.-

Distribution of Sample Size, Age Range and Mean Age for the Categories of Hysterical, Psychopathic and Schizoid Personalities

Category	Distribution		Age Range	Mean Age
	Male	Female		
Hysterical	4	26	16 - 55	31.4
Psychopathic	15	15	15 - 50	26.1
Schizoid	11	19	15 - 55	27.4

differences, this was not feasible. Particularly in the hysteric group, the patients were predominantly female. The unevenness of numbers seems to preclude any efficient statistical analysis of sex differences, however, the facts as they present themselves contribute to an interesting speculative discussion.

#### 4. Procedure

Patient files were collected that contained an MMPI profile in one of the three categories to be used as a criterion, a psychological report and the DAP test. Files also having a WAIS in them were preferred, although it was not feasible to obtain WAIS scores for the complete number of subjects. These files were gathered from psychometricians and psychologists in the normal course of patient assessment.

Upon receiving the files, the investigator took the drawings out immediately and put them to one side. Then two judges, one a psychologist and one clinically naive person, independently scored them according to the SBCS. The scores were marked down on separate sheets of paper beside the name of the subjects. Although there were usually two drawings from each subject, the second one being of the opposite sex, in view of the formal nature of the characteristics being rated, both drawings rated a similar score. Therefore, for

the purpose of this study, the first drawing produced was the one rated.

These scores were then rearranged under the three categories of the MMPI called hysteric, psychopathic and schizoid. Significant differences between the three groups on their SBCS scores were looked at by post hoc procedures to determine where the significance lay.

After the initial analysis, the Performance factor scores on the WAIS were analysed in terms of the three pathological groups as determined by the MMPI. The Verbal and Full Scale I.Q. scores were also analysed.

Thirdly, the SBCS scores were analysed in terms of sex differences.

#### 5. Statistical Analyses

In order to obtain interrater reliability between the two independent sets of scores for the DAP, a correlation was run using the Pearson r formula. The formula used to obtain the coefficient of correlation was taken from Keith:<sup>17</sup>

$$r = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}}$$

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17. V. Keith, Design and Analysis in Experimentation, University of Ottawa, 1969, p. 44.

Since the correlation was significantly high, one set of scores was used in further analysis.

Next, a one way analysis of variance was run between the DAP scores for the three groups, hysteric, psychopathic, and schizoid. This formula was also taken from Keith:<sup>18</sup>

$$F = \frac{\sum B^2}{\sum W^2}$$

This analysis showed a significant difference between the three groups, so a Tukey test was run to determine where the significance lie. The formula was taken from Keith:<sup>19</sup>

$$\frac{M_x - M_y}{\sqrt{MSe/n}}$$

Following this, a one way analysis of variance for unequal groups was used in order to look at intelligence differences between the three MMPI groups. A separate analysis was carried out for the performance factors, verbal factors and full scale I.Q. scores. Since no significant differences were found further analysis was not necessary. The F formula used was that already stated above.

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18. Ibid., p. 99.

19. Ibid., p. 147.

In order to look at sex differences across all groups, a t test was run between male and female scores on the DAP. The formula from Keith<sup>20</sup> is:

$$t = \frac{x_1 - x_2}{Sx_1 - x_2}$$

The next chapter will present the results obtained from these analyses.

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20. Ibid., p. 82.

## CHAPTER III

### PRESENTATION OF RESULTS

Following the analysis outlined in the preceding chapter, this chapter will present an explanation of the results obtained in order of the three null hypotheses, that is, the difference in SBCS scores between the three groups; hysteric, hereafter referred to as Hy, psychopathic, hereafter referred to as Pd, and schizoid, hereafter referred to as Sc. Secondly, the WAIS intelligence differences across the three groups will be presented, and thirdly, the sex differences across the groups is shown.

The correlation coefficient for interrater reliability on the SBCS scores is 0.828, which is significant at greater than the 0.01 level. Due to the high correlation, just one set of scores was used in the analysis of the data.

#### 1. Differences in SBCS Scores Between Groups Hy, Pd, and Sc

The mean scores and standard deviations for the three groups are presented in Table II, showing the Pd group as having the least articulated mean score and the Sc group as having the most articulated mean score.

TABLE II.-

Mean Scores and Standard Deviations of SBCS  
Scores for the Groups Hy, Pd, and Sc

Group	N	Mean Scores	Standard Deviations
Psychopathic	30	3.3	.97125
Hysteric	30	3.0667	.67986
Schizoid	30	2.4	.98657

These scores were further submitted to an analysis of variance and Table III shows a significant difference on SBCS scores between the groups at greater than the 0.01 level of significance. In post hoc procedures, the Tukey test shows a Q score between group Sc and Hy of 4.234 which is significant at the 0.05 level, and a Q score between groups Sc and Pd of 5.444 which is significant at the 0.01 level. The Q score between groups Pd and Hy is 1.2097 which is not significant.

2. WAIS Intelligence Differences  
Between Groups Hy, Pd, and Sc

Table IV presents the means and standard deviations for the WAIS performance subtests, Block Design, Picture Completion and Object Assembly. The Hy group has the lowest mean score, while the Sc has the highest mean score for the analytic factors contained in the WAIS. However, in a one way analysis of variance for unequal groups, there is no significant difference between the groups Hy, Pd, and Sc as shown in Table V.

In order to look more closely at intelligence factors between the three groups, Table VI presents the mean scores and standard deviations for the WAIS verbal subtest scores, Information, Comprehension and Vocabulary. Again, the Hy

TABLE III.-

Sums of Squares, Mean Squares and F Ratio for SBCS Scores  
of Groups Hy, Pd, and Sc

Source	Sums of Squares	d.f.	Mean Squares	F Ratio
Between	13.08889	2	6.54444	7.9780*
Within	71.36667	87	.82030	
Total	84.45556	89		

\* p less than .01

TABLE IV.-

Mean Scores and Standard Deviation for WAIS Performance  
Subtest Scores for Groups Hy, Pd, and Sc

Group	N	Mean Scores	Standard Deviations
Hysteric	10	24.6	6.2960
Psychopathic	12	28.5833	5.8089
Schizoid	14	31.4286	7.3942

TABLE V.-

Sums of Squares, Mean Squares and F Ratio for WAIS Performance  
Subtests Between Groups Hy, Pd, and Sc

Source	Sums of Squares	d.f.	Mean Squares	F Ratio
Between	272.0048	2	136.0024	2.8646
Within	1566.7452	33	47.4771	
Total	1838.75	35		

TABLE VI.-

Mean Scores and Standard Deviations for WAIS Verbal Subtest Scores for Groups Hy, Pd, and Sc

Groups	N	Mean Scores	Standard Deviations
Hysteria	10	28.6	6.2161
Psychopathic	12	32.0833	7.0054
Schizoid	14	33.5	7.2580

group has the lowest mean score, while the Sc group has the highest mean score. The F ratio, as presented in Table VII, however, shows no significant difference between the groups on verbal subtests.

