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THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

FIELD DEPENDENCE AND PERSONALITY CORRELATES OF DIFFERING MODES OF COGNITIVE ORGANIZATION OF SELF-STATEMENTS

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

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degree of

DOCTOR OF PHILOSOPHY

BY

DONALD WILLIAM HUME

Norman, Oklahoma

1971

FIELD DEPENDENCE AND PERSONALITY CORRELATES OF DIFFERING MODES OF COGNITIVE ORGANIZATION OF SELF-STATEMENTS

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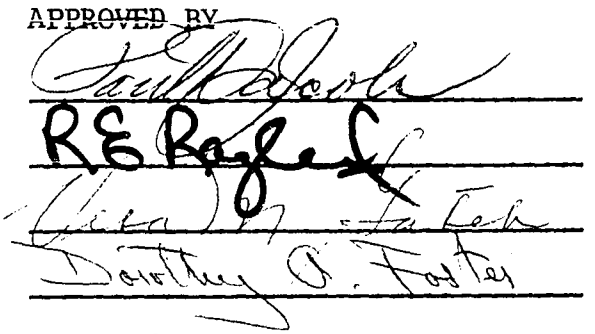

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FIELD DEPENDENCE AND PERSONALITY CORRELATES OF DIFFERING MODES OF COGNITIVE ORGANIZATION OF SELF-STATEMENTS[1]

SUMMARY

From among 71 volunteer undergraduate psychology students subjects were selected on the basis of their response to a dual sorting task in which they were asked to sort two sets of 50 identical self-statements into a number of categories of their choosing. It was assumed that the stimuli of the second sort were more self-involving since the initial sort instructions were to sort the statements "as statements," ignoring the fact they are self-referring. The second sort instructions requested that they be sorted "as they apply to you." Subjects using more categories on the second sort were identified as positive shifters, negative shifters used fewer categories. The extreme six male and six female positive shifters were compared with the extreme six male and six male negative shifters in terms of California Psychological Inventory personality profiles and field-dependence measures on the Hidden Figures-Test.

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[1]This paper is based on a dissertation submitted to the University of Oklahoma in partial fulfillment of the requirements for the Ph.D. Degree.

No differences in personality organization were found, either between shift groups or between sexes. Nonsignificant correlations were found between shift and Hidden Figures Test Scores. The lack of significant correlations suggested shift to be independent of field-dependence. The inability to differentiate the extreme scorers on the shift dimension was thought to reflect the inability of an inventory type personality test, adequate as a measure of interpersonal behavior, to reveal differences between normal subjects at a level of cognitive organization.

INTRODUCTION

Relatively early in the development of categorization procedures as a tool to study attitudes, Sherif and Hovland (1953) noted that subjects who were judging stimuli in a categorization task tended to place those items which appeared actually to be rather neutral into categories further from their own position. They concluded that if subjects were allowed to choose for themselves the number of categories used, the number decided upon might be used as an index of the subjects' intensity of involvement with an issue. This method they referred to as the "own categories technique."

Sherif and Sherif (1967) attempted to explain the relationship of fewer categories used as a function of greater involvement in terms of an "assimilation-contrast effect." In essence, the subject's "own position" provided an anchor in a range of possible alternatives, and he was more discriminating in the

range of alternatives the closer they were to his own position. Essentially, those not seen as quite similar were seen as quite dissimilar.

Glixman (1965) offered additional support for the relationship between increased involvement and decreased number of categories in a study in which he varied the domain of statements subjects were to sort. The stimuli were 1) verbal descriptions of common objects, 2) statements about nuclear war, and 3) 92 statements about the self which approximated an hierarchial range of statements from least to most relevant to self. He found that most categories were used in the object domain and fewest in the self domain and concluded that, as the personal relevance of the stimuli increased, category width decreased and more neutral items were displaced away from the range of statements with which a subject identified. In further research, Glixman (1967) supported this conclusion and introduced findings that examiner and examiner-sex factors influenced categorization behavior.

Briece (1966) introduced findings regarding self ideal self discrepancy. She noted that with an increase in the self, ideal-self discrepancy, there was a corresponding decrease in the number of categories subjects used when shifting from the object to self-domain. The also found the relationship functioned in differential degree between sexes.

The widely held view that as the self-relevance of the stimuli increased the number of categories chosen would decrease was substantiated repeatedly and was shown to be a non-unitary relationship,

rather one influenced by both self reference (Briece, 1966) and interpersonal variables (Glixman, 1967).

Cornelius (1968) questioned previous conclusions upon noting that while most subjects' performance confirmed theoretical expectations a small, but consistent minority did not. He administered a dual sorting task to 20 male and 29 female elementary school teachers. He asked them to sort two identical sets of 50 self-statements into categories of their design. They were asked to sort the first set "as statements, ignoring the fact that they are first person or self-referring statements" and the second set "as they apply to you." He assumed the second set to be more self-involving. He characterized those using a greater number of categories on the second sort as "positive shifters." "Negative shifters" used fewer categories, and "zero shifters" used the same number on both sorts. The three shift groups were significantly differentiated in terms of their self-ideal discrepancy and on the number of differentiations they characteristically made between stimuli across tasks. He concluded that shift constituted a cognitive control associated with categorization behavior and speculated that, in keeping with research relating cognitive style and personality variables, positive and negative shifters would differ in personality organization. The operation of making differentiations in a categorization task theoretically paralleled Witkin's (1962) differentiation hypotheses and suggested a direct relationship between shift and field-dependence dimensions. The lack of research in this area leaves these

conclusions in the area of speculation.

The present research was an attempt to determine the relationship between field-dependence and shift and to describe the differential personality characteristics of positive and negative shifters. A more extensive listing of hypothesis is included in Appendix I. It was believed that differential personality characteristics would exist and would lend support to the validity of shift as a cognitive control factor.

METHOD

Selection of Subjects

Subjects were 41 male and 30 female volunteers enrolled in an undergraduate introductory psychology course. From among the 71 subjects who completed the dual sorting task, the 6 extreme males and females of both the positive and negative shift groups were selected to comprise the test sample. Little is known regarding the distribution of the shift dimension in the general population but it was assumed to approximate that of the field-dependence dimension. Therefore, it was assumed that subjects 18 to 21 years of age were of equivalent developmental levels in terms of field-dependence (Faterson and Witkin, 1970).

