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THE DEVELOPMENT OF NORMS FOR EDUCABLE MENTALLY RETARDED
AND INTELLECTUALLY BRIGHT ADOLESCENTS
ON A MODIFIED HAND TEST

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CHAPTER I

INTRODUCTION

In the year 1911 both Sigmund Freud and Hermann Rorschach were working on ideas which would contribute to the understanding of the concepts involved in what is presently known as projective techniques, a projective test, or sometimes projective diagnostics. Freud was further elaborating the concept of "projection" in order to explain the dynamics of people who experience delusions of persecution (Rycroft, 1968, p. 126) while Rorschach was beginning his experiments with inkblots which resulted in the present ten blots known as the Rorschach Test (Rorschach, 1942, p. 13).

Freud saw a pathological element in his concept of the mechanism of projection. Rycroft (1968, p. 126) has indicated that the meaning of the word has been expanded, he thinks by Melanie Klein, to include a sense in which

projection is a normal developmental process. Continuing in this manner, Ferenczie (Hirsie, 1970, p. 593) contends that "projection is one of the first defensive or protective measures employed by the child in defense of its narcissism". Alexander (Hirsie, 1970) indicates that the projective mechanism is important in that it helps create harmony between reality and deeper id feelings. Rapaport (Schafer, 1954, p. 280) suggests a continuum of projection. What Melanie Klein and Alexander have been seeking to delineate, Rapaport would call benign projection. In contrast to a pathological pole Rapaport summarizes the idea by stating:

> At the benign pole, projections are occasionally tempered, well rationalized, tentative and subordinated to the requirements of effective social adaption. In fact, these benign - and also widespread - forms of projection are not particularly defensive. They overlap a great deal with what is implied by the term projective in 'projective testing', namely, externalized expression of one's private inner world through selective perception and organization of the surrounding world (Schafer, 1954, p. 280).

Projection then becomes something which helps in "empathic recognition in others of some of our own tendencies . . . projection is not only an integral part of perception in general but it may sharpen rather than impair reality testing" (Schafer, 1954, p. 280).

Murstein (1963) indicates that there are many definitions for the word projection, and he differentiates four of these. There is the classical or analytical, the attributive, the autistic, and the rationalized ways in

which the word is used.

In the classical or analytical definition there are elements which are felt by the individual as being too threatening to be owned and so that particular trait or characteristic is then projected or placed outside the person into the external world. In ascribing their own feelings and behavior to others, projection takes on the attributive meaning. Whenever a 'need' is introduced into the mechanism, say the need of food by a hungry person, the word is used in its austistic sense. There are similarities between the classical and the rationalized use of the term projection. In both cases the unwanted feelings or characteristics are placed outside the person; in classical projection these unwanted feelings are not part of the individual's awareness; in rationalized projection the unwanted feelings or characteristics are placed outside the person but the person is aware of the fact that the projection is taking place. Murstein, in a summary, (1963, p. 3) concludes that:

> In a projective test, any of these concepts may be employed. The testee, in telling a thematic story, for example, may assume that the central character would act just as he himself would act (attributive projection), or he may see the hero as acting out his own unacknowledged negative traits (classical projection). If the subject is hungry, he may perceive the hero as also hungry (autistic projection), or he may offer mitigating circumstances to explain away the hero's expression of aggression (rationalized projection).

Just which variety of projection is being used by an individual is often difficult to ascertain.

The historical origins of projective devices, like inkblots, pictures and words, extend over a century. Rorschach (1942, p. 102) has acknowledged that others had used inkblots before him: "Szymon Hens, in 1917, published a study called 'Testing the Imagination of School Children, Adults, and Mental Patients by Means of Formless Blots'. Hens' studies were carried out with blots similar to those used in this study." Others doing similar work are listed and dated by Kleinmuntz (1967, p. 263); for example, Justine Kerner, 1857, Binet and Henri, 1895-96, Wipple, 1910.

The historical beginnings of the thematic types of projective devices (Murstein, 1963, p. 11) were imaginational devices using pictures. These were discussed in an article by Brittain in 1907. He apparently followed an earlier method of Stern. Murstein has written (1963, p. 11) that Stern "presented nine clearly structured pictures to a group of boys and girls ranging in age from 13-20 years and had them write stories suggested by the pictures." Others mentioned by Murstein are Libby in 1908 and Schwartz in 1932. To Schwartz, Murstein has attributed the creating of the thematic method used today. Schwartz (Murstein, 1963, p. 13) has called his test the "Social Situation Picture Test."

The most widely used thematic apperceptive device used today had its formal introduction in an article published in 1935 by Christiana Morgan and Henry Murray

(Murstein, 1963, p. 14). This projective technique was the Thematic Apperception Test (TAT).

Gardner Lindzey (Kleinmuntz, 1967, p. 261) defined a projective technique as:

> an instrument that is considered especially sensitive to covert or unconscious aspects of behavior; [sic] it permits or encourages a wide variety of subject responses, is highly multidimensional, and it evokes unusually rich or profuse response data with a minimum of subject awareness concerning the purpose of the test.

English and English (1958, p. 413) have made a distinction between a projective technique and a projective test. In addition to the concepts in Gardner's definition English and English add "a relatively unstructured, ambiguous, or vague situation". If there is some standard situation presented to the person, then it is a projective test rather than a projective technique. A projective technique would then be, for example, asking a person to draw a house on a blank piece of paper. A projective test would be a standardized test like the Rorschach or the Thematic Apperception Test.

Nunnally (1970, pp. 386-87) suggests that if the stimulus is a structured stimulus, it is called structured because the stimulus has an agreed-upon public meaning. Another quality frequently used in describing stimulus properties is that of ambiguity. This ambiguity is a quality of obscurity or uncertainty of interpretation. Murstein (1965) contends that the quality of ambiguity makes

possible multiple interpretations. The lack of ambiguity allows little multiplicity of interpretation.

This ambiguity can be problematic as Mischel (1968, p. 111) contends:

> . . . the task of bringing order into the data, of quantifying and categorizing them, and of inferring the variables suggested by the theory remains the assessor's . . . . On projective tests this interpretative subjectivity is doubly compounded. Not only must the respondent interpret an ambiguous set of stimuli, but also the scorer or test interpreter must interpret an ambiguous set of resulting responses.

The value of projective techniques is not universally accepted. Some, as extreme as Eysenck, (1961, pp. 699-70) conclude that "these tests had failed to establish their value in any of the fields in which they had been used". Paul McReynolds (1968, p. 8) stated that:

> Projective tests, though less widely used now than formerly, are still a major focus of research and practice. In general projective tests have not shown up well in validity studies, and many psychologists appear ready to reject the approach as inherently unsatisfactory . . . . Such conclusion, however, would not only be highly premature (the evidence is not that good one way or the other). . . . Current developments are taking two courses: first, the trend toward greater objectivity in scoring . . . second, and more important, the development of new theoretical models of projective psychology.

What motivates a subject to respond in the way he does to a projective technique is not clearly understood. Murstein (1963, p. 1) seems to think that the basis for the responses are "enduring propensities of one's current mood . . . ." Klinger (1971) also believes the responses are related to current concerns and in addition that it

also involves self organization. Generally, it would appear that when a person is reacting to projective tests or techniques that they are responding with their current concerns.

Edwin S. Shneidman (Woolman, 1965, p. 500) has suggested that in considering projective techniques two areas need to be explored. The first of these is the meaning and use of the word projection, discussed earlier in this chapter. The second area concerns the relationship of fantasy to projection as it is reported in projective devices.