The WAIS Full Scale I.Q. scores were also analysed and Table VIII presents the mean scores and standard deviations with the Hy group having the lowest mean score I.Q. and the Sc group having the highest mean score I.Q.

In Table IX, the analysis of variance shows no significant difference for Full Scale I.Q. WAIS scores between the three groups.

### 3. Sex Differences Between Groups Hy, Pd, and Sc on SBCS Scores

The sex differences on SBCS scores were difficult to analysis due to the unevenness of distribution within the groups, especially the Hy group which only has four male subjects. However, Table X shows the overall mean SBCS scores standard deviations and t score for male and female subjects. The higher the SBCS score, the less articulation is present. With degrees of freedom of 88, the t score is significant only at the 0.20 level using a two-tailed significance scale. Breaking this down a little further, Table XI shows a t score of 2.49 which is significant at the 0.02 level on a two-tailed

TABLE VII.-

Sums of Squares, Mean Squares and F Ratio for WAIS Verbal Subtest Scores Between Groups Hy, Pd, and Sc

Source	Sums of Squares	d.f.	Mean Squares	F Ratio
Between	143.1833	2	71.5917	1.3793
Within	1712.8167	33	51.9035	
Total	1856.	35		

TABLE VIII.-

Mean Scores and Standard Deviations for WAIS Full Scale I.Q.  
Scores of Groups Hy, Pd, and Sc

Group	N	Mean Scores	Standard Deviations
Hysteric	10	97.6	6.6663
Psychopathic	12	99.75	9.2387
Schizoid	15	104.266	12.4229

TABLE IX.-

Sums of Squares, Mean Squares and F Ratio for WAIS Full Scale Scores Between Groups Hy, Pd, and Sc

Source	Sums of Squares	d.f.	Mean Squares	F Ratio
Between	294.41667	2	147.20033	1.32284
Within	3783.58333	34	111.28186	
Total	4078.	36		

TABLE X.-

Sex Differences on SBCS Scores  
 Across Groups Hy, Pd, and Sc

Group	Mean Scores	Sums of Squares	Std.Dev.	d.f.	t
Female	3.18013	35.84913	.79305	88	1.4318*
Male	3.45312	29.67868	.97847		

\* P greater than .20

TABLE XI.-

Sex Differences on SBCS Scores  
Within Group Pd

Group	Mean Score	Sums of Squares	Standard Deviation	d.f.	t score
Female	3.0357	3.23214	.4986	88	2.4911*
Male	3.7187	12.4843	.9123		

\* P greater than 0.02

test, for the Pd Group. This is based on fourteen female and sixteen male subjects.

Eighteen female and twelve male subjects in the Sc group were analysed with the males having a more articulated mean score, but no significant difference was found between males and females on the SBCS scores. This is shown in Table XII.

The Hy category could not be analysed statistically, however, the mean score for female subjects is 3.3. On the other hand, the four male subjects in this group had a mean score of 4.

An analysis of variance of female SBCS scores within the Groups Hy, Pd, and Sc is shown in Table XIII. With means of 3.27, 3.04, and 3.17 respectively, there is no significant difference for females across the groups.

Having analysed the data and looked at the results, a discussion of these findings is presented in the following chapter.

TABLE XII.-

Sex Differences on SBCS Scores  
Within Group Sc

Group	Mean Score	Sums of Squares	Standard Deviation	d.f.	t score
Female	3.2058	17.52941	1.0467	28	1.003
Male	2.8333	8.6667	.8876		

TABLE XIII.-

Differences on Female SBCS Scores  
 Across Groups Hy, Pd, and Sc

Group	Sums of Squares	d.f.	Mean Squares	F Ratio
Hysteric	3.26923	2	.736817	.39024
Psychopathic	3.0357	55	.48048	
Schizoid	3.1666		1.0	

## CHAPTER IV

### DISCUSSION OF RESULTS

Based on the statistical findings in the preceding chapter, the three basic hypotheses are discussed in terms of their contribution to the construct validity of the DAP as a measure of body concept articulation. The first relationship looked at is the difference in body concept articulation between the MMPI criterion groups of Hy, Pd, and Sc. Secondly, the intelligence scores are discussed as to whether they follow the predicted correlational direction in regard to body articulation scores. Thirdly, sex differences are looked at, as there appears to be an inverse relationship between body articulation and sex differences and perceptual index measures and sex differences. Finally, conclusions are drawn and some suggestions for further research.

#### 1. Level of Body Concept Articulation and Groups Hy, Pd, and Sc

As seen in the preceding chapter, the most significant difference, at the 0.01 level, was between the Pd groups and the Sc group, with the latter group having the greatest degree of body concept articulation. The Sc group

also has a higher degree of body concept articulation than the Hy group with a 0,05 level of significance. The fact that the Sc group has a higher body concept articulation is in the expected direction insofar as Korchin<sup>1</sup> found that ambulatory schizophrenics were more field independent on the EFT than character disorders, or those who somatize their problems.

Most of the other literature pertaining to schizophrenics and cognitive style has been centered around whether process versus reactive, and/or hallucinatory versus delusional schizophrenics are more or less field independent. Although there is a strong rationale according to Witkin's hypothesis for reactive and/or hallucinatory patients to be more field independent, the results to date are inconclusive. It was for this reason, and for the inconsistencies unavoidable in clinical diagnosis along these lines, that the more general category of non-active psychotic patients at the time of testing were chosen on the basis of their MMPI profiles. Therefore, it can only be stated that ambulatory schizophrenics appear to have higher articulated body concepts than either psychopathic or hysteric personalities as determined by the MMPI.

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1. Korchin, as cited in Witkin, 1962, Op. Cit., p. 209.

In terms of logical prediction, it could be argued that the Hy group would be expected to be the least differentiated as, in accord with their MMPI profiles, they commonly use the more primitive defenses of repression and denial; defenses that are also linked with field dependency. Also, those manifesting behavioral somatization, such as ulcers, obesity, asthma and more pronounced hysterical character structures were found to be field dependent. Such findings would lead to the expectation that Hy people would have relatively undifferentiated body concepts. This expectation is supported in part by the fact that the Hy group has a significantly (0.05 level) less articulated score on the SBCS than the Sc group. However, it must be kept in mind that the mean score for the Hy group is still 3.1, with a standard deviation of .68, on a five-point scale.