Test Instruments and Procedures

Initially, all 71 subjects were requested to complete two sorting tasks. Fifty of the Butler and Haigh (1954) self-statements were printed on two stacks of standard sized IBM cards. The subjects were asked to "place into categories those statements

that seem to you to go together." The instructions for the first sort suggested that they be sorted "as statements, ignoring the fact that they are first person, or self referring statements." The second sort instructions suggested that they be sorted "as they apply to you." It was assumed that the instructions dictated that the second sort statements would be more self-involving than the first. The sorting task was administered in small groups, varying in size from 8 to 13 subjects at each test session. This was essentially a replication of Cornelius' procedure, with the exception that his subjects complete the sorting task individually.

To insure the extremes of each shift group, a suggestion of Cornelius' (1971) was adopted. Only those subjects who increased in number of categories on the second sort and who used nine or more categories on the second sort were considered positive shifters. Those who used fewer categories on the second sort and who used four or fewer constituted the negative shift group. Ties existed within both the female negative shifters and male negative shifters. Ties were eliminated by selecting at random from among the group of least extreme scores the number of subjects required to assure equal sized groups. Thus, four equal sized groups of six each--male positive shifters, female positive shifters, male negative shifters and female negative shifters--were asked to complete the two additional measures.

The extreme shifters were asked to complete the Hidden-Figures-Test, which has reportedly high correlations with other measures of field-dependence (Goodman, 1962), and the California

Psychological Inventory which gives a reliable measure of general personality characteristics (Gough, 1957). These two measures were administered in 3 sessions with between 7 and 10 subjects participating per session. Efforts were made to insure the anonymity of the subjects' shift group identity so as to minimize any experimenter biasing effects within the testing situation.

Experimental Design

The four groups were compared in their responses to the 18 scales of the California Psychological Inventory (CPI). The data were transformed to standard scores and were analyzed in a split-plot factorial design with non-repeated measures on 2 factors and repeated measures on one factor (Kirk, 1968). The extent of association between shift and field-dependence dimensions was tested with individual Spearman Rank Order Correlation Coefficients (rs) for females, males and total group.

RESULTS

Initial test of homogeneity of error terms for the CPI data analysis indicated the assumption of homogeneity was upheld for Subj. W/Groups (Fmax (5,5) = 1.78, $p > .05$), and the other error terms, B x subj. w/groups (Fmax (85,85) < 1.00). Data were analyzed in original form using standard F tests (Kirk, 1968).

An analysis of the CPI data revealed no differences between shift groups (F (1,20) = 1.33, $p. > .05$), between sex groups (F (1,20) < 1.00), or the interaction of sex and shift groups

(F (1,20) < 1.00). Interactions between shift groups and personality (F (17, 340) < 1.00), between personality and sex (F (17,340) < 1.00) and the interaction effects of sex, shift and personality measures (F (17,340) < 1.00) were found to be non-significant. Mean score differences among the scales of the California Psychological Inventory were found (F (17,340) = 10.90, p. < .01).

Newman-Keuls Tests of Means (Kirk, 1968) revealed mean differences between Sc (37.83) to be great enough from Do (51.50), Fe (53.04), Ai (53.75), Sp (57.04), Sa (59.29), Fx (59.45) to exceed p. < .01. The difference between mean Gi (38.29) and those of Do (51.50), Fe (53.04), Ai (53.75), Sp (57.04), Sa (59.29), Fx (59.45) was great enough to exceed p. < .01. Each of the means Re (40.91), Wb (41.50), To (43.58), Ac (43.66) was different enough from means Sp (57.04), Sa (59.29) and Fx (59.45) to exceed p. < .01. The difference between mean So (45.70) and Sa (59.29), Fx (59.45) was great enough to exceed p. < .01.

Spearman Rank Order Correlation Coefficients (rs) were used to test the extent of association between shift rank and the rank scores of Hidden-Figures-Test measure of field dependence (Siegal, 1956). None of the correlations for females (rs - .08, p > .05), for males (rs = -.45, p > .05) or for combined group (rs = -.34, p > .05) were found to be significant.

Of the 71 subjects who completed both sorting tasks at two levels of self-involvement 16 males and 14 females used a greater number of categories on the second sort, 17 males and 12 females used fewer categories, and 6 males and 6 females used the same

number on both sorts. The range on the second sort varied from 2 categories to 15.

DISCUSSION

In terms of the proportions of people who fell into the positive shift group compared to the negative shift group, distribution alone leads one to suspect the universality of the association between increased self-involvement and decreased number of categories. Results tend, in fact, to support Cornelius' contention that increased involvement with the stimuli is treated differentially by subjects with differing cognitive styles associated with categorization tasks. However, the attempt of the present study to find differential patterns of personality organization corresponding to the extreme scorers on the dimension of cognitive behavior referred to as shift, found no differences.

One explanation may be the inappropriateness of the personality measure used in the study. The California Psychological Inventory represents an adequate measure of personality characteristics at a level of interpersonal behavior. The simple true-false answers required to complete the CPI seems less than adequate to exploit the cognitive processes necessary to complete the dual sorting task. It seems quite likely that cognitive differences between relatively normal subjects will not necessarily be reflected as measurable differences at a level of interpersonal behavior.

An additional factor bearing on the lack of differences may

have resulted from some artifact of the testing procedure. The instructions for the sorting tasks were essentially a replication of those of Cornelius. However, his subjects completed the task individually without pressure to finish in a given time. Observation of the subjects during the sorting task for this study suggested the possible influence of social pressures to avoid taking too long to complete a task and eye contact with others' performance may have biased results of people not wanting to be too out of line with the performance of others.

While the group means on the CPI were generally what would be expected from a normal sample, on two scales the group means varied more than one standard deviation from the corresponding normal group mean. Their performance on one of these scales suggested a need to make a socially "good impression." Perhaps this tendency combined with the biasing effect of social pressures contributed to some minor distortion of the test sample on the cognitive dimension. Individual administration of the sorting task seems preferrable.

While subjects who were differentiated on the cognitive dimension of shift were not distinguishable in terms of personality characteristics, the lack of significant correlations between shift performance and field-dependence measures can be interpreted to mean that shift and field-dependence bear no direct relationship to one another. The cognitive control dimension of shift appears to be independent from that of field-dependence.

Findings suggest first, that in terms of the absolute numbers

of subjects who used more categories on the second sort of a dual sorting task, the increased self-involvement-decreased number of categories theory can be questioned. Second, the inability to find significant correlations between shift scores and HFT scores suggests shift to be an independent cognitive control dimension from that of field-dependence. Third, although different shift groups were not differentiated on the basis of personality inventory scores, the feasibility of the use of an inventory type personality test is doubtful since the level of behavior which it measures may not reflect differences between normal subjects who tend to be different at the level of cognitive organization.