Earlier writers like William E. Henry (1956) contend that what the subject has revealed on the TAT is fantasy and the understanding of that response is the analysis of fantasy. Klinger (1971, pp. 89-90) makes a distinction between free and projective fantasy.

> The difference between them seems offhand very great, and both Holt (1961) and Singer (1966), for instance, consider them to represent drastically different processes. . . . Projective fantasy is defined as a subject's overt symbolic behavior when he is confronted with a more or less standard, more or less ambiguous stimulus, and is instructed to communicate to an examiner certain of his responses to it. . . . . Free fantasy, by contrast, is defined conceptually as spontaneous covert symbolic activity that is not part of a perceptual scanning process or of directed problem solving. It is spontaneous in the sense that its production occurs without deliberate interference from an examiner.

Both projective fantasy and free fantasy are linked to the problem of verbal report. Do subjects report what they fantasize, as in free fantasy, or do they report what they

see in projective fantasy? Are they limited by intellect and ability to verbalize? Do they respond to more than the stimulus? Do subjects practice 'perceptual defensiveness' and so fail to perceive or report their reactions to the stimulus? Do response sets enter into the verbalization? Murstein (1965, p. 49) suggests that they do.

Klinger (1971, pp. 90-91, 360) concludes that in addition to the procedural differences between free and projective fantasy there are also major psychological implications. He uses a conclusion from Holt's work to state:

> Holt's (1961) excellent analysis yields a number of substantive contrasts between free and TAT fantasy. He describes free fantasy as dreamier, less effortful, less verbal, less explicit, less guarded, harder to recall, less well organized and polished, seldom responsive to external stimuli, more likely to turn into planning, or egocentric and more narrowly focused . . . . The differences Holt has identified are matters of degree, and there is little evidence to suggest that the degree is in all cases large. . . . . Because projective techniques artificially restrict the flow of subjects' responses, they are poorly suited for studying the structure of free fantasy, even though they may provide valuable data concerning global thematic content.

Jean Nundy (Wolman, 1972, pp. 791-813) divides projective techniques into two kinds: those which are primarily directed to record verbal responses and those which elicit motor responses. An example of the first kind would be the verbal responses of a subject to the Thematic Apperception Test and an example of the second would be the response given to the reproduction of the Bender Visual-Motor Gestalt Test. Under the responses which require a verbal

rather than a motor response she places two tests under a section, labeled Thematic Apperception Methods; The Hand Test (Wagner and Medvedeff, 1963) and the Paired Hands Test of Friendliness (Zucker and Jordan, 1969). The Paired Hands Test of Friendliness involves pictures of black and white hands in various positions. The authors of the test speculate that two hands would allow for a finer measure of interaction.

Wagner pioneered the use of the human hand as a projective stimulus, but the value of the hand in psychological growth was understood earlier. Cameron (1963, p. 50) linked the manipulation of the hands to the infant's construction of reality. The Hand Test has shown itself to have great potential in predicting a wide range of behaviors and modes of interaction. The difficulty in finding other projective techniques with a readily equivalent range of meaningful application has been realized. Two main contributing factors may be cited. The Hand Test provides data concerning the manner in which the subject conceptualizes human activity, and as has been frequently demonstrated, is a primary frame of reference for decision making. From a knowledge of the way that the subject perceives activity in the hand drawings, an assessment can be made of his basic feelings about himself. The second main contributing factor is that responses to the Hand Test are "environmentally representative", in that they are indicative of the environ-

ment with which the subject is concerned, and the degree to which he freely differentiates from that environment.

Wagner's data provided preliminary information for making a wide range of predictions and was the basis for construction of the Modified Hand Test. With this model as a guide, a series of hypotheses concerning the relationship of the test responses to various modes of behavior were formulated.

CHAPTER II

REVIEW OF RELATED LITERATURE

The Hand Test has received considerable recognition and study since its conception by Wagner in 1959. The majority of early research attempted to substantiate the classification of schizophrenics based upon responses given by the Hand Test. Research in this area by Bricklin, Piotrowski, and Wagner (1962) has provided the rationale and original system for scoring the Hand Test. Wagner later published the first manual with only minor modifications to the scoring system which was revised in 1969 (Wagner, 1969). Wagner (1961, 1962, 1966, and 1970), Wagner and Medvedeff (1963), and Hodge and Wagner (1964) have published studies supporting the postulate that the Hand Test does adequately identify basic personality characteristics and that it also successfully discriminates aggressive and non-aggressive patients from among a population of undifferentiated schizophrenics.

In an attempt to cross-validate Wagner's experiments in prediction of aggressive and non-aggressive behavior on the basis of the Acting Out Score and the Withdrawal Score, Drummond (1966) rated undifferentiated schizophrenics as

aggressive or non-aggressive according to specified criteria. The findings for both groups were conspicuously similar. Drummond concluded: "Since it is in the very nature of disorder for schizophrenics to be unpredictable in their behavior, it is perhaps not surprising that the results of the present study have not proved significant (p. 280)." Azcarte and Gutierrez (1969) have concluded from the results of a study of 100 boys at the National Training School, Virginia, that Maladjustive Score and The Acting Out Ratio could be used to predict overt aggressive behavior.

Steinmetz (Seig, 1965) implemented the use of the Aggressive Scores of the Hand Test in conjunction with five other tests in the diagnosis of aggressiveness. The study was based on 16 elementary school children with a mean age of 10.9 years. Two extreme groups (aggressive and non-aggressive) of eight children each were established through the use of a combination of teacher and peer rating. The Disfigures Test, the TAT, and the Hand Test proved discriminatory between these contrasted groups; however, the Rorschach, a questionnaire, and the Color Pyramid Test proved non-discriminatory.

The Hand Test has also been utilized as an industrial employment screening device. However, a majority of the research in this area has been conducted with handicapped adults employed in a sheltered situation. Wagner and Cooper (1963) hypothesized that the active score would differentiate

between satisfactory and unsatisfactory workers. The experiment was conducted with workers at Goodwill Industries, Akron, Ohio. From the fifty subjects selected the Hand Test correctly differentiated forty-five of fifty workers, which is a significant statistic at the .001 level. Combined ratings by the workers' immediate supervisor and the personnel director were used as the criterian. In his attempt at cross-validation of Wagner's and Cooper's finding, Huberman (1964) conducted a study of 18 employed men at a Canadian plywood mill. The mill's two foremen were asked to select and classify workers into three groups differentiated by level of activity. As was expected, the third "low activity" group was nonexistent since employees falling within this category would be terminated during the initial probationary period. None of the hypotheses that he formulated were statistically supported by his results.

Wagner and Hawver (1965), in developing a battery with one or more test predictors of success in a sheltered workshop, implemented the Action Score of the Hand Test along with seven other tests. At a sheltered workshop in Akron, Ohio, they selected 27 workers, all of whom were individually administered the eight tests. The results were highly significant for the predictive value of each of the eight tests. Wagner and Hawver urged caution in interpretation of the results because of the lack of opportunity for cross-validation, for the inadequate sample size, and

for the fact that the test may possibly have measured present performance rather than skills which had existed prior to admittance to the workshop.

Further attempts were made to validate the Action Score of the Hand Test as discriminating between "good" and "poor" employees, by Wagner and Capotosto (1966). At the Lincoln State School, Illinois, forty-seven retarded employees were administered the Hand Test and rated by supervisors using operationally defined criteria of work performance. The Hand Test Action Score correctly differentiated 74 percent of the subjects, a very significant figure at the .01 level of confidence.