According to the statistical compilation of the MMPI profiles as stated in this study, as well as clinical experience, both Hy and Pd groups experience conflict over dependency needs, and there appears to be a relationship between experienced emotional dependency and field dependency.<sup>2</sup> However, the Pd group might have been expected to be more articulate than the Hy group in terms of the behaviorally expressed defense mechanisms available to them. Acting-out

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2. Minard and Mooney, Op. Cit., p. 575-580.

against the "other", one of the major defense mechanisms of the psychopathic personality type, seems to require some sense of separation between the self and others, whereas the boundary between self and others appears more permeable in the hysteric.<sup>3</sup>

The results of the present study show no significant difference between the Hy and Pd groups in terms of their SBCS scores. Also, the Pd group is significantly (0.01 level) different from the Sc group with a greater degree of probability than the Hy group.

One possible reason for this may be that the concept of "acting-out" can be more or less differentiated, and the MMPI profile in itself does not make a fine enough discrimination within the profile labelled "psychopathic". The possible hypotheses connected with the profile "4-9", or Pd, are an undercontrol of impulses expressed in acting-out on a motor level, and/or a verbal acting out and rationalization.<sup>4</sup> The latter defenses of verbal acting out and rationalization appear to call for more differentiated behavior than motor level acting out.

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3. Werner, Op. Cit., p. 420-421.

4. Marks and Seeman, Op. Cit., p. 180.

Defenses may be looked upon as attempts at integration, of keeping the personality intact and functioning through the handling of conflicts and other perceived threats. However, the kinds of defenses available to a given individual when the conflict arises depend in part on his developed level of differentiation at that time. For this reason also, the form of pathology can be looked at, perhaps most effectively, by looking at the defenses one is using. If we look at defenses developmentally<sup>5</sup> such defenses commonly associated with hysteric, or psychosomatic personalities such as denial, repression and conversion, although different in their etiology, occur somewhere between the ages of four to five years. Likewise, displacement, which can be thought of as projection on a motor, or action system level, develops as a defense somewhere between four to six years. However, projection as a defense in the restricted sense, and rationalization require a certain level of thought and usually develop somewhere after seven or eight years of age.

Projection according to the MMPI criterion is the major defense encountered in the schizoid profiles, while rationalization is said to be a major defense in the verbal acting-out of the psychopathic profile, as well as the schizoid profile. Since projection and rationalization appear to

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5. Anna Freud, The Ego and Mechanisms of Defense, New York, International Universities Press, 1946, p. 55-57.

require more specialized structures and the ability to isolate elements and separate oneself from the environment, it is not surprising that the Sc group has a highly articulated body concept. Given the criterion which takes into account different "levels" of defenses for the Pd group, that is, displacement, verbal acting out and rationalization, it was expected that they would fall somewhere in between the Sc and Hy groups, the latter group appearing to use almost entirely undifferentiated defenses in the form of repression and denial.

However, the present study can only reject the null hypothesis in part, that is, the Sc group is significantly different in the direction of greater body concept articulation than either the Pd or Hy groups. The failure to discriminate between the Pd and Hy groups may be a result of the criterion although in terms of the hypothesized defenses contained within the criterion one could reasonably expect to find differences in level of articulation. On the other hand, the question of the experience of body image boundaries is a complex one in reality and it may be that the SBCS as applied to the DAP is a measure of body concept articulation, but too gross as a predictor of forms of pathology except for extremes such as somatization versus overideation, or projection versus repression and/or displacement.

Forms of pathology in terms of defense mechanisms provides a framework as well, for looking at differences in intelligence factors.

## 2. Level of Intelligence and Groups Hy, Pd, and Sc

According to Witkin, high body concept articulation, as well as specialized defenses such as projection or intellectualization is most highly correlated with the analytic factors of intelligence as defined by the Performance subtests of the WAIS, namely, Block Design, Picture Completion, and Object Assembly. This hypothesis, as it is stated in the null form within this study, cannot be rejected as no significant differences were found between the three groups Hy, Pd, and Sc, even though there were differences in body articulation scores between the Sc group and the other two groups.

On the other hand, expectations as to intelligence factors derived from the forms of pathology as characterized by defense mechanisms could lead one to look for high verbal intelligence, as well, in those with the more specialized defenses of projection, rationalization, and intellectualization. Also, those engaged in verbal acting out and rationalization should have a higher verbal intelligence score

than those who use denial. In looking at verbal intelligence in terms of the Information, Comprehension, and Vocabulary subtests of the WAIS no significant differences were found between the three criterion groups.

Thirdly, based on the fact that previous studies have supported the hypothesis that higher articulation scores should be significantly correlated with higher analytic intelligence scores, and that logically one could expect higher verbal scores in those with more specialized defenses due to the level of conceptualization necessary, it would be expected that those with higher body articulation scores should have a higher overall intelligence score. The Full Scale I.Q. scores for the WAIS was analysed in terms of the groups Hy, Pd, and Sc, but no significant difference was found in these scores.

Although there were no significant differences among the groups on intelligence factors, it is interesting to note that on the Performance subtests the mean scale scores do run in the expected direction with the Hy group having a scale score of 24.6, the Pd group, 28.58, and the Sc group with a score of 31.43. Due to the fact that the F ratio is approaching significance and the number of subjects is relatively small with unequal distribution among the groups,

one can only reject the null hypothesis with caution. There appears to be some support for Witkin's rationale that body articulation and specialized defenses should be more highly correlated with the analytic factors of intelligence.

However, the Verbal subtests mean scale scores fall in the same direction as the Performance subtests, and are slightly higher for all groups, and closer together. This could be expected as specialized defenses require greater conceptualization which logically appears linked to verbal skills.

Further, the mean I.Q. scores of overall intelligence fall in the same direction, with the Hy group having a WAIS I.Q. of 97.6, the Pd group 99.75, and the Sc group having a mean I.Q. of 104.27. While there does appear to be some support for the relationship between body concept articulation and analytic factors, the full scale results and, more importantly, the results of the verbal subtests could equally lead to speculation along other lines.

Witkin would probably argue that it is the analytic ability (clarity of expression) within the verbal I.Q. scores that leads them to run in the same direction as the more purely analytic tests, and consequently the full scale I.Q. scores are carried by analytic factors. Therefore, this would

not be incompatible with the expectations one would have across the pathological groups according to the MMPI.

On the other hand, Zigler<sup>6</sup> would argue for a "g" factor underlying all of Witkin's work. Again, Kogan and Kagan's<sup>7</sup> assumption that Witkin has examined a particular form of differentiation while making the error incorporating all the processes relevant to differentiation within his definition of the term would argue for a broader theoretical base that would allow for different parameters of differentiation. If one invokes Werner's orthogenetic principle, that development proceeds from a relatively global state to one of differentiation, articulation, and hierarchic integration, such a principle can accommodate verbal and numerical, as well as spatial-analytic abilities.