Any future attempt to replicate the present study should modify the procedure by employing a personality measure more suited to the level of cognitive organization and to consider administration of the dual sorting task individually so as to avoid contamination of sorting behavior by social interaction factors. While procedural difficulties of the present study seriously delimited the extent to which conclusions could be reached, the inability to find personality differences in subjects with differential shift performance styles leaves the validity of the shift variable open to question. Future research might focus on this point. In addition, the results of the present study failed to reveal any sex-differences. This is in direct contrast to Cornelius' findings and bears further investigation.

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Appendices

Appendix I

Dissertation Prospectus

The use of categorization tasks as tools with which to study behavior dates from the initial studies in psychophysics and was employed in the early development of scaling procedures (Likert, 1932 and Thurstone and Chave, 1929). Sherif and Hovland (1953) used a categorization task to study attitude measurement. Rogers and Dymond (1954) provided the initial impetus for the use of Stephenson's (1953) Q-sort to assess the discrepancy between self and ideal self. Self-ideal discrepancy came to be measured in other ways also, most notable that of Leary (1957) and Osgood, et. al., (1957). Categorization tasks have been used in a wide variety of approaches to the study of behavior, thus its importance is apparent.

Historically, while the uses of categorization tasks have increased, the tasks have undergone modifications, especially in the area of attitude study. Originally, investigators (Thurston and Likert) prescribed the number of categories in which subjects were to place the stimuli which they were categorizing. Sherif and Hovland (1953) noted however, that subjects who were judging stimuli tended to place into categories further from their own position those items which appeared actually to be rather neutral. They concluded that if subjects were allowed to choose for themselves the number of categories used the number decided upon might be used as an index of the subjects' intensity of involvement

with an issue.

Following up the discovered relationship between number of categories and the intensity of attitude held on a particular issue, subsequent investigations derived some rather consistent findings. Reich and Sherif (1963), for example, used subjects from the League of Women Voters and employed Sherif and Hovland's "own categories" technique to assess their attitudes with regard to the issues of reapportionment. They found these subjects to use fewer categories than did another population much less knowledgeable about the issue. While the women from the Voter's League were able to make finer discriminations they did not do so.

Sherif and Sherif (1967) attempted to explain the relationship of fewer categories used as a function of greater involvement in terms of an "assimilation-contrast effect." In essence, the subject's "own position" provided an anchor in a range of possible alternative positions. Within the range on the continuum in which their positions fell, the subject was more discriminating as to which positions he was willing to allow assimilated with his own. All positions he was not willing to assimilate with his own were displaced away from it, in effect, those not seen as quite similar were perceived as quite dissimilar.

Categorization Tasks and Cognitive Study

Cognition, although a relatively recent development within the general field of personality, has become a focal point of study. This point was well attested by Bieri (1967) who pointed

out that "although a start has been made to link the development of cognitive structures to attitudes, especially in relation to attitudes toward authority, this effort can only be considered to have barely begun /p. 181/."

Perhaps an even more direct example relating categorization tasks to cognition was provided by Gardner (1953) in which he asked subjects to "put together into groups the objects which seem to you to belong together." These instructions defined the format used by Gardner in his Object Sorting Test which he devised to investigate a cognitive control principle he called "equivalence range." The control principle accounts for the difference between subjects in the degree to which they are impelled to act upon or ignore their awareness of the differences between stimuli they encounter and is thought to underlie all categorization behavior.

Assumption of Cognitive Control Principles

The basic assumption upon which the study of cognitive controls rests is that ". . .the wide range of behaviors with which an individual encounters reality may be encompassed by a relatively few dimensions of organization (Gardner, Holzman, Klein, Harriet, and Spence, 1959, p. 1.)." Gardner specified that a control principle referred to,

> . . .a level of organization underlying perception, recall, and judgement. The invariant which defines a control has to do with the manner of coordination between a class of adaptive intentions and a class of environmental situations.

> They are the individual's means of programming the properties, relations, and constraints of events and objects in such a way as to provide as adaptively adequate resolution of the intentions which brought him into an encounter with reality (Gardner, et. al., 1959, p. 5-6).

Cognitive controls thus serve as predispositions of the individual to organize aspects of the stimulus field in certain ways which transfer from context to context independently of the particular arrangement of stimuli. Cognitive controls have been attributed to have particular adaptive functions for the organism. It has been assumed that:

> 1) They govern the extent of informational feedback--the degree and extent of renewed encounter with stimuli or ideas before an adaptive intention is deemed met and an adaptive behavioral sequence is terminated. (2) They involve the application of automatized standards of adequacy to behavior or experience. If the behavior outcome does not meet these standards of adequacy perceptual or ideational activity is renewed to a point reflecting the inherent requirement of a control. (3) The outcome of a cognitive control is a pattern of attribution, in which stimulus events and ideas are brought into relation to each other as relevant and irrelevant, experienced and nonexperienced, segments of a stimulus field. (Gardner, et. al., 1959, p. 10)

Cognitive Controls and Ego Defenses

Out of Hartmann's (1958) postulation of "conflict free spheres of ego function" emerged the notion of areas of psychological processes not necessarily burdened in growth by antagonistic forces within the psychological structure. He proposed that these domains of function grew from some innate potential of the organism to adapt to its environment and involved the functions of learning and maturational processes such as perception

intention, object-comprehension, thinking, language, recall phenomena and certain aspects of motor development. It was precisely these functions which Gardner saw as synonymous with the notions of cognitive controls (Gardner, et. al., 1959).

Klein (1954) first discussed the relationship between control principles and defenses in discovering that constricted and flexible control, identified in subject's performance on relatively neutral cognitive tasks, accounted partially for individual differences in the effects of thirst on performance in a variety of cognitive tasks. Gardner (et. al., 1959) reported a study in which the relationship between leveling and repression showed that repressors tended to be levelers and that extreme isolators tended to be broad scanners, but the converse did not hold true. That is, the control tendency was not a valid basis on which to predict a subject's main defense pattern. The relationship of repression and leveling was verified in a later study (Holzman and Gardner, 1959).