In a speech to the Eastern Psychological Association Wagner (1962) described the Hand Test as an indicator of antisocial, inflexible, and interpersonal aggression among delinquents. Wagner and Hawkins (1964) hypothesized that assaultive and non-assaultive delinquents could be differentiated by the Acting Out Ratio. Forty-seven of the sixty subjects (78 percent) were successfully differentiated, significant statistically at the .001 level of confidence. Wetsel, Shapiro, and Wagner (1967) initiated a study to predict recidivism among juvenile delinquents using the Hand Test. They concluded: "In the predictive validity of the Hand Test, the Acting Out Score significantly differentiated delinquent recidivists from non-recidivists correctly categorizing 66 percent of the subjects. The aggression Scores

also significantly differentiated the two groups (p. 69)," Oswald and Loftus (1966) conducted a normative and comparative study using normal and delinquent Australian children. Data from 114 secondary school boys, fifty-two institutionalized male delinquents, and twenty-six institutionalized female delinquents, was compared. Significant differences were in the expected direction for certain scores. Comparison with the "equivalent" American samples given by Wagner have shown marked differences; however, the authors have indicated scoring problems as being a source of contamination. They have concluded that the Hand Test is a useful, quick projective test, particularly of value with delinquents, but should be interpreted with caution, and ideally, should be used as one of a battery of psychological tests.

Wagner (1963) conducted the only published study in which the Hand Test was used to identify male neurotics with marked overt psycho-sexual problems on the basis of content indicators. He concluded that male neurotics produced significantly (.02 level of confidence) more content indicators of sexual maladjustment (CYL and Sex) than a control group of neurotics without pronounced sexual aberration.

Unfortunately, only a moderate amount of research into the standardization of the Hand Test has been done. Capotosto (Wagner, 1971) established means for subnormals; Gloss (Wagner, 1971) reported means on a stratified sample of boys of mean age 14.6 from a technical high school in

Adelaide, Australia; Daugherty (Wagner, 1971) reported a study comparing dyslexics to normal children. Children for these groups were selected from fourth, fifth, and sixth grades. In this study the dyslexic groups had more TEN responses than the normal group (significant at the .01 level of confidence). In Guam, Neuber (Wagner, 1971) established norms on samples of natives which included subjects from elementary school through adults. These samples consistently produced more responses than their American counterparts. Viers (Wagner, 1971) published norms for 197 children (kindergarten through third grade). Roberts (1971) developed norms for mentally retarded children and bright children in a comparative study. Roberts has concluded that the Hand Test appeared to be effective in measuring the difference between response frequency of the two groups. Puthoff (1972) established norms for rural bilingual children in a correlational study of the Hand Test and the Peabody Picture Vocabulary Test.

CHAPTER III

PROBLEM

The preliminary pilot studies were the joint efforts of Bruce K. Munro and James N. Shinder who drew, developed, and researched the selection of the modified cards. Because of the cooperative effort employed, a joint researching of some of the literature and a common control group were used.

The researchers were interested in determining the effects of expanding Wagner's original concepts to include stimulus cards which are more obviously discernible as being representative of the hands of men, women, and children. This study is undertaken to determine experimentally to what extent subjects may respond differentially to drawings involving male, female, and children's hands. No research dealing with either age or sex discrimination of responses to the Hand Test has been published. The researches felt that this lack of age and sex discrimination is in part resulting from the nature of Wagner's nine original stimulus cards; and for this reason, stimulus cards more readily discernible as representing the hands of men, women, and children were developed. Furthermore, a large number of stimulus cards creates a greater opportunity for a wider

sampling of behavior from which analytical decisions can be made.

Specifically the problem of this study is to assess norms by categories for a group of intellectually bright and educable mentally retarded public school adolescents on the Modified Hand Test, modified sexually into ten drawings of male hands and ten drawings of female hands and a discrimination on age with ten drawings of children's hands. In addition to the specific problem cited above the adolescents were asked the additional question: "Is this hand drawing the hand of a male, female or a child?"

Definition of Terms

For the purpose of this study, the following operational definitions were used:

Adolescent: An individual who has passed his twelfth birthday but has not yet reached his twenty-first year.

Intellectually Bright Adolescent: An individual whose I.Q. score is within the range of 110 and 125 as measured on the Otis Intelligence Test (1954) or the California Mental Maturity Short Form (1963).

Educable Mentally Retarded Adolescent: Those individuals enrolled in public school whose I.Q. scores are within the range 65-75 inclusive. The subjects' I.Q. had been measured on a previously administered Stanford-Binet Intelligence Scale, Form L-M (1960), the Wechsler Intelligence

Scale for Children (1949) or the Wechsler Adult Intelligence Scale (1958), administered by a qualified psychologist. In addition, each of the adolescents have met the following criteria:

1. Never referred to any clinic or agency for treatment of emotional disorder.
2. No known history of brain injury, or observable characteristics of physical handicaps.
3. No overt behavioral symptoms indicative of maladjustment or severe anxiety.

Lower Socio-economic Status: Combined family income below $3,500 annually. This group was largely comprised of individuals on relief and the chronically unemployed. In relation to socio-economic status it is assumed that possession of economic goods, opportunities, and social interaction are somewhat consistent with income and may be used as a prediction of social behavior.

Middle Socio-economic Status: Combined family income between $3,500 and $7,000 annually.

Upper Socio-economic Status: Combined family income exceeding $7,000 annually.

Hypotheses

In order to determine the parameters of this study the following null hypotheses will be tested:

H_0-1 There will be no statistically significant differences in the frequency of responses by categories given

by intellectually bright adolescents as compared to educable mentally retarded adolescents.

H_o-2 There will be no statistically significant differences in the frequency of responses by categories given by intellectually bright adolescents as compared to educable mentally retarded adolescents, as a function of the sex of the subjects.

H_o-3 There will be no statistically significant differences in the frequency of responses by categories given by intellectually bright adolescents as compared to educable mentally retarded adolescents, as a result of the differing methods of structuring presentation of cards.

H_o-4 There will be no statistically significant differences in the frequency of responses by categories given by intellectually bright adolescents as compared to educable mentally retarded adolescents with respect to the responses elicited by the male stimulus cards.

H_o-5 There will be no statistically significant differences in the frequency of responses by categories given by intellectually bright adolescents as compared to educable mentally retarded adolescents with respect to the responses elicited by the female stimulus cards.

H_o-6 There will be no statistically significant differences in the frequency of responses by categories given by intellectually bright adolescents as compared to educable mentally retarded adolescents with respect to the responses elicited by the child stimulus cards.

CHAPTER IV

METHOD

The Subjects

A sample of 60 bright adolescents, equally divided between boys and girls, was obtained from Stephens, Grady, Carter, Oklahoma, and Cleveland County school systems. The subjects were selected on the basis of scores obtained within the range 110-125 inclusive, as measured on the Otis Intelligence Test (OIT), or the California Mental Maturity Short Form (1963).

A sample of 60 educable mentally retarded public school students were obtained from Stephens, Grady, and Carter County school systems. The subjects were selected on the basis of scores obtained within the range 65-75 inclusive on basis of an earned I.Q. on a previously administered Stanford-Binet Intelligence Scale, Form L-M (1960), the Wechsler Intelligence Scale for Children (1949) or the Wechsler Adult Intelligence Scale (1958), administered by a qualified psychologist. The subjects were equally divided between boys and girls. This group did not exhibit any visible physical deficits. These groups were closely

matched in respect to sex, chronological age; and an attempt was made to match subjects for birth order, socio-economic status, and size of family.