These above mentioned theoretical assumptions seem to circumscribe the interpretation of Witkin's work and make the intelligence factor an important one to be resolved.

### 3. Sex Differences on SBCS Scores Across Groups Hy, Pd and Sc

Within non-pathological groups, both Witkin<sup>8</sup> and

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6. Zigler, Op. Cit., p. 134.

7. Jerome Kagan and Kogan, N., "Individual Variation in Cognitive Performance", in Carmichael's Manual of Child Psychology, P. Mussen, Ed., New York, Wiley and Sons, 1954, p.1285.

8. Witkin, 1970, Op. Cit., p. 433.

Bogo<sup>9</sup> found that body articulation scores did not appear to follow the same direction as perceptual index scores when it came to sex differences. While males appear to be consistently more field independent in terms of perception, women have higher body articulation scores. In terms of the present study the results seem to fall in that direction. With a mean score of 3.2, the women tend ( $P < .20$ ) to have more articulated drawings.

However, this only appears to hold true for those at the less articulate range of body concept. The Sc group show no significant difference between the male and female scores. (In fact, the mean score for each shows the males having a more articulated score). In the Pd group though, the females have a significantly more articulated body concept ( $P < .02$ ) over the males. While having no statistical validation for the Hy group, due to the fact that there are only four males in it, it is interesting to note that those four males have scores of either four or five, while the females appear to have considerably more articulated scores. It should also be kept in mind that the female SBCS scores are fairly constant across all groups.

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9. Bogo, Op. Cit., p. 602.

The fact that male subjects could not easily be found for the Hy group seems to support Bogo<sup>10</sup> who found that field dependent females turned against themselves more than against others, while the opposite is true for field independent females. However, Bogo combined RFT and DAP in looking at defense mechanisms and sex differences, and since there seems to be some discrepancy between RFT and DAP ratings for males and females, the results may be somewhat contaminated for discussion from the point of view of this study.

As stated earlier, Witkin<sup>11</sup> explains the discrepancy between perceptual index scores and SBCS in that the female figure is more socially invested with greater "details", and female figures are more likely to be drawn by the female.

However, in the present study, the raters of the SBCS were asked to look at both male and female drawings of a given subject to see if they would rate them differently. It was found that the articulation of the drawings was rated the same in all but one or two incidents. (These drawings were subsequently eliminated from the present study).

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10. Ibid., p. 603.

11. Witkin, Longitudinal Study, Op. Cit., p. 433.

Another hypothesis, also discussed earlier, is that people with a global cognitive style show greater incidental learning than those with an articulated style when the incidental learning consisted of human faces. The relation is in the opposite direction with nonhuman incidental material. It could be that females who generally are more field dependent in the perceptual realm, may through closer "body" identification with others in their environment reflect such attention to the "other" in terms of more articulated drawings of the human person. To follow this hypothesis through, though, the cultural influence on role identification would have to be invoked to explain why males with a global cognitive style are not as permeable to the other, and/or have less articulated body concepts.

Vaught<sup>12</sup> found that on the RFT, those with a greater sense of femininity, irregardless of biological sex tended to be more field dependent. This does suggest the possible role of cultural factors, and while a sense of femininity influences field dependency, it may be that the same influence

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12. Vaught, G.M., "The Relationship of Role Identification and Ego Strength to Sex Differences in the Rod-and-Frame Test", Journal of Personality, Vol. 33, 1966, p. 271-283.

turns the more feminine "female" toward a greater body sensitivity which results in more articulated drawings. Within the global end of the continuum, it is perhaps the cultural influence on sex identification that explains why females are more articulate in their drawings than males. In particular, this would explain the phenomena of not being able to find male hysteric patients.

While these results are very inconclusive, they do suggest that as a measure of differentiation the DAP has slightly different parameters than the perceptual index. The uniqueness of the body's "position" between the ego and the object world may allow the DAP as a measure of articulation to be used in other ways, one of which will be discussed in the following summary and conclusions.

When the integrative process within an individual breaks down, Witkin and his colleagues have suggested that the form pathology will take can be predicted from his level of body concept articulation as reflected in the DAP. This statement appears to provide a rationale for looking at the construct validity of the DAP as a measure of body concept articulation, because pathology, especially as described in terms of defense mechanisms in the form they are available to an individual seems to reflect, in part, the psychogenetic totality in terms of level of differentiation.

In the literature, Witkin's hypothesis has mainly been tested with two major categories of pathology. Hysterics, and/or those who somatize their conflicts, appear to be more field dependent (that is, less differentiated perceptually) than groups comprising ambulatory and/or paranoid schizophrenics.

Witkin has maintained that perceptual differentiation is a distinct parameter from general intelligence due to the fact that it is more highly correlated with the analytic factors of intelligence within the WAIS than the verbal factors.

Therefore, according to the literature, one could expect to find that on both measures of body concept

articulation and intelligence factors, hysteric patients would be less differentiated than ambulatory schizophrenics. Also, logically one could predict in terms of defense mechanisms that the psychopathic type personality would fall somewhere in between as his propensity for "acting out" requires some sense of separation between the self and others, while the hysteric would be more repressed and turned against self, and the schizophrenic would tend to use the more articulated defenses of projection and intellectualization.

In looking at pathology, one of the major criticisms has been in the area of consistent criterion. In terms of the validity between measures of differentiation and personality and between measures of differentiation and intelligence, the major criticism is centered around the "perceptual contamination" factor in all the tests used, that is, the DAP, the Rorschach, and the IAT. Besides being perceptually contaminated, they are known to be indicators of intelligence factors within the perceptual framework.

For these reasons, the MMPI was chosen as the criterion in this study for the determination of pathological syndromes, and for the fact that it does not appear to be contaminated unduly by perceptual factors, or as influenced by intelligence factors such as the Rorschach or other perceptual tests.

The major hypothesis that the three groups, Hy, Pd, and Sc as determined by the MMPI, would have different levels of body articulation would contribute to the construct validity of the DAP as a measure of articulation.

The first hypothesis was confirmed in part, that is, the Hy group and the Pd group were significantly less articulated in their body concept than the Sc group. However, there was no significant difference between the Hy and Pd groups. This may be due to the fact that the DAP is too gross a measure of body articulation to discriminate very finely between pathological syndromes, or it may be that the criterion (MMPI) within a given profile such as the Pd does not discriminate between less differentiated acting out, and a probably more differentiated acting out on the verbal level, and rationalization.

The second hypothesis looked at intelligence factors within the three groups. On analytic factors, verbal factors, and full scale I.Q. on the WAIS, no significant differences were found between the three groups.