Weddig (1968) employed a factor analytic procedure in an attempt to support the idea that 108 college students who demonstrated extreme scores on particular control indices would also display differences in ego defense patterns. Data consisted of measures on the Defense Mechanism Index, the Repression-Sensitization Scale and five measures identified as criterion measures for five independent controls. It was hypothesized that specific ego defense measures would demonstrate salient loading on unique cognitive control factors. He found that level of defensiveness

differed significantly for leveling-sharpening, scanning and equivalence range, although analysis failed to show independence of control factors.

Several studies have used Rorschach ratings of particular defense indicators and found significant relations between isolation and field-independence (Bertini, 1960) and between intellectualization and field-independence (Schimek, 1968). Ihilevich (1968) sought to clarify the relationship of field dependence-independence and five defenses tapped by the Defense Measuring Instrument. He found that subjects who relied on the more "global" defenses tended to be more field-dependent and those who relied on the more "differentiated" defenses tended to be field-independent. He found it impossible to predict a subject's single major defense, however, merely from their position on the control dimension.

The exact relationship between defenses and cognitive controls is not clear. What does seem clear is that a tendency for a particular type of defense is predominant in people with a particular cognitive style, and that a tendency toward a general type of personality pattern is related to a particular cognitive style (Witkin, 1967). Gardner perhaps clarified the confusion to some extent when he proposed that "the undirectionality of these relationships may offer some support to the hypothesis that controls provide preconditions for the emergence of defenses" (Gardner, et. al., 1959, p. 136). In Gardner's view, repression, for example, would evolve from a general tendency toward maximal

assimilation between present and past experiences which would lead to rather undifferentiated memory recollections.

Related Studies on Cognitive Control Principles

Several cognitive control principles have been identified. In a comprehensive investigation of six of the more widely known of these Gardner (et. al., 1959) employed factor analytic techniques in trying to develop a more precise description of these dimensions and to bring them under tighter operational control. Their intention was to become more able to specify the tasks and adaptive intentions to which they were specifically linked. Examined in the study were the controls of leveling-sharpening (Holzman and Klein, 1951, 1954; Holzman, 1954; and Holzman and Gardner, 1959); focusing or scanning (Holzman and Klein, 1956; Schlesinger, 1954); constricted-flexible control (Smith and Klein, 1954); equivalence range (Gardner, 1953; Sloane, 1959); tolerance for unrealistic experiences (Klein and Schlesinger, 1951) and field dependence-independence (Witkin, 1954).

These investigators concluded that each of the previously identified control principles was an independent dimension and served as a basis to predict performance on the individual measures used in the study (Gardner, et. al., 1959). Since each control was independent they found that individual subjects had widely different patterns of factor scores. This fact led them to accept the feasibility of adopting Klein's (1958) suggestion that the term cognitive style refers to an individual's unique

constellation of individual control scores, such that one's score on the field-dependent dimension did not exclude him from any one point on, for example, the constricted-flexible dimension. This term has been used to mean something minimally different, however. Witkin and Oltman (1967) pointed to the fact that a person's perceptual mode displays itself in single or combinations of sense modalities. They used the term "style" because it refers to the tendency to organize experience in particular ways which encompasses both perceptual and intellectual activities.

Particularly relevant to the present study, Gardner (et. al., 1959) found that the factor involved in subject's differentiating of stimulus objects and placing them into categories was a factor independent of performance on other control measures. Equally important they found that the Object Sorting Test was the best measure of the control of equivalence range. The instructions for this test are identical to those used in Sherif and Hovland's (1953) own categories technique. They also found a difference in the factor for men and women.

Gardner and Schoen (1962) presented three studies in a monograph in which they attempted to find the generalizability of the equivalence range control from one task situation to another and to find its relationship to that of level of abstraction. They renamed the control principle conceptual differentiation. These investigators used several sorting measures previously used to assess conceptual differentiation and required subjects to specify their categories on some measures so as to enable the

evaluation of their level of abstraction. They concluded that the level of abstractness a subject uses to integrate stimuli into categories was a factor independent of conceptual differentiation and was determined by both the subject's preference and capacity to abstract (Gardner and Schoen, 1962).

Glixman (1965) varied the domain of the statements subjects were to sort into content areas that consisted of: (1) verbal descriptions of common objects (such as those in the Object Sorting Test), (2) a group of statements about nuclear war, and (3) 92 statements about the self. The three domains were regarded as hierarchial, ranging from least to most relevant to self. The number of categories used was the criterion measure. He found that more categories were used in the object domain and there was a more unequal distribution of items over categories in the self domain. Glixman concluded that as the personal relevance of the stimuli increased the category width decreased and more neutral items were displaced away from that range of statements with which a subject identified (Glixman, 1965).

In a later study in which only self and object domains were used, Glixman (1967) sought to evaluate examiner and examiner-sex effects on categorizing behavior. His findings revealed no sex differences in categorizing behavior, though examiner-sex effects were found. He concluded that although minor, these interactions might have had an influence on prior research causing the sex difference effect.

Briece (1966) studied the effects of self-ideal self discrepancy, as measured by the Leary Interpersonal Checklist, and the difference in number of categories subjects used to sort statements that were instructionally varied within the object and self domains. She concluded that as the degree of discrepancy between self and ideal self increased the number of categories used correspondingly decreases when shifting from the object to self domain. Briece also found a difference in cognitive structuring between male and female subjects. Women in general tended to be more consistently structured across domains, although men tended to be more highly organized within the self domain.

A review of the relevant literature pointed to some rather consistently supported conclusions. Namely, considering Glixman's (1965) studies as representative, as self involvement increases the number of categories used to discriminate between stimuli decreases. This was the finding of Sherif and Hovland (1953) and was verified in later research by Glixman (1965, 1967) and Briece (1966). Additional evidence shows categorization not to be a unitary dimension, rather one affected by both self-reference and interpersonal variables.

Close inspection of the data led Cornelius (1968) to question the widely accepted conclusions of previous research. He noted that, for example, in Briece's study while 17 subjects did use fewer categories as self involvement increased, 17 used the same number and 6 used more categories. He felt it possible to explain

the differential performance as reflecting some systematic pattern inexplicable with existing interpretations.