Weiner (1970, pp. 41-42, 55, 62) indicates that the period of adolescence can be viewed in one of two ways. The normal adolescent can be viewed as a disturbed state. Psychoanalytically oriented theorists like Anna Freud, Gellerd, Spiegel, Harley, Eissler and Fountain usually hold this view. They conceive adolescence as a period of storm and stress, a time of transitory disturbance and maladjustment.

The second point of view, based on large cross sectional studies, perceives the modal teenager as a reasonably well adjusted individual whose daily functioning is minimally marred by psychological incapacity. Weiner (1970, p. 55) states that:

> The conceptualization of adolescence as a normatively disturbed state is challenged not only by evidence that the modal adolescent does not display prominent psychological turmoil but also by empirical indications that a turbulent adolescence, when it occurs, reflects deviant and not normative adjustment.

The research literature that Weiner (1970, p. 55) had that an adolescent,

> who get along poorly with . . . parents and their values is not a normal youngster demonstrating developmental vagaries common to his group. Rather, together with the late adolescent who is still frequently varying the role he plays in relation to other people, he is likely to be suffering adjustment disturbances.

Therefore, the adolescent is not more likely than any other

segment of society to display features of psychopathology. The position taken by this researcher is that adolescence is not a transitory disturbed, maladjusted state but rather normative adjustment is not reflected in a turbulent adolescence.

Most reviewers of the literature on the relationship between retardation and personality (Carmichael, 1970, p. 628, Stevens and Hever, 1964, p. 453) conclude that a long history exists which associates the idea of emotional disturbance with a higher incidence among mentally retarded subjects than among the general population. No isomorphic relationship exists between mental retardation and emotional disturbance. The etiology of mental retardation has no single entity; but it is a set of symptoms developing from many different etiological factors, including physiological, endocrinological, social and delinquent causes.

The Procedures

Each subject was individually administered the Modified Hand Test by the researcher. Prior to the administration of the test, the subjects were interviewed by the researcher at length to obtain additional data and to facilitate the establishment of rapport. In an effort to demonstrate that those aspects of the response data being used in this dissertation are not products of non-personality factors, administration was limited to clinical settings, and all subjects were screened to eliminate persons

possessing severe sensory handicaps. All of the subjects included in this study were volunteers; none refused the task. Parents had given permission for their children to participate in the experiment.

The subjects were handed the cards one at a time. On initial exposure to the stimulus card, one-half of the subjects were asked to respond to the following question: "What is the hand doing?" The other matched half of the subjects were asked to respond to: "Tell me about this hand." Interesting to note is the fact that the responses varied in length from two words to several sentences, which included personalized examples. Behavioral observations were also recorded on the answer sheets. The researcher, on concluding the verbatim recording of the thirty initial response, gave a second trial in which each response was further discussed in order to obtain maximum clarity of meaning. In a third trial, the subjects were asked to classify the hand drawing as representing the drawing of a hand of either a man, a woman, or a child.

The Instrument

The researchers developed eighty-six stimulus cards from which fifty were selected for the initial pilot study. Concern was given to the amount of ambiguity present in each drawing. Originally considerable ambiguity in a drawing was believed necessary for projective purposes; and, as a corollary, the greater the ambiguity, the greater the

likelihood of personal projection. This assumption, however, has not been widely confirmed empirically. Research has indicated that there can be too little, as well as too much, structure in a drawing. Murstein (1965) has presented evidence that the clearer structure of the picture, the more unpleasant the tone of the story. In the study, the fifty cards were further reduced to thirty cards; ten, depicting male hands; ten, female hands; and ten, child hands. In the selection process for the pilot study eighty-one undergraduate students were used. A reproduction of the thirty drawings of hands and the results of the pilot study appear in Appendix A.

The Scoring

Each of the subject's responses were independently scored and categorized by both researchers in order to insure rater reliability. None of the questionable responses were scored or categorized until all data were compiled. At that time the need for further content categories could be more adequately assessed. Earlier investigators also had difficulties with category placement of responses (Oswald and Loftus, 1967).

While it is possible to secure more than one response to each card, for experimental purposes only the first response received for each card was clarified and scored. Every response on the test needed to be categorically scored as predominantly exhibiting one of the following

categories, which Wagner (1969) defined:

Affection (AFF): Interpersonal responses involving an interchange or bestowment of pleasure, affection, or friendly feeling, e.g., "Waving to a friend -- a greeting."

Dependence (DEP): Interpersonal responses involving an expressed dependence on or need for succor from another person, e.g., "Hitch-hiker thumbing a ride."

Communication (COM): Interpersonal responses involving a presentation or exchange of information, e.g., "A child holding fingers up, showing how old he is."

Exhibition (EXH): Interpersonal responses which involve displaying or exhibiting oneself in order to obtain approval from others or to stress some special noteworthy characteristic of the hand, e.g., "Showing off his muscles."

Direction (DIR): Interpersonal responses involving influencing the activities of, dominating, or directing others, e.g., "Policeman saying stop."

Aggression (AGG): Interpersonal responses involving the giving of pain, hostility, or aggression, e.g., "Trying to scare someone."

Acquisition (ACQ): Environmental responses involving an attempt to acquire or obtain a goal or

object. The movement is ongoing and the goal is as yet unobtained, and, to some extent, still in doubt, e.g., "Reaching for something on a high shelf."

Active (ACT): Environmental responses involving an action or attitude designed to manipulate constructively, attain, or alter an object or goal. ACT responses are distinguished from ACQ responses in that the object or goal has been, or will be, accomplished, and the issue is, therefore, not in doubt, e.g., "Might be typing."

Passive (PAS): Environmental responses involving an attitude of rest and/or relaxation in relation to the force of gravity, and a deliberate and appropriate withdrawal of energy from the hand, e.g., "Just resting."

Tension (TEN): Energy is being exerted, but nothing or little is accomplished. A feeling of anxiety, tension, or malaise is present. TEN responses also include cases where energy is exerted to support oneself against the pull of gravity, accompanied by a definite feeling of strain and effort, e.g., "Hanging on to the edge of a cliff."

Crippled (CRIP): Hand is crippled, sore, dead, disfigured, sick, injured, or incapacitated, e.g., "That hand is bleeding."

Fear (FEAR): Responses in which the hand is threatened with pain, injury, incapacitation, or death. A FEAR response is also scored if the hand is clearly perceived as meting out pain, injury, incapacitation, or death to the subject or to a person with whom the subject identifies, e.g., "My father's hand . . . like he's going to hit me."

Descriptive (DES): Subject can do no more than acknowledge the presence of the hand with perhaps a few accompanying inconsequential descriptive details or feeling tones, e.g., "Just a hand."

Bizarre (BIZ): A response predicated on hallucinatory content, delusional ideation, or other peculiar, pathological thinking. The response, partially or completely, ignores the drawn contours of the hand and/or incorporates bizarre, idiosyncratic, or morbid content. One genuine BIZ response is pathognomic of serious disturbance, e.g., "A crocodile creeping along the wall."

Fail (FAIL): Subject can give no scorable response whatsoever to a particular card. A FAIL is tabulated in computing summary score but is not included in the response total, R, since it is not really a response but a failure to respond.