If the MMPI as an independent criterion of pathology (free from perceptual contamination) could differentiate levels of articulation, then subsequently, the MMPI group that showed the greatest degree of body concept articulation

should have the highest score on the analytic factors of the WAIS. This would further confirm Witkin's position and lend support to the validity of the DAP as a measure of articulation. However, this hypothesis can only be rejected with caution as the Sc group did have the highest mean scale score for analytic factors on the WAIS, and within the WAIS analysis there was a relatively small N and the groups were unequal.

Thirdly, it was found in two previous studies that while men were more field independent, women tended to produce more articulated drawings. In this study, sex differences were analysed within the groups and it was found that the tendency for women to produce more articulated drawings was in the Pd and possibly Hy groups. That is, at the more global end of the continuum women tended to produce more articulated drawings than men, while this did not hold true for the Sc group. It could, perhaps, be hypothesized that among those with a more global cognitive style, women are culturally (child-rearing practices, role learning, etc.) sensitive to their bodies. It is more appropriate for them to display bodily awareness, while equally field dependent males are directed outward in their behavior, which nonetheless may result in undifferentiated acting out such as alcoholism, or aggressive behavior. This could also explain why the

predominant number of women are hysterics, as evidenced by the difficulty in obtaining men with an hysterical profile on the MMPI for this study, while it was almost equally difficult finding female subjects in the psychopathic group. It would be interesting to look more closely at the Pd group to see if within it, women with the higher body articulation scores used more differentiated defenses such as verbal acting out and rationalization, while the men perhaps tended to be more undifferentiated in their acting out.

In terms of the construct validity of the DAP as a measure of body concept articulation, it does seem that besides its correlation with the perceptual index, the SBCS does have some power for discriminating between forms of pathology. However, in this study it appears as a rather gross measure. In terms of the practical application of this scale in a clinical setting the scores obtained per se are predictably no different than would be found in a general nonpathological population.

As has been mentioned, one of the major criticisms of Witkins work is his endeavour to reduce the concept of psychological differentiation to his definition of it as an ability to overcome an embedding context. Due to this premise Witkin has looked only at the correlations existing between his measures, and perhaps, has done injustice to some of the unique parameters of his individual measures.

In particular, the cultural influence suggested in the sex differences reflected in the DAP, as well as the theory of Fisher and Cleveland<sup>13</sup> seem to suggest that the DAP has slightly different parameters than the perceptual index. Fisher and Cleveland suggest that the body image is more closely linked with the personality systems than any other "object" in the perceptual field due to the fact that an individual's body is one of the chief participants in some of the early relationships that are the prototypes of a number of the most basic introjects. That is, during the first few years of life the child experiences his parents mainly in terms of how they react to signals he gives them about his body sensations. Secondly, the body is unique in the perceptual field insofar as it visibly demarcates an area of space which is identified with the sense of individuality that grows out of the organization of internalized systems.

Based on this premise, they report that:

...earlier studies indicate that successful psychotherapeutic procedures tend to increase the degree of body-image boundary definiteness. The therapy techniques which were employed made no attempt to alter body appearance. But they did seek to introduce reorganization of certain interiorizations (e.g. concept of father figures); and one may assume that it was via such reorganization that changes in body image were stimulated.<sup>14</sup>

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13. Fisher, S. and Cleveland, S., Body Image and Personality, Toronto, Van Nostrand Company, 1958, p.351.

14. Ibid., p. 354.

Based on the above, a further area of research would be to see if body concept articulation scores remain stable after therapeutic intervention. The DAP as a measure of body concept articulation, due to its close proximity to the personality systems, may allow us to answer such questions as whether we can only hope to achieve a reintegration within a limited range in therapy, or can we with some groups, or all groups to some extent, change the level of differentiation that would allow new and better integrations, or modes of functioning.

Beyond this, it appears that only by studying the uniqueness, or by manipulating the individual measures of differentiation that Witkin proposes, apart from their interrelatedness, can we approach an appropriate and satisfactory interpretation of the concept of psychological differentiation.

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Adevai, G., "MMPI Findings in Field-Dependent and Field-Independent Subjects", in Perceptual and Motor Skills, Vol. 26, 1968, p. 3-8.

A study looking at differences between field dependent and field independent college undergraduates on the MMPI. The fact that there were no significant differences in a normal population suggested the MMPI as a possible tool, independent of perceptual loading, for construct validity of the DAP as a measure of body articulation through different pathological syndromes.

Bogo, N., C. Winget, and G. Gleser, "Ego Defenses and Perceptual Styles", in Perceptual and Motor Skills, Vol. 30, 1970, p. 599-605.

This study explores similarities between Voth's personality construct (ego-close - ego-distant) and that of Witkin (field-independent - field-dependent) especially with reference to ego defenses. It provided statistical validation between the RFT and the DAP, and contributed to the discussion of defense mechanisms and level of differentiation, and sex differences within these measures.

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

In this book the authors give a rationale for placing the body in a unique relationship to the personality systems and other perceptual objects. This is compatible with Werner's theory of the "psychogenetic totality" and as such suggests further research using the DAP as a measure of body concept articulation.

Hellkamp, D. T., Extent of Psychological Differentiation Among Hospitalized Male Schizophrenics Classified Along the Process-Reactive and Delusional-Hallucinatory Dimensions, Unpublished doctoral thesis presented to the University of Ottawa, 1967, vi-104 p.

One of the most conclusive studies for looking at differences among types of schizophrenia.

Marks, Philip and W. Seeman, The Actuarial Description of Abnormal Behavior, Baltimore, Williams and Wilkins Company, 1963, xxv-331 p.

This text provided the criterion MMPI profiles as they were used in this study.

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

Criticizes Witkin's early work blaming him for "circular reasoning" due to his use of projective and perceptual studies. Suggested the need for an independent (none perceptually loaded) criterion.

Trites, Ronald, Perceptual Differentiation of the Perceived Self, unpublished doctoral thesis presented to the University of Ottawa, 1965, ix-94 p.

This thesis links Witkin with Werner's orthogenetic principle and as such provides a logical, or theoretical rationale, as to why there should be a relationship between perceptual and body concept differentiation.

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

Werner's original work setting forth the concept of differentiation and integration as an ongoing hierarchic process.

Witkin, H., "Psychological Differentiation and Forms of Pathology", in Journal of Abnormal and Social Psychology, Vol. 70, No. 3, 1965, p. 317-336.

This article provided the basic hypothesis for the present study by suggesting that the form of pathology can be predicted from the level, or degree, of any measure of differentiation.

Witkin, H. A., R. B. Dyk, H. F. Faterson, D.R. Goodenough, and S. A. Karp, Psychological Differentiation, New York, John Wiley and Sons, Inc., 1962, xii-418 p.