Cornelius attempted to explore two sets of relationships; both ego-involvement and categorization behavior and self-ideal discrepancy and categorization behavior. His subjects were 20 male and 29 female elementary school teachers who completed protocols, of the 100 randomly selected subjects to whom protocols were mailed. They consisted of two sorting tasks and a semantic differential comprised of 4 concepts and 15 scales. The two sorting tasks were identical sets of 50 of the Butler and Haigh (1950) self statements. Instructions for the two sorts were modifications of Gardner's (1953) Object Sorting Test instructions. On the initial sort subjects were asked to sort the statements "as statements, ignoring the fact that they are first person, or self-referring statements." The second set were to be sorted "as they apply to you." The latter sort was assumed to constitute a level of self-involvement increased over the former. The number of categories used was the measure. Two measures were obtained from the Semantic differential, one a self-ideal discrepancy measure and the other a "sum of difference" score. The latter was the absolute difference in number of categories used on the scales in the semantic differential and was felt to reflect a subject's categorization style, a cognitive style appropriate to that task.

Cornelius (1968) found that the number of categories used on Sort I were no different from what might be expected as a matter of chance, yet as the self-involvement increased on Sort II,

three rather distinct groups emerged. Eight male and 14 female subjects used fewer categories on Sort II and defined what was referred to the negative shift group, 8 male and 8 female subjects used more categories and constituted the positive shift group and 4 male and 7 female subjects used the same number of categories on Sort II. They were the zero shifters. The positive and negative shifter patterns of categorization behavior emerged as a function of increased self-involvement and were conspicuously related to both self-ideal discrepancy and the sum of differences score on the semantic differential. Zero shifters were not significantly differentiated in terms of the additional measures.

To explain the differences in performance between the positive and negative shift groups Cornelius (1968) pointed to Witkin's (1962) "Differentiation Hypothesis." Extreme positive shifters as a group used far more categories, i.e., differentiations between stimuli, across tasks than did extreme negative shifters. This suggested that they compromise a group balanced toward the differentiation side of the differentiation-integration process. Conversely, extreme negative shifters used fewer categories across tasks and very few categories on the Sort II and seemed to be people who relied on "global thinking" (Cornelius, 1968).

In contrast to previous literature, Cornelius concluded that different patterns in categorization behavior emerged in his sample as self involvement increased. While some of his subjects did in fact use fewer categories as the literature would have predicted, others used more and this pattern was consistent across

tasks. In essence, Cornelius (1968) was suggesting that the differential performance reflected differing cognitive styles associated with categorization. This was considered to be closely akin to an underlying difference between groups, and between sexes, in the degree of differentiation (in the Witkin (1954) sense) of the subjects.

The Differentiation Hypothesis and Field Dependence-Independence

Out of numerous investigations of the perceptual processes Witkin and associates (Witkin, et. al., 1954; 1962) discovered certain consistent trends in subject's perception over a broad spectrum of perceptual tasks. These trends constitute a subject's "style" of perceiving. A primary point of comparison of perceptual styles revolves around the capacity of the perceiver to keep objects separated from their surround in the perceptual field. In the mode of perception Witkin called field-dependent, perception is strongly dominated by the field and parts of the field are experiences as fused. In the field-independent mode of perception, parts of the field are experienced as discrete and separate from the surround.

Out of the perceptual research of Witkin's group emerged several tests to measure field dependence, e.g., body adjustment test, rod and frame test and embedded figure test. It was discovered that subjects who were more or less field-dependent on one of these tests tended to perceive in this fashion on the others also. Artifacts of a subjects' style of perception were

pervasive on intellectual tasks as well. Field-independent perceivers showed to be more analytical while field-dependent people were more diffuse thinkers. Field-dependent perceivers came to be described as "global," while field-independent perceivers were called "articulated." It was later concluded that rather than people tending to be either field-dependent or independent, the distribution of styles of perception was actually rather normally distinct; i.e., few of either extreme field dependent or field-independent perceivers and most people lying toward the middle ranges of the continuum (Witkin, 1965).

To account for differences in cognitive style the principle of differentiation-integration was applied to psychological development.

> . . . analysis of the growth experience of the self and the world led us to postulate that progress toward differentiation would be expressed in increasing articulation (that is, analysis and structuring) of experience. Included in this is a more articulated way of experiencing the world; also included are a more clearly defined body concept, and a growing sense of separate identity, which together reflect particularly the development of self-differentiation (Witkin, et. al., 1962).

In essence, Witkin suggested that subparts of the cognitive structure became "differentiated" from the primitive global base. Each structure is then "integrated" back into the initial superstructure. Thus integration of the differentiated parts results in increased sophistication and complexity of the total system. In keeping with the notion of relatively more differentiated psychological systems, reflected in terms of field-independence,

research has demonstrated in field-independent perceivers a more sophisticated ego defense structure, (Witkin, 1965; Minard and Mooney, 1969). The study of the developmental trend of the body concept has recently been investigated and has tended to validate the differentiation hypothesis, (Faterson and Witkin, 1970). Additional support has come from the studies relating field-independent perception to ego defenses of isolation (Bertini, 1960) and intellectualization (Schimek, 1968); field dependent perception has been related to the less differentiated defenses of denial and repression (Ihilevich, 1968; Weddig, 1968).

As an expression of the extremities of field dependent-independent perception Taylor (1965) showed that psychotics who hallucinate tend to be field-dependent while psychotics with elaborate delusional systems tend to be field-independent. He predicted such an outcome on the basis that hallucinatory states imply ego boundary dissolution while delusional states imply attempts to maintain separate identity and ego integrity (Taylor, 1965). This conclusion was later confirmed and supported as evidence of the validity of the differentiation hypothesis by Powell (1965).

Numerous studies have shown relationships between perceptual styles expressed in the field dependent-independent cognitive style and a broad array of other psychological manifestations. Witkin (1962) described the general interpersonal style of people characterized as either field-dependent and field-independent and identified traits associated with these styles. Not all attempts

to predict the relatively normal subject's performance on personality inventories merely from his position on a cognitive style dimension have been of much success however (Adevai, Silverman, and McGough, 1968).

As representative of one line of research, Adevai (et. al., 1968) compared 22 field-dependent and 22 field-independent college freshmen on the MMPI, Baron Ego-Strength Scale, and the Taylor Anxiety Scale. Their results showed these subjects to be more similar than dissimilar in terms of the measures used. They concluded that to find differences between subjects identified on a perceptual measure on a non-perceptually determined instrument will yield spurious findings. They question in fact that differences measurable by pencil and paper personality inventories will emerge between "normal" subjects.