In addition, there are four summation symbols which represent combinations of the symbols defined above. For the purpose of this dissertation the subjects were limited to only one response per card; therefore, the summation categories should be interpreted discriminately as a result of the modified administration procedure. Wagner (1969) defines categories as follows:

Interpersonal (INT): AFF, DEP, COM, EXH, DIR, and AGG are combined for INT responses. That is those responses involving relations with other people . . . an absence or dearth of INT always has a negative connotation.

Environmental (ENV): ACQ, ACT, and PAS are combined for ENV responses. They are assumed to represent generalized attitudes toward the impersonal world, i.e., a readiness to respond to or come to grips with the environment in a characteristic fashion.

Maladjustive (MAL): TEN, CRIP, and FEAR are combined for MAL responses. They represent difficulty, of which the individual is at least partially aware, in successfully carrying out various action tendencies and failure to achieve need satisfactions.

Withdrawal (WITH): DES, FAIL, and BIZ are combined for WITH responses. They represent

those who have found realistic interaction with people, objects, and ideas, so traumatic, difficult, and non-reinforcing that meaningful, effective life-roles have been partially or completely abandoned.

CHAPTER V

RESULTS

The Modified Hand Test was administered individually to two groups of subjects: one composed of 30 male and 30 female educable mentally retarded public school adolescents (EMR); the other group consisted of 30 male and 30 female intellectually bright public school adolescents (Br). These two groups were further divided into 15 male and 15 female educable mentally retarded public school adolescents and 15 male and 15 female intellectually bright public school adolescents. One matched group was administered the 3 sets of drawings, male, female, and child, of the Modified Hand Test with the instructions: "What is the hand doing?" The other matched half of the subjects were asked to respond to the same 3 sets of drawings but were given the following instructions: "Tell me about this hand." The first of these instructions were labeled the conventional instruction, the second, the non-conventional instructions. The data compiled on these two groups will be found for the 120 subjects in Appendix B (Tables 15 and 16).

The results of the analysis of that data will comprise the body of this chapter. The subjects were all

attending middle schools with enrollments exceeding 200 students in predominantly white middle-class communities in towns with a population from 15 to 20 thousand.

This investigation was undertaken in order that statistical differences might be detected and norms established for Br and EMR subjects on the responses that each group gave by categories to the Modified Hand Test. Norms were also established for responses given by categories on five other variables: as a function of the sex of the subject; as a function of the structuring of the wording of the presentation of the cards; as a function of the responses elicited by the male, female and child cards.

The two groups, Br and EMR, were matched as closely as possible on chronological age, on the number of children in the subject's family, on the ordinal position of the adolescent in the family, as well as on socio-economical status. The F Test of homogeniety (Downie and Heath, 1965) was used with the results that no statistical difference on any of the items under consideration was found (Table 1).

The descriptive data of the groups can be found in Table 1. This table indicates that the mean chronological age of the Intellectually Bright group was 14 years 5 months (S.D. 2 years, 1 month). The mean chronological age for the Educable Mentally Retarded group was 14 years and 8 months (S.D. 1 year, 11 months). The ages of the Br subjects ranged from 12 years, 1 month to 18 years, 4 months. The

EMR subjects ranged from 12 years, 1 month to 18 years, 11 months.

TABLE I

COMPOSITION OF THE GROUPS

	$\bar{X}$ S.D.	INTELLECTUALLY BRIGHT ADOLESCENTS	EDUCABLE MENTALLY RETARDED ADOLESCENTS	F RATIO
CHRONOLOGICAL AGE	$\bar{X}$	14.45	14.67	0.036
	S.D.	2.04	1.92	NS
I.Q.	$\bar{X}$	117.55	70.28	2498.810
	S.D.	4.34	5.90	Sig.
NUMBER OF CHILDREN IN FAMILY	$\bar{X}$	3.63	3.70	0.043
	S.D.	1.70	1.73	NS
ORDINAL POSITION	$\bar{X}$	2.40	2.45	0.034
	S.D.	1.46	1.49	NS
SOCIO-ECONOMIC STATUS	$\bar{X}$	1.93	1.92	0.02
	S.D.	.63	0.65	NS

* Numerical values were assigned as follows for socio-economic status:
Lower 1. Middle 2. Upper 3.

As the variable on which the groups were differentiated was that of intelligence, a large significant difference was expected; and this difference did occur. The mean I.Q. for the Br subjects was 117.55 (S.D. 4.34) and

for the EMR subjects 70.28 (S.D. 5.90). No significant statistical difference was found between the number of children in the families of the Br group with a mean of 3.63 (S.D. 1.70) and the EMR group subjects whose mean was 3.70 (S.D. 1.73). The greatest number of children in the family unit of the Br group was 9 and the least number was 1. In the EMR group the greatest number in the family was 9 and the least was 1. The Ordinal position of the children in the Br group was not statistically significant. The mean position for the Br group was 2.40 (S.D. 1.46), while the EMR had a mean position of 2.45 (S.D. 1.49). Each subject was assigned a socio-economical position from one to three, according to family income (see Definition of Terms), with the resulting statistical comparison of mean of 1.93 (S.D. 0.63) for the Br subjects and 1.93 (S.D. 0.65) for the EMR group. From these results, no statistically significant differences were found.

The norms for the original Hand Test (Wagner, 1971) were given in medians and semi-interquartile ranges. When reporting the responses on individual protocols, Wagner used absolute numbers and percentages in reporting results. In the earlier work of Bricklin, Piotrowski, and Wagner (1962), the summary scores of individual protocols were usually given in absolute numbers in one column and percentage in each category in another column. In this study the absolute number was used. Each subject was restricted

to one response per card per subject for the final statistical analysis of this study. This restriction was enforced in order to prevent contamination of the data on the intellectual dimension, an area in which norms were developed. General theory on projective techniques (Mischel, 1968, p. 112 and Murstein, 1965, p. 55) indicates that intellectually brighter subjects tend to be more verbal in their responses and also tend to give more responses to the same stimuli than intellectually retarded subjects.

The choice of medians (Mdns) and semi-interquartile ranges (Q_3-Q_1) for reporting the norms for this study (Downie and Heath, 1970) is based on the consideration of the restriction of one response per card per subject and the awareness of the skewness of the data. The Median (Mdn) is that point in a distribution such that half of the observations fall above it and half, below it. The semi-interquartile range ($\frac{Q_3-Q_1}{2}$) represents the difference between the numerical values for the third quartile, (twenty-five percent of the scores in a distribution lie above this point) and the first quartile, (twenty-five percent of the scores in a distribution lie below this point) divided in half. Fifty percent of the scores lie between the third quartile (Q_3) and the first quartile (Q_1). The size of the semi-interquartile range is affected by the closeness of scores to the median. If the scores tend to be close to the median, the semi-interquartile range will be small,

because the differences between Q_3 and Q_1 will be small. Q_3-Q_1 will be larger if there is much deviation from the median. The semi-interquartile range is a measure of variability about the median.

The Median Test (Downie and Heath, 1970) is used to determine significant statistical differences between groups. Two factors determine the choice of this statistical procedure; the data is not normally distributed and the sample size is small. This distribution-free statistical method is used to test the hypotheses of no significance between the sets of scores using the Chi square technique. Since the distribution is a function of the number of degrees of freedom and frequency of response, Yates' correction for continuity is appropriately applied because the distribution of the Chi square is discrete.

The statistical differences between the Br and EMR group subjects (Table 2) on perception of the gender and age of the drawings of the hands show no statistical differences. Regarding the drawings of hands as male, the Br group perceived 715 (Mdn. 11.72, Q_3-Q_1 1.50) and the EMR 627 (Mdn. 10.14, Q_3-Q_1 2.07), indicating that while the Br group perceived more male drawings than the EMR group subjects the statistical differences were found not significant.