Witkin's most comprehensive reporting of work done with the construct of differentiation. It suggested many studies reporting differences in pathology and field dependency and also contains the Sophistication-of-body-concept scale as applied to the DAP in order to obtain the degree of articulation.

Witkin, H. and H. Faterson, "Longitudinal Study of Development of the Body Concept", in Developmental Psychology, Vol. 2, No. 3, 1970, p. 429-438.

The most complete reporting of work done with the DAP as a measure of body concept articulation. It reports the relationship between body concept articulation and intelligence and sex differences, and also suggests the DAP as a predictor of forms of pathology.

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

Witkin's first major publication in which he develops his rationale for looking at personality through the perceptual constructs of field-dependency and field-independency.

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

One of Witkin's major critics as he sees no theoretical rationale for the correlations Witkin is finding with his measure of perceptual differentiation. His criticisms of Witkin in the intellectual factors suggested the basis for the discussion of intelligence and articulation presented in this study.

APPENDIX 1  
SOPHISTICATION-OF-BODY-CONCEPT  
SCALE RATINGS

## APPENDIX 1

### Sophistication-of-Body-Concept-Scale Ratings

1. Most sophisticated drawings: These manifest high form level (e.g. waistline, hips, shoulders, chest or breasts, shaped or clothed limbs, etc.); appendages and details represented in proper relation to body outline, with some sophistication in mode of presentation; appropriate, even imaginative, detailing (e.g., successful profiling, as young girl in evening clothes, well-dressed man with cigarette, etc.)
2. Moderately sophisticated drawings: Drawings which show a definite attempt at role assignment (with regard to age, activity, occupation, etc.) through adequate detailing, shaping, clothing; with continuity of outline (i.e., integration of parts) attempted.
3. Drawings intermediate in level of sophistication: Drawings in which identification of sex is evident, attempts at shaping and a fair level of integration of parts are manifest and a minimum of detailing is present.
4. Moderately primitive drawings: Drawings which essentially still lack features of differentiation through form, identity, or detailing; however, these drawings show slightly more complexity in some respects (e.g. presence of one body part that is unusual in most primitive drawings, such as the neck.)
5. Most primitive and infantile drawings: These manifest a very low level of form (ovals, rectangles, sticks stuck on each other); no evidence of role or sex identity (same treatment of male and female with, at most, difference in hair treatment, no facial expression, little shaping or clothing).

**APPENDIX 2**

**PROCEDURE FOR DERIVATION OF PROFILE CODE TYPES**

## APPENDIX 2

### Procedure for Derivation of Profile Code Types

1. Tabulation of high point frequencies of all MMPI profiles for all patients over a one year period (N = 165 women, 83 men.)
2. Grouping of profiles crudely on the basis of 2 digit or 3 digit high points, irrespective of sex.
3. Identification of nine preliminary code types (2-3-1, 2-7, 2-7-8, 2-8, 3-1, 4-6, 4-8-2, 8-6, and normal K+) with a minimum requirement of 25 patients per type.
4. Inspection of all profiles for "goodness of fit" in grouping and further specifying profile criteria (e.g., for the 2-3-1: 2, 3, and 1 above T score 70; 2 minus 1 greater than 5 T score points).
5. Computation of difference scores and other criteria (e.g., (7 + 8) - (1 + 2); (4 + 6) - (1 + 3); etc.
6. Refining of specification rules on basis of procedure in Step 4 above.
7. Testing of newly refined specification rules on patient population for the following year (N = 257 women, 130 men).
8. Identification of seven additional code types (2-7-4, 3-2-1, 4-6-2, 4-9, 8-3, 8-9, and 9-6).
9. Revision and refinement of rules (e.g., for the 2-3-1: 7 greater than 8 or 8 minus 7 less than 5 T score points).
10. Testing of most recently refined specification rules on subsequent two year population (N = 556 women, 270 men.)
11. Identification of four additional code types (1-2-3, 2-0, 3-4, and 8-7).
12. Final requirement of N = 20 for specifying a code type.