This review of the literature attempted to view categorization tasks within its historical context and to examine its emerging involvement in the study of cognition, especially to that of the cognitive control referred to as conceptual differentiation. Cornelius' (1968) opposed earlier conclusions which suggested that categorization behavior was a unitary dimension predictable from the stimulus situation. Rather, he described it as a manifestation of the cognitive reorganization of subjects due to the increase in ego-involvement stimulated by a dual sorting task varied in degree of ego-involvement by way of instructions. The operational definition of increased categories, i.e., differentiations between stimuli, as a function of increased ego-involvement led Cornelius

to suspect that an underlying and parallel dimension along which shift groups differed has to do with their level of psychological differentiation. This dimension in terms of the measure of field dependence-independence was also discussed.

Statement of Problem

The findings of Cornelius (1968) suggest there to be a direct relationship between the level of psychological differentiation of subjects and the number of categories used on the second sort of a dual sorting task in which the second sort is more self-involving than the former. The operations involved in sorting self-related stimuli into categories, i.e., making differentiations, and the tendency of positive shifters to use more categories across tasks lead Cornelius to suspect them to be prone to such ego defenses as intellectualization and compartmentalization. Negative shifters, on the other hand, appeared to be representative of people Witkin (1962) called "global thinkers." The implication is that positive shifters would be field-independent and that negative shifters would be field-dependent perceivers.

This part of the present research, then is an attempt to determine the relationship between the shift dimension and the dimension of field dependence-independence. The Hidden-Figures-Test will be used to assess field dependence. The suspected relationship between these two measures suggested the following hypothesis:

Hypothesis I. Subjects who are characterized as positive shifters will tend to be field-independent and subjects who are

characterized as negative shifters will tend to be field-dependent to an extent greater than that expected by chance.

One of the variables that differentiated between positive and negative shifters in Cornelius study involved a self-ideal discrepancy, and reason suggested them to differ in ego-defense pattern. A result of this line of thought suggested that they would also differ in response to a measure tapping personality organization. Cornelius also found a sex difference on the shift dimension. It was suspected that differences in response to a measure of personality organization would be found between shift groups and in terms of sex differences within the groups. The California Psychological Inventory will be used to assess personality organization. The following research hypotheses were adopted:

Hypothesis II. There will be differences among the means of the groups in scores on the California Psychological Inventory.

Hypothesis III. There will be mean score differences among the groups on the Dominance (Do) Scale.

Hypothesis IV. There will be mean score differences among the groups on the Capacity for Status (Cs) Scale.

Hypothesis V. There will be mean score differences among the groups on the Sociability (So) Scale.

Hypothesis VI. There will be mean score differences among the groups on the Social Presence (Sp) Scale.

Hypothesis VII. There will be mean score differences among the groups on the Self-acceptance (Sa) Scale.

Hypothesis VIII. There will be mean score differences among the groups on the Sense of Well-Being (WBO) Scale.

Hypothesis IX. There will be mean score differences among the groups on the Responsibility (Re) Scale.

Hypothesis X. There will be mean score differences among the groups on the Socialization (So) Scale.

Hypothesis XI. There will be mean score differences among the groups on the Self-Control (Sc) Scale.

Hypothesis XII. There will be mean score differences among the groups on the Tolerance (To) Scale.

Hypothesis XIII. There will be mean score differences among the groups on the Good Impression (Gi) Scale.

Hypothesis XIV. There will be mean score differences among the groups on the Communality (Cm) Scale.

Hypothesis XV. There will be mean score differences among the groups on the Achievement via Conformance (Ac) Scale.

Hypothesis XVI. There will be mean score differences among the groups on the Achievement via Independence (Ai) Scale.

Hypothesis XVII. There will be mean score differences among the groups on the Intellectual Efficiency (Ie) Scale.

Hypothesis XVIII. There will be mean score differences among the groups on the Psychological-Mindedness (Py) Scale.

Hypothesis XIX. There will be mean score differences among the groups on the Flexibility (Fx) Scale.

Hypothesis XX. There will be mean score differences among the groups on the Femininity (Fe) Scale.

Hypothesis XXI. There will be mean score differences among the scales of the California Psychological Inventory.

Hypothesis XXII. There will be mean score differences among the scales of the Male Positive-shift Group.

Hypothesis XXIII. There will be mean score differences among the scales of the Female Positive-shift Group.

Hypothesis XXIV. There will be mean score differences among the scales of the Male Negative-shift Group.

Hypothesis XXV. There will be mean score differences among the scales of the Female Negative-shift Group.

Hypothesis XXVI. There will be interactions among the means of the groups and scales of the California Psychological Inventory.

The .05 level of significance will be the minimum required to reject the null form of the research hypothesis.

METHOD

Selection of Subjects

Subjects will be male and female volunteers currently enrolled at the University of Oklahoma. Little is known regarding the population of subjects characterized by the shift dimension. However, if the relationship between field-dependence and cognitive shift corresponds to expectations, it is reasonable to assume their distributions are quite similar. Subjects 18 to 21 years of age should not differ in developmental influence and can be considered equivalent subjects differing only in their levels of field-

dependence (Paterson and Witkin, 1970; Witkin, Goodenough and Karp, 1967).

Test Instruments and Procedure

Subjects will complete two sorting tasks requiring them to "place into categories those statements that seem to you to go together." These statements will be 50 of the Butler and Haigh (1950) self-statements printed on standard sized IBM cards. Two identical sets of the 50 statements will be sorted; however, the initial sort will require subjects to sort them as statements. The second sort will require subjects to sort them "as they apply to you." This is essentially a replication of Cornelius (1968) procedure, and it is assumed that Sort II will constitute a level of self-involvement increased over Sort I.

The proportion of positive shifters in any population is not known and inferring from Cornelius data it might be expected to be small. It is therefore likely that the sorting task will need to be administered to a large pool of subjects to insure an adequate sample size. Also to insure the extremes of the shift population it has been suggested by Cornelius (1971) that only subjects who increase in number of categories on the second sort and who use 9 or more categories be considered positive shifters. Those who decrease in number of categories and who use four or fewer categories will be considered negative shifters. Equivalent sized cells of male and female, positive and negative shifters will be selected randomly from among the group of subjects whose performance meets the criterion suggested by Cornelius for inclusion into the shift group extremes.

The sorting task can be administered in groups and will require from 45 to 90 minutes to complete. Subjects whose categorization performance meets the criterion for inclusion into the extreme shift groups will be administered two additional measures during a later testing session: The Hidden-Figures-Test and the California Psychological Inventory.