The EMR group subjects perceived 669 (Mdn. 10.88, Q_3-Q_1 1.76) responses as being female. The Br group subjects perceived 586 (Mdn. 9.83, Q_3-Q_1 1.14). However, this

difference was not found to be statistically significant. No statistically significant differences were found between the Br group who perceived 449 (Mdn. 8.68, Q_3-Q_1 1.26) of the hands as being children's hands and the EMR group subjects who perceived 504 (Mdn. 8.33, Q_3-Q_1 2.84) children's hands.

Some significant statistical differences (Table 7) were seen between the two groups, Br and EMR, in the analysis by sets, male, female and child, for the ΣMALE, ΣFEMALE and ΣCHILD categories. In response to the male set, the Br group subjects (Mdn. 8.38, Q_3-Q_1 0.77) perceived statistically more (p <.001) ΣMALE than the EMR group subjects (Mdn. 6.77, Q_3-Q_1 1.21). In the perception of the male set, the EMR group subjects (Mdn. 1.93, Q_3-Q_1 0.60) perceived statistically significantly more (p <.0033) ΣFEMALE than the Br group subjects (Mdn. 1.65, Q_3-Q_1 1.06). In response to the male set, the EMR group subjects (Mdn. 2.64, Q_3-Q_1 1.03) perceived statistically significantly more (p <.0052) ΣCHILD responses than the Br group subjects (Mdn. 1.80, Q_3-Q_1 1.19).

No statistically significant differences were seen between the Br (Mdn. 8.44, Q_3-Q_1 0.88) and the EMR subjects (Mdn. 8.42, Q_3-Q_1 0.88) in their response to the female set on ΣFEMALE category. When the differences were analyzed between the Br group subjects (Mdn. 2.0, Q_3-Q_1 0.53) and the EMR group subjects (Mdn. 2.26, Q_3-Q_1 0.86) in their

TABLE 2

COMPOSITE NORMS FOR EACH SCORING CATEGORY FOR EDUCABLE MENTALLY RETARDED AND INTELLECTUALLY BRIGHT GROUPS ON THE MODIFIED HAND TEST

Category	Bright Group			Educable Mentally Retarded			Sig.
	Freq.	Mdn.	Q_3-Q_1	Freq.	Mdn.	Q_3-Q_1	
AFF	120	1.88	.75	108	2.81	1.32	.002
DEP	22	.20	2.06	12	.07	.28	NS
COM	228	3.77	1.85	258	3.59	1.30	NS
EXH	73	1.75	.73	60	2.81	.95	NS
DIR	173	2.88	1.02	70	.47	.92	NS
AGG	134	2.04	.92	167	2.29	.92	NS
ACQ	134	2.18	.79	96	4.25	1.49	.001
ACT	464	7.20	2.17	244	3.50	1.57	NS
PAS	156	2.23	1.28	216	3.14	1.32	NS
TEN	170	2.60	1.26	138	1.95	1.66	NS
CRIP	30	.21	2.05	28	.20	2.58	.001
FEAR	6	.06	.28	1	.04	.27	NS
DES	77	.44	2.00	350	3.00	2.13	NS
FAIL	4	.02	.26	51	.01	.25	NS
BIZ	4	.03	.26	1	.17	.33	.005
Σ M	715	11.72	1.50	627	10.14	2.07	NS
Σ F	586	9.83	1.14	669	10.88	1.76	NS
Σ C	499	8.68	1.26	504	8.33	2.84	NS

response to the female set on the ΣMALE, no significant statistical differences were found. Finally, on the perception of ΣCHILD on female set, the Br group subjects (Mdn. 0.11, Q_3-Q_1 0.30) did not differ statistically significantly from the EMR group subjects (Mdn. 0.18, Q_3-Q_1 3.14).

In the perception of ΣMALE, ΣFEMALE, ΣCHILD categories in response to the child set the following statistical information was observed. In response to the child set on the ΣCHILD category the Br group subjects (Mdn. 7.21, Q_3-Q_1 1.01) gave statistically significantly more (p <.05) responses than the EMR group subjects (Mdn. 6.59, Q_3-Q_1 1.61). When the differences were analyzed between the Br group subjects (Mdn. 2.26, Q_3-Q_1 0.68) and the EMR group subjects (Mdn. 1.94, Q_3-Q_1 0.91) on their response to the child set on the ΣMALE category, no significant statistical differences were observed. In the remaining category ΣFEMALE in response to the child set, the EMR group subjects (Mdn. 2.17, Q_3-Q_1 0.96) perceived statistically significantly more (p <.0151) than the Br group subjects (Mdn. 0.33, Q_3-Q_1 1.54).

Hypothesis 1 states that there will be no statistically significant differences in the frequencies by categories given by intellectually bright adolescents as compared to educable mentally retarded adolescents. In order to assess this hypothesis the data was collapsed across the male,

female and child set of drawings of hands. On inspection of the data (Table 2) four of the categories showed statistically significant differences between the Br and EMR group subjects. The EMR group subjects gave statistically significantly more AFF ($p < .002$), ACQ ($p < .001$) and FAIL ($p < .005$) responses, while the Br subjects gave statistically significantly more CRIP responses ($p < .001$). The results lend themselves to the interpretation that the Modified Hand Test does differentiate EMR from Br subjects and the null hypothesis was thus rejected.

Hypothesis 2 states that there will be no statistically significant differences in the frequency of responses by categories given by intellectually bright adolescents as compared to educable mentally retarded adolescents, as a function of the sex of the subjects. Analysis of the responses by categories of the Br group subjects indicated (Table 3) that significant statistical differences were observed in two categories. In the responses they gave to the female set of drawings of hands the female subjects perceived significantly more ΣMALE hands ($p < .02$) than did the male subjects. The second difference was in the perception of TEN in which the Br male subjects saw statistically significantly more ($p < .02$) of these than the Br female group subjects.

In the analysis of the data (Table 4) for the EMR responses by EMR males and EMR females, no statistically significant