APPENDIX 3

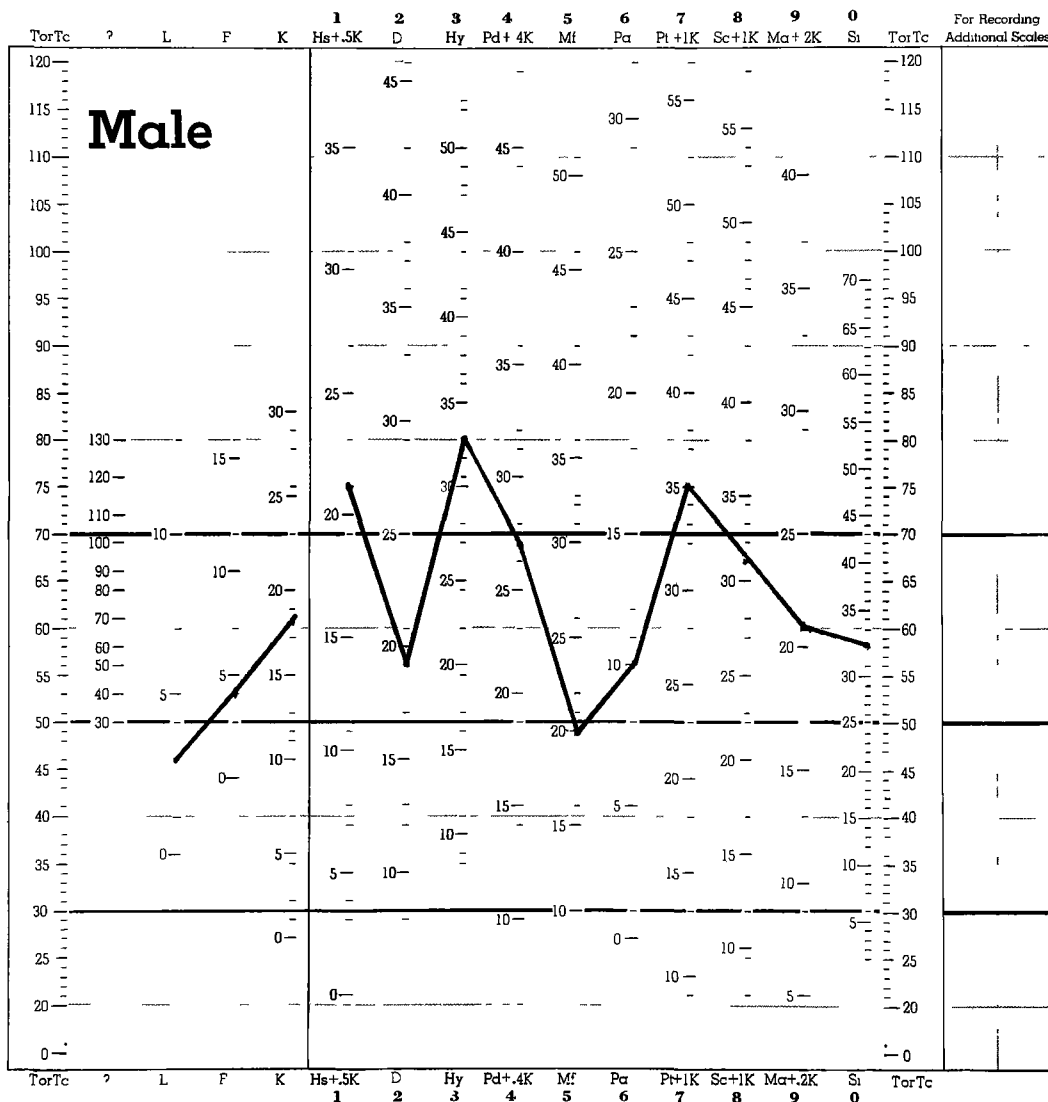
MMPI PROFILE - HYSTERIC

APPENDIX 3

The Minnesota Multiphasic Personality Inventory

Starke R. Hathaway and J. Charnley McKinley

Scorer's Initials \_\_\_\_\_



Sample Profile following criterion rules for Hy Group

APPENDIX 4

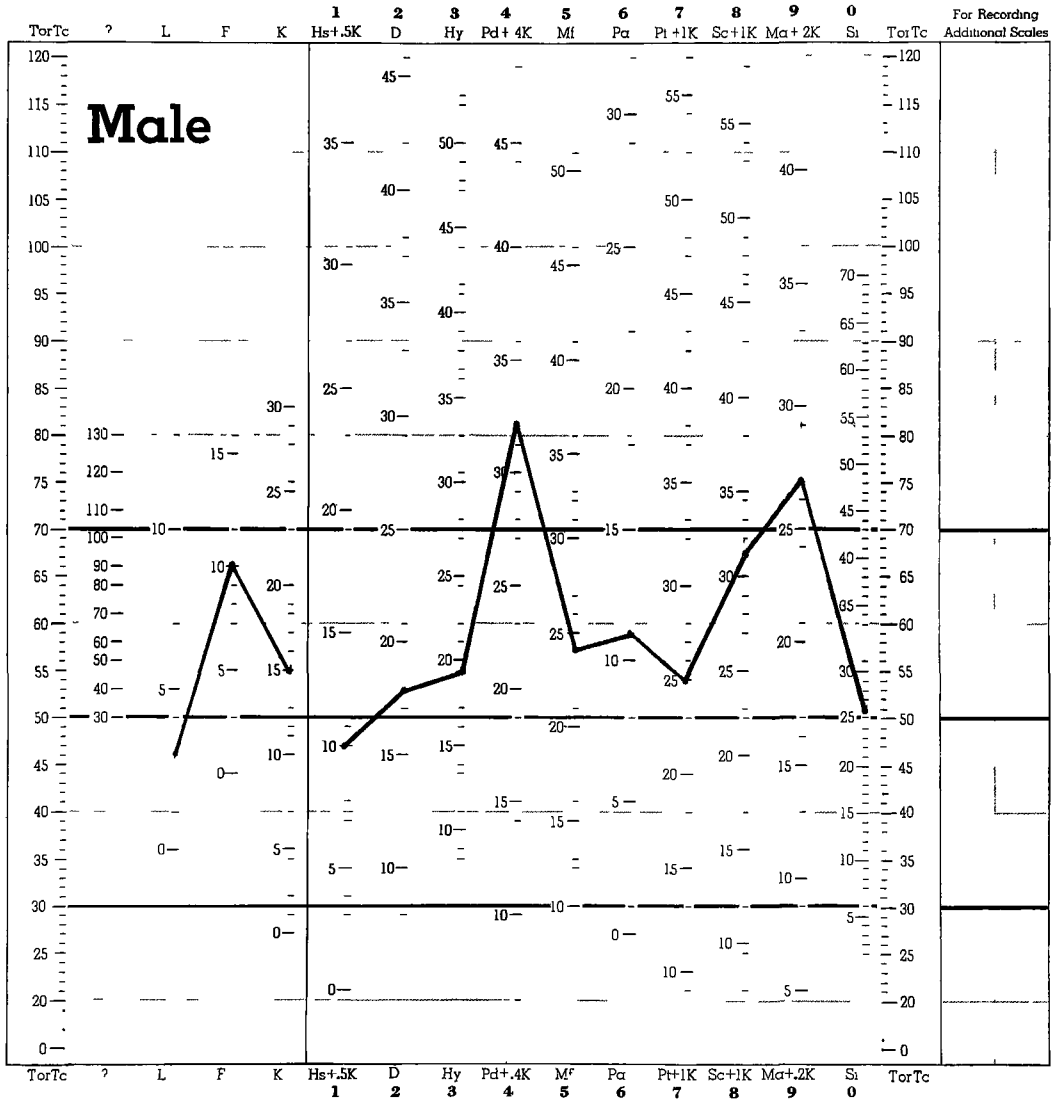
MMPI PROFILE - PSYCHOPATHIC

APPENDIX 4

The Minnesota Multiphasic Personality Inventory

Starke R. Hathaway and J. Charnley McKinley

Scorer's Initials



Sample Profile following criterion rules for Pd Group

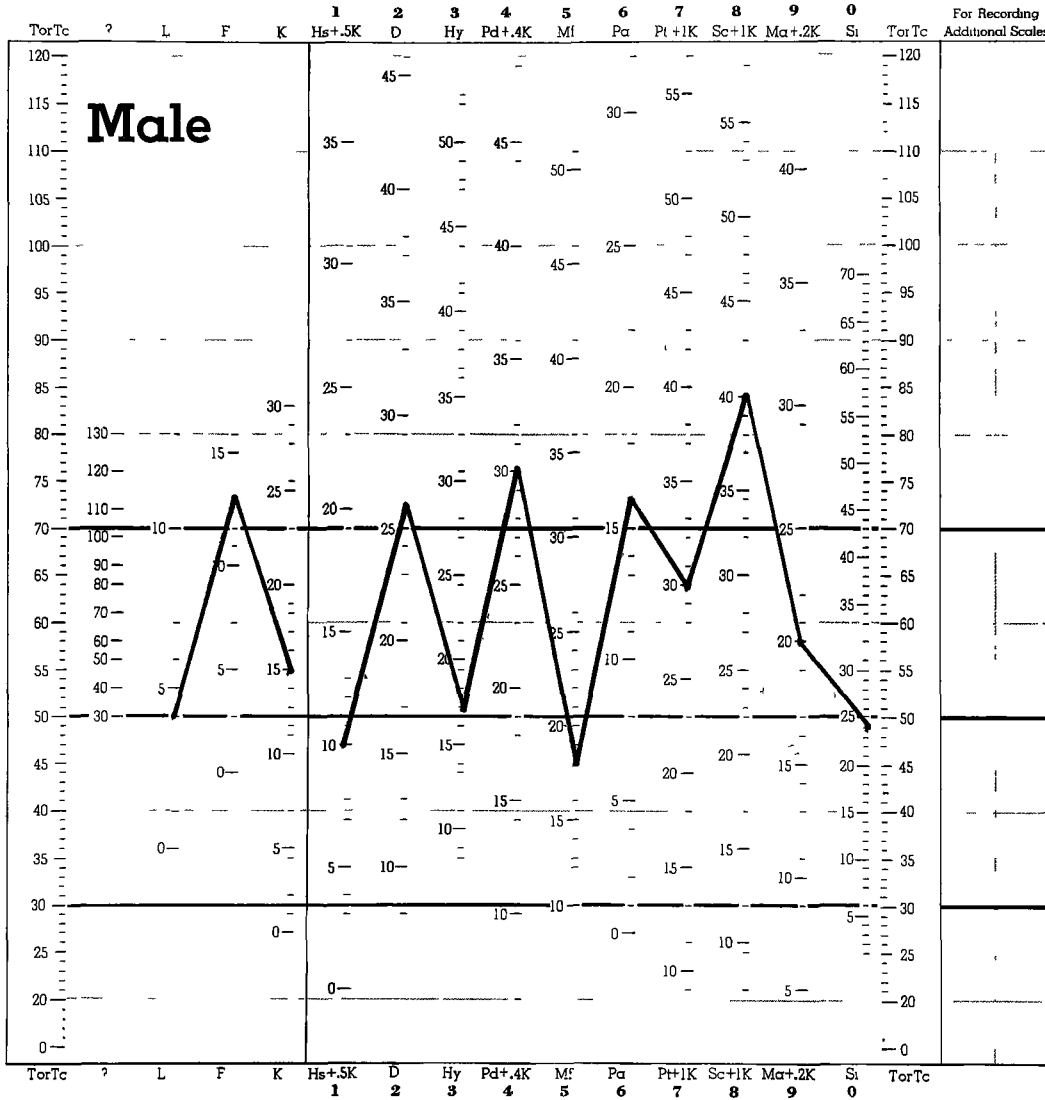
APPENDIX 5  
MMPI PROFILE - SCHIZOID

APPENDIX 5

The Minnesota Multiphasic Personality Inventory

Starke R. Hathaway and J. Charnley McKinley

Scorer's Initials



Sample Profile following criterion rules for Sc group

APPENDIX 6

ABSTRACT OF DAP AS A MEASURE OF  
BODY CONCEPT ARTICULATION

APPENDIX 6

ABSTRACT OF

DAP as a Measure of Body Concept Articulation<sup>1</sup>

This study was designed to look at the validity of the DAP as a measure of body concept articulation. The literature has suggested that forms of pathology can be predicted from any measure of level of differentiation as pathology, especially the types of defense mechanisms available to an individual is determined in part, by his level of differentiation. Many studies have linked perceptual field dependency with hysteric and/or psychosomatic syndromes, while field independency is found more in neurotics with well structured defenses and ambulatory and/or paranoid schizophrenics. Field dependency has also been linked with an inability to separate emotion from perception. Defenses such as repression and denial have been correlated with field dependency, while those with greater perceptual differentiation use more specialized defenses such as projection or intellectualization. It was hypothesized that if the DAP is an accurate measure of articulation it would differentiate between different pathological syndromes.

Three groups, comprising thirty subjects each, were selected on the basis of their MMPI profiles designated,

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<sup>1</sup> Elinor J. Dickson, C.S.J., Master's thesis presented to the University of Ottawa, Canada, July 27, 1973, ix-103 p.



through the statistical criterion of an actuarial description as being Hysteric (Hy), Psychopathic (Pd), and Schizoid (Sc). The latter group excluded actively psychotic patients at the time of testing. The MMPI was chosen as a criterion measure as it gave consistent diagnostic categories, and is less perceptually contaminated. One would expect a high correlation between the DAP and a test like the Rorschach as they both have a high perceptual loading, a factor which also influences the analytic intelligence factor claimed by Witkin to be specifically related to level of differentiation. Drawings from each of these subjects was scored separately by two judges, with an interrater reliability of 0.82.