The Hidden-Figures-Test (HFT) is a test designed to assess field-dependence and has shown to have significant positive correlations with both the Embedded Figures Test (Goodman, 1962; Phillips, 1962) and the Rod and Frame Test (Goodman, 1962; Rudin and Stagner, 1958). The HFT consists of 32 complex patterns of straight lines in which one of 5 geometric figures is embedded. Subjects are instructed to find which one of the 5 figures is included in the pattern and to indicate it in a multiple-choice response. The test is suitable for group administration and is suggested to require 20 minutes to complete.

In addition to the HFT measure of field-dependence shift groups will be compared on the basis of their responses to the 18 scales of the California Psychological Inventory (CPI). The CPI consists of 480 items and yields 18 measures of social interaction. Each single scale is intended to cover one important facet of interpersonal behavior, and the total set of 18 is intended to provide a comprehensive survey of a subject's social interaction. Kelly (1965) reports however, that the "comprehensiveness" of the 18 scales is questionable and that recent factor analytic studies have shown that the CPI best measures differences when

the 18 scales are grouped into four broad areas. He felt however, that the CPI was one of, if not the best, instrument of its kind to use with normal subjects. Test-retest coefficients are reported to be as high as any found in personality measurement (Gough, 1969).

Experimental Design

Four groups--male, female, negative and positive shifters--will be compared as to response to the 18 independent measures of the CPI. This data will be analyzed in a split-plot factorial design with non-repeated measures on 2 factors and repeated measures on one factor (Kirk, 1968). To test the extent of association between the two attributes of shift and field-dependence, Spearman Rank Order Correlation Coefficients (r_s) for male, female, and total groups will be completed (Siegel, 1956).

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Appendix II

Table 1

Group Means and Variances

Group	Dominance		Cap for Status		Sociability		Soc Presence		Self-Accept		Sense of W.B.	
n=6	mean	var.	mean	var.	mean	var.	mean	var.	mean	var.	mean	var.
MPS	48.17	275.76	47.83	138.16	45.67	52.26	52.67	26.66	55.17	173.76	40.33	240.66
FPS	52.50	253.10	46.00	40.80	48.33	35.86	58.83	100.56	61.67	91.86	33.67	136.26
MNS	48.83	143.36	46.50	126.30	50.50	243.30	59.67	58.66	61.83	104.56	44.67	151.06
FNS	56.50	157.10	51.00	126.00	50.67	214.66	57.00	196.80	58.50	121.50	47.33	64.66

	Responsibility		Socialization		Self-Control		Tolerance		Good Impression		Communality	
MPS	43.83	296.96	45.67	29.06	41.17	26.69	45.00	246.80	37.50	245.90	44.50	110.70
FPS	34.17	69.76	36.00	86.00	28.67	19.86	37.17	25.23	36.67	21.86	47.50	133.30
MNS	43.33	161.06	49.50	247.90	40.83	182.16	45.33	103.86	40.00	253.60	49.67	155.46
FNS	42.33	151.26	51.67	193.46	40.67	180.26	46.83	218.16	39.00	134.00	51.17	104.36

	Ach. via Conformance		Ach. via Independence		Intellectual Efficiency		Psychological Mindedness		Flexibility		Feminity	
MPS	43.33	249.86	54.50	157.90	43.50	373.10	52.00	292.60	61.67	55.86	56.33	136.67
FPS	34.50	173.50	46.50	193.30	45.50	149.30	44 50	111.70	57.00	73.20	55.00	126.20
MNS	47.67	132.67	56.50	85.10	56.50	153.37	52.50	121.10	58.00	212.80	46.00	68.00
FNS	49.17	97.77	57.50	166.70	42.67	264.67	48.83	189.37	61.17	80.73	54.83	62.57

Appendix II

Table 2

Raw Data of Shift Scores

	MALES Sort I - Sort II			FEMALES Sort I - Sort II
	10-14 **			10-15 **
	11-13 **			6-15 * (DNS)
	10-13 **			7-13 **
	8-11 **			6-12 **
	6-11 **			10-11 **
	8-9 **			10-11 **
	7-8			8-11 ** PS
PS	6-7			5-9
	3-7	ZERO SHIFT		4-8
	5-6			6-7
	5-6	Male Sort I-II	Female Sort I-II	5-6
	4-6			4-6
	4-6			4-5
	3-6			3-5
	4-5			
	4-5	7-7	8-8	
		7-7	6-6	8-7
		6-6	5-5	8-6
	10-8	5-5	4-4	5-6
	9-7	3-3	4-4	6-5
	14-6	2-2	3-3	9-4
	7-6			6-4 NS
	9-5			5-4 **
	7-5			5-4 **
	7-5			5-4 **
	6-5			5-4 **
NS	9-4			4-3 **
	5-4			3-2 **
	5-4			
	5-4 **			
	4-3 **			
	4-3 **			
	4-3 **			
	4-3 **			
	4-2 **			

*Did not complete second task - CPI and HFT.
**Subjects used in study.

Appendix II

Table 3

Raw Data of Shift and HFT Scores

	SUBJECT	SORT I	SORT II	HFT*
	1	10	14	12.25
	2	11	13	10.75
MALES	3	10	13	13.00
	4	8	11	24.00
	5	6	11	11.75
	6	8	9	7.75
	7	10	15	13.75
	8	7	13	5.75
FEMALES	9	6	12	6.50
	10	10	11	1.50
	11	10	11	9.75
	12	8	11	28.00
	13	5	4	8.75
	14	4	3	25.00
MALES	15	4	3	18.00
	16	4	3	13.75
	17	4	3	13.75
	18	4	2	14.00
	19	5	4	17.75
	20	5	4	8.75
FEMALES	21	5	4	15.00
	22	5	4	12.75
	23	4	3	0.00
	24	3	2	11.25

* Corrected for guessing = N correct -.25 x N wrong.