TABLE 3

NORMS FOR MALE AND FEMALE INTELLECTUALLY BRIGHT GROUP SUBJECTS FOR THE MODIFIED HAND TEST

	Male					Female					Child				
Catg	Male Mdn	Female Mdn	Sig	Q_3-Q_1 Male	Q_3-Q_1 Female	Male Mdn	Female Mdn	Sig	Q_3-Q_1 Male	Q_3-Q_1 Female	Male Mdn	Female Mdn	Sig	Q_3-Q_1 Male	Q_3-Q_1 Female
AFF	.25	.29	NS	1.57	1.71	.15	.21	NS	.32	2.19	1.86	2.17	NS	.75	.82
DEP	0.0	.04	NS	.25	.26	0.0	.06	NS	.25	.28	.10	.21	NS	.30	1.73
COM	1.86	1.60	NS	.84	.45	2.17	1.57	NS	1.48	.93	1.67	2.17	NS	.69	1.29
EXH	.15	.21	NS	.33	1.73	.44	2.00	NS	1.29	1.33	.10	.21	NS	.30	1.93
DIR	1.25	1.83	NS	.44	.45	1.50	2.00	NS	.78	1.33	.15	.21	NS	.32	1.93
AGG	1.57	2.17	NS	.51	.72	.29	.13	NS	1.71	.32	.50	.25	NS	1.27	1.56
ACQ	.21	.25	NS	1.73	1.44	1.75	1.57	NS	1.71	.89	1.50	2.38	NS	.91	1.25
ACT	1.93	1.65	NS	.69	.57	3.64	3.20	NS	1.29	1.00	2.14	2.21	NS	.57	.77
PAS	1.57	.44	NS	.87	1.51	2.38	2.17	NS	.84	1.46	1.86	.44	NS	1.18	1.13
TEN	1.75	1.29	NS	.71	.40	1.75	2.17	NS	1.13	1.46	1.75	.50	.02	1.12	1.50
CRIP	.06	.04	NS	.28	.27	.08	.06	NS	.26	.28	.18	.18	NS	.34	.29
FEAR	.04	.02	NS	.27	.25	.02	0.0	NS	.26	.25	0.0	.06	NS	.25	.28
DES	.50	.18	NS	1.35	.34	0.0	0.0	NS	.25	.25	.18	.18	NS	.34	.34
BIZ	0.0	.02	NS	.25	.26	0.0	0.0	NS	.25	.25	.02	0.0	NS	.26	.25
FAIL	0.0	.04	NS	.25	.27	0.0	0.0	NS	.25	.25	0.0	.04	NS	.25	.27
Σ MALE	8.06	8.64	NS	.86	.69	1.75	2.38	.02	.65	.89	2.17	2.38	NS	1.25	.79
Σ FEMALE	1.25	1.57	NS	1.12	.99	8.50	8.40	NS	.93	.96	.44	.25	NS	1.21	2.19
Σ CHILD	1.86	1.75	NS	.73	1.12	.06	.18	NS	.28	.34	7.30	7.07	NS	.80	1.23

TABLE 4

NORMS FOR MALE AND FEMALE EDUCABLE MENTALLY RETARDED FOR THE MODIFIED HAND TEST

	Male					Female					Child				
Catg	Male Mdn	Female Mdn	Sig	Q_3-Q_1 Male	Q_3-Q_1 Female	Male Mdn	Female Mdn	Sig	Q_3-Q_1 Male	Q_3-Q_1 Female	Male Mdn	Female Mdn	Sig	Q_3-Q_1 Male	Q_3-Q_1 Female
AFF	.38	.13	NS	1.41	.32	.25	.29	NS	1.92	1.91	.44	.29	NS	.96	2.56
DEP	.02	0.0	NS	.26	.25	.02	.04	NS	.26	.27	.04	.08	NS	.27	.29
COM	2.00	1.75	NS	.81	.78	.38	3.0	.038	2.16	.98	2.17	3.00	NS	.88	1.35
EXH	.08	.18	NS	.29	.34	.21	.33	NS	1.93	2.16	.13	.25	NS	.32	1.72
DIR	.25	.15	NS	1.92	.33	.18	.29	NS	.34	1.71	.13	.21	NS	.32	1.63
AGG	1.57	1.57	NS	.59	1.09	1.65	.21	NS	1.08	3.14	1.75	.33	NS	1.17	2.17
ACQ	.21	.21	NS	1.73	1.93	.25	.38	NS	2.57	1.53	.29	.25	NS	2.56	3.13
ACT	2.64	2.64	NS	.81	.88	1.93	2.38	.036	1.16	1.24	3.50	3.00	NS	1.09	1.40
PAS	1.65	2.17	NS	.99	1.48	2.00	2.00	NS	.78	.83	2.64	2.00	NS	1.03	.98
TEN	1.38	2.00	NS	.69	1.34	.38	.33	NS	2.53	1.9	.50	.29	NS	1.65	1.71
CRIP	.10	.08	NS	.30	.29	.13	.04	NS	.31	.27	.06	.02	NS	.28	.26
FEAR	0.0	0.0	NS	.25	.25	0.0	.04	NS	.25	.27	.04	.02	NS	.27	.26
DES	2.17	2.17	NS	1.28	1.46	0.0	0.0	NS	.25	.25	.50	.44	NS	1.86	1.64
BIZ	0.0	.02	NS	.25	.26	0.0	0.0	NS	.25	.25	0.0	0.0	NS	.25	.25
FAIL	.13	.08	NS	.32	.29	0.0	.02	NS	.25	.26	.13	.10	NS	.32	.30
Σ M	7.07	6.50	NS	1.42	1.05	2.38	2.17	NS	.89	.83	2.10	1.67	NS	.82	.94
Σ F	1.57	2.25	NS	1.34	.79	8.33	8.50	NS	1.22	1.05	1.75	1.75	NS	.74	1.12
Σ C	1.64	3.0	.015	1.40	1.03	.25	.13	NS	2.19	.32	6.64	6.50	NS	1.57	1.50

differences were observed in their responses to the child set of drawings of hands. In their response to the male set of drawings of hands only one statistically significant difference between the EMR males and EMR females was found. The EMR females perceived statistically significantly more (p <.015) ΣCHILD than the EMR male group subjects. In the third set, the female set, two significant differences were discovered. The EMR female group subjects gave statistically significantly more COM (p <.038) and ACT (p <.036) responses than the EMR male group subjects. In view of these differences the second hypothesis was rejected.

Hypothesis 3 states that there will be no statistical differences in the frequency of responses by categories given by intellectually bright adolescents as compared to educable mentally retarded adolescents as a result of the differing methods of structuring the presentation of cards. An inspection of the data (Table 5 and 6) indicates that the conventional instructions were able to elicit more responses than the non-conventional instructions on only one set. The conventional instructions elicited statistically significantly more (p <.046) ACQ responses than the non-conventional instructions. A tendency was observed for the conventional instructions (p <.06) to elicit more ΣCHILD responses to the male set. The non-conventional instructions elicited seven statistically significantly different responses: four for the EMR group subjects and three for the Br group subjects.

TABLE 5

NORMS FOR NON-CONVENTIONAL AND CONVENTIONAL INSTRUCTIONS FOR INTELLECTUALLY BRIGHT GROUPS ON THE MODIFIED HAND TEST

	Male					Female					Child				
Catg	Non-Conv Mdn	Conv Mdn	Sig	Non-Conv Q_3-Q_1	Conv Q_3-Q_1	Non-Conv Mdn	Conv Mdn	Sig	Non-Conv Q_3-Q_1	Conv Q_3-Q_1	Non-Conv Mdn	Conv Mdn	Sig	Non-Conv Q_3-Q_1	Conv Q_3-Q_1
AFF	.32	.22	NS	1.26	2.79	.15	.22	NS	.33	1.87	1.55	1.82	NS	.48	1.66
DEP	.02	.02	NS	.26	.26	0.0	.06	NS	.25	.28	.20	.10	NS	1.98	.30
COM	2.22	1.95	.03	.43	.92	1.91	1.71	NS	.71	1.11	2.05	1.67	.007	.93	.70
EXH	.17	.19	NS	1.99	1.69	.36	1.95	NS	1.34	.74	.10	.10	NS	1.62	.30
DIR	1.91	1.68	NS	.55	.40	2.22	1.41	NS	1.79	.73	.24	.13	NS	1.98	.32
AGG	1.53	1.71	NS	.43	.42	.15	.26	NS	.32	1.52	.27	.47	NS	1.47	1.34
ACQ	.20	.26	NS	1.78	1.39	1.36	2.31	NS	1.22	1.60	1.69	1.95	NS	1.04	1.31
ACT	1.78	1.95	NS	.71	.62	3.86	3.25	NS	1.31	.92	2.36	1.86	NS	.87	1.21
PAS	1.79	1.82	NS	1.21	.71	2.44	2.11	NS	.85	.75	1.61	1.95	NS	1.03	1.33
TEN	1.32	1.71	NS	.31	.40	2.05	1.82	.03	1.71	1.16	1.92	1.95	NS	1.30	1.28
CRIP	.05	.04	NS	.28	.27	.05	.08	NS	.28	.29	.10	.16	NS	.30	.33
FEAR	0.0	.04	NS	.25	.26	.02	0.0	NS	.26	.25	.02	.04	NS	.26	.26
DES	.27	.35	NS	2.25	1.65	0.0	0.0	NS	.25	.25	.24	.13	NS	1.76	.32
BIZ	0.0	.02	NS	.25	.26	0.0	0.0	NS	.25	.25	0.0	.02	NS	.25	.26
FAIL	.02	.02	NS	.26	.26	0.0	0.0	NS	.25	.25	.02	.02	NS	.26	.26
Σ M	8.44	8.31	NS	.76	.82	2.05	1.95	NS	.64	.46	2.35	2.14	NS	.91	.78
Σ F	1.69	1.62	NS	1.01	1.01	8.19	8.67	NS	1.02	.81	.36	.31	NS	1.74	1.38
Σ C	1.91	1.71	NS	.73	.66	.15	.08	NS	.32	.29	7.00	7.35	NS	1.07	.92