On the basis of their articulation scores, an analysis of variance showed the Sc group to be significantly different from both the Hy and Pd groups. However, the Hy and Pd groups were not significantly different from each other. This could be due to lack of discrimination in the criterion, or it could be that the DAP as a measure of body concept articulation is too gross and can only discriminate at the extremes of pathology.

It was further hypothesized that if the analytic factors within the Performance subtests of the WAIS were significant between the MMPI groups in the same direction as body articulation scores, this would lend further support to the validity of the DAP as a measure of articulation. No significant

differences were found among the groups on either analytic factors, verbal factors, or full scale I.Q. scores. However, the null hypothesis should only be rejected with caution as the mean scores were in the expected direction with the Sc group having the highest score in all categories, and the number of subjects comprising each group was relatively small and of unequal distribution.

In two previous studies, an inverse relationship was found between perceptual differentiation and body concept articulation as regards sex differences. That is, while males tend to be more articulate in the perceptual realm, females tend to produce more sophisticated drawings. As expected, females in this study did tend to have more articulate drawings, however, the greatest significance was at the more global end of the continuum, in the Pd group. The Hy group could not be analysed statistically as there were twenty-six females to four males, however, a visual scanning reveals that the males tended to have very global drawings, with the females being more articulate. The fact that at the more global end of the continuum the females had higher body articulation scores can best be explained in terms of the influence of cultural factors. Perhaps women are geared to a greater bodily awareness and sensitivity, while equally undifferentiated males tend to act out more at a motor level of behavior. This

could explain the predominance of females in the hysteric classification.

The influence of cultural, or learning factors, in the sensitivity to body image boundaries points out as well, the unique role of the body between the ego and the object world. Unlike the perceptual index that appears to remain very stable over time and under different conditions, the DAP might be more sensitive to change, for example, under therapeutic conditions, insofar as it may reflect a slightly different parameter than the perceptual index. Further research would be needed to see if the DAP as a measure of degree of body concept articulation is amenable to change in the course of therapy, and if so, are some pathological syndromes more amenable to change than others. Such an approach may make the DAP as a measure of body concept articulation a more valuable tool within the practical clinical setting.