Appendix II

Table 4

Newman Keuls Test of CPI Means

	Sc	Gi	Re	Wb	To	Ac	So	Ie	Cs	Cm
Sc		.46	3.08	3.67	5.75	5.83	7.87	8.29	10.00	10.37
Gi			2.62	3.21	5.29	5.37	7.41	7.84	9.54	9.91
Re				.59	2.67	2.75	4.89	5.21	6.92	7.29
Wb					2.08	2.16	4.20	4.62	6.33	6.70
To						.08	2.12	2.54	44.25	4.62
Ac							2.04	2.46	4.17	4.54
So								.42	2.13	2.50
Ie									1.71	2.08
Cs										.37

cont'd

	Sy	Py	Do	Fe	Ai	Sp	Sa	Fx
Sc	10.96	11.62	13.67*	15.21*	15.92*	19.21*	21.46*	21.62*
Gi	10.50	11.16	13.21*	14.75*	15.46*	18.75*	21.00*	21.16*
Re	7.88	8.54	10.59	12.13	12.84	16.31*	18.38*	18.54*
Wb	7.29	7.95	10.00	11.54	12.75	15.54*	17.79*	17.95*
To	5.21	5.87	7.92	9.46	10.17	13.46*	15.71*	15.87*
Ac	5.13	5.49	7.84	9.38	10.09	13.38*	15.63*	15.79*
So	3.09	3.75	5.80	7.34	8.05	11.34	13.59*	13.75*
Ie	2.67	3.33	5.38	6.92	7.63	10.92	13.17*	13.33*
Cs	.96	1.62	3.67	5.21	5.92	9.21	11.46*	11.62*
Cm	.59	1.25	3.30	4.84	5.55	8.84	11.09	11.25
Sy		.66	.71	4.25	4.96	8.25	10.50	10.66
Py			2.05	3.59	4.30	7.59	9.84	10.00
Do				1.54	2.25	5.54	7.79	7.95
Fe					.71	4.00	6.25	6.41
Ai						3.39	5.54	5.70
Sp							2.25	2.41
Sa								.16
Fx								

*Xr < .01 (17)

Critical Values

W1 = 7.896	W5 = 10.901	W9 = 12.076	W13 = 12.807	W17 = 13.231
W2 = 9.129	W6 = 11.267	W10 = 12.287	W14 = 12.827	W18 = 13.366
W3 = 9.899	W7 = 11.575	W11 = 12.480	W15 = 12.961	
W4 = 10.458	W8 = 11.844	W12 = 12.653	W16 = 13.116	

Appendix II

Table 5

Analysis of Variance Summary

Source of Variation	SS	df	MS		F	P*
1. Between Subj:	19436.85	23	845.08			
2. A (Shift)	1587.00	1	1587.00	$\left[\frac{2}{5}\right]$	1.33	> .05
3. C (Sex)	85.33	1	85.33	$\left[\frac{3}{5}\right]$	.098	> .05
4. AC	498.37	1	498.37	$\left[\frac{4}{5}\right]$	.57	> .05
5. Subj: W/Groups	17266.07	20	863.30			
6. Within Subj.	54608.90	408	133.84			
7. B (Personality)	18023.25	17	1060.19	$\left[\frac{7}{11}\right]$	10.98*	< .01*
8. AB	1311.25	17	77.13	$\left[\frac{8}{11}\right]$	.79	> .05
9. BC	1236.09	17	72.71	$\left[\frac{9}{11}\right]$	.75	> .05
10. ABC	1223.38	17	60.19	$\left[\frac{10}{11}\right]$	.62	> .05
11. B x Subj: W/Groups	32814.93	340	96.51			
12. Total	74045.67	431				

Critical Values

$F.05\ (1,20) = 4.35$
$F.01\ (1,20) = 8.10$
$F.05\ (17,340) = 1.63$
$F.01\ (17,340) = 2.01$

*P = Two Tailed Test

Appendix III

Instructions for Dual Sorting Task

This task involves the three stacks of IBM cards before you. There are two stacks of white cards and one stack of colored cards. The two stacks of white cards are labelled 1 and 11. The stacks are identical, but the instructions are different for the way each is to be handled, so use only stack 1 for the time being. (Instructions as to how to use stack 11 are on the following page.)

Now take stack 1. You will notice that on each card is printed a statement. The instructions are simply to put together into groups the statements that seem to belong together. Treat the statements as statements, ignoring the fact that they are first person or self-referring statements. You may have as many or few statements in a group as you like, so long as the statements in each group belong together for a particular reason. If, after you have thought about all the statements, a few do not seem to belong with any of the others, you may put these statements into groups by themselves. Please sort all the statements.

Obviously, there can be no right or wrong way to sort these statements. What is of interest is the way you sort them.

After you have sorted the statements to your satisfaction take one of the colored cards and place it on top of each group of white cards. Then, stack the groups in what ever order seems most appropriate. Be sure to place the card marked Stack 1 on top of the stack and replace a rubber band around the stack.

Appendix III (cont'd)

Now, turn to the next page.

Now, take the second stack of white cards, labelled Stack 11. The procedure is essentially the same as that for Stack 1. This time, however, you are to put the statements together which belong together as they apply to you.

After you have sorted the statements into groups place one of the colored cards on top of each group of statements. Then, stack them in whatever order seems appropriate for you. Be sure to place the label card, Stack 11, back on top and secure the stack with the rubber band.

Now, in order for you to receive credit for having participated in the experiment, please sign the additional blank white card which was among the colored stack of cards, so that I may properly credit your having been here today.

I thank you for your participation in this first part of the experiment. You will be notified by phone within the following few days if you are to complete the second phase of the experiment. At that time a time can be arranged for the second session.

Appendix IV

Self Statements

1. I feel uncomfortable while talking with someone.
2. I often kick myself for the things I do.
3. I often feel humiliated.
4. I doubt my sexual powers.
5. I have a warm emotional relationship with others.
6. I am responsible for my troubles.
7. I can accept most social values and standards.
8. I have a hard time controlling my sexual desires.
9. It is difficult to control my aggression.
10. I am often down in the dumps.
11. I am really self-centered.
12. I can usually live comfortably with the people around me.
13. My hardest battles are with myself.
14. I tend to be on my guard with people who are somewhat more friendly than I had expected.
15. I am optimistic.
16. I am just sort of stubborn.
17. I feel helpless.
18. I can usually make up my mind and stick to it.
19. My decisions are not my own.
20. I often feel guilty.
21. I am a hostile person.
22. I am contented.
23. I am disorganized.
24. I am poised.
25. I am impulsive.
26. I have the feeling that I am just not facing things.
27. I am tolerant.
28. I feel inferior.
29. I am no one. Nothing seems to really be me.
30. I am afraid of what other people think of me.
31. I am ambitious.
32. I despise myself.
33. I just don't respect myself.
34. I am a dominant person.
35. I am assertive.
36. I am confused.
37. I am satisfied with myself.
38. I am a failure.
39. I am likable.
40. I am relaxed, and nothing really bothers me.
41. I am a hard worker.
42. I feel emotionally mature.
43. I really am disturbed.
44. I feel insecure within myself.
45. I am intelligent.

Appendix IV (cont'd)

46. I feel hoepless.
47. I am inhibited.
48. I am unreliable.
49. I feel adequate.
50. I am worthless.