TABLE 6

NORMS FOR NON-CONVENTIONAL AND CONVENTIONAL INSTRUCTIONS FOR EDUCABLE MENTALLY RETARDED GROUPS ON THE MODIFIED HAND TEST

	Male					Female					Child				
Catg	Non-Conv Mdn	Conv Mdn	Sig	Non-Conv Q_3-Q_1	Conv Q_3-Q_1	Non-Conv Mdn	Conv Mdn	Sig	Non-Conv Q_3-Q_1	Conv Q_3-Q_1	Non-Conv Mdn	Conv Mdn	Sig	Non-Conv Q_3-Q_1	Conv Q_3-Q_1
AFF	.32	.19	NS	1.96	1.88	.32	.22	NS	1.96	2.13	.41	.35	NS	1.94	.94
DEP	.03	0.0	NS	.25	.25	.02	.06	NS	.26	.28	.07	.06	NS	.29	.28
COM	1.78	1.82	NS	.60	.58	3.60	.47	.002	1.15	1.81	2.44	2.57	NS	1.07	1.19
EXH	.10	.19	NS	.30	1.88	.36	.22	NS	1.95	2.13	.20	.19	NS	1.99	2.14
DIR	.20	.22	NS	2.65	2.13	.20	.26	NS	1.78	2.49	.17	.19	NS	2.27	2.14
AGG	1.53	1.62	NS	.47	.52	.41	.35	NS	1.73	1.49	2.22	.31	.01	.75	1.51
ACQ	.12	.35	.046	.31	1.38	.36	.31	NS	1.95	1.85	.32	.26	NS	2.62	3.03
ACT	2.71	.47	.028	1.03	.85	1.80	2.31	NS	1.34	.69	2.71	4.13	NS	1.11	2.05
PAS	1.69	2.11	NS	.68	1.45	1.69	2.57	NS	.74	.88	2.71	1.95	NS	1.19	.93
TEN	1.61	1.62	NS	.98	.93	.32	.47	NS	1.96	.91	.41	.41	NS	1.73	1.64
CRIP	.07	.13	NS	.28	.32	.12	.06	NS	.31	.28	.02	.08	NS	.26	.29
FEAR	.02	0.0	NS	.26	.25	.03	.02	NS	.26	.26	.05	.02	NS	.27	.26
DES	2.44	2.11	NS	1.04	1.33	.02	0.0	NS	.26	.25	.41	2.92	NS	1.84	1.18
BIZ	.02	.02	NS	.26	.26	.02	0.0	NS	.26	.25	.02	0.0	NS	.26	.25
FAIL	.15	.06	NS	.32	.28	.03	0.0	NS	.26	.25	.15	.08	NS	.32	.29
Σ M	6.86	6.81	NS	1.16	1.59	2.54	2.11	NS	.82	.81	1.57	2.22	NS	.99	.57
Σ F	2.05	1.82	NS	1.03	.58	8.38	8.56	NS	1.43	.85	2.05	1.57	.007	.93	.58
Σ C	1.69	2.57	.06	1.17	1.03	.24	.16	NS	2.64	.33	7.25	6.08	NS	1.46	1.85

The EMR produced significantly more ACT responses ($p < .028$) in relation to the male set; more COM responses ($p < .002$) to the female set, and more AGG ($p < .01$) and ΣFEMALE ($p < .007$) responses to the child set.

The non-conventional instructions elicited three statistically significant differences for the Br group subjects: COM responses ($p < .03$) to the male set; TEN responses ($p < .03$) to the female set, and COM response ($p < .007$) to the child set. The non-conventional instructions appear to differ from the conventional instructions in the responses that they elicit by categories, and so the third hypothesis was rejected.

Hypothesis 4 stated that there will be no statistically significant differences in the frequency of responses by categories between intellectually bright and educable mentally retarded adolescents with respect to the responses elicited by the male stimulus cards. In one category only (Table 7), the ΣMALE category did the Br group subjects give significantly more ($p < .001$) responses than the EMR group subjects. In four other categories the EMR group subjects perceived significantly more responses than the Br group subjects: DES ($p < .026$), FAIL ($p < .031$) ΣFEMALE ($p < .0033$), and ΣCHILD ($p < .0052$). These differences led to the rejection of hypothesis 4.

Hypothesis 5 stated that there will be no statistically significant differences in the frequency of responses

TABLE 7

NORMS FOR EDUCABLE MENTALLY RETARDED AND INTELLECTUALLY BRIGHT GROUPS FOR THE MODIFIED HAND TEST

	Male					Female					Child				
Catg	Bright Mdn	EMR Mdn	Sig	Bright Q_3-Q_1	EMR Q_3-Q_1	Bright Mdn	EMR Mdn	Sig	Bright Q_3-Q_1	EMR Q_3-Q_1	Bright Mdn	EMR Mdn	Sig	Bright Q_3-Q_1	EMR Q_3-Q_1
AFF	.27	.23	NS	1.63	1.92	.18	.27	NS	2.06	1.91	2.0	.36	NS	.82	2.54
DEP	.02	.01	NS	.26	.26	.03	.03	NS	.27	.26	.15	.06	.082	.32	.28
COM	2.08	2.17	NS	.87	.55	1.80	.47	NS	1.16	.90	2.26	2.50	NS	1.16	1.11
EXH	.18	.13	NS	1.83	.32	1.93	.27	.09	1.32	2.04	.15	.18	NS	.33	2.06
DIR	1.59	.20	NS	.47	2.37	1.70	.23	.0009	1.04	1.92	.18	.17	NS	2.06	.33
AGG	1.80	1.57	NS	.44	.50	.20	.38	NS	2.20	1.61	.36	.44	NS	1.41	1.52
ACQ	.23	.21	NS	1.57	1.82	1.65	.31	.016	1.04	1.90	1.80	.27	.0024	.77	2.81
ACT	1.63	2.64	NS	.67	.92	3.36	1.59	.0003	1.16	1.21	2.17	3.23	.0009	.67	1.07
PAS	1.80	1.86	NS	1.18	1.21	2.26	2.00	NS	.79	.81	1.75	2.26	.0074	1.16	1.03
TEN	1.47	1.61	NS	.38	.97	1.93	.36	NS	1.28	2.16	1.93	.38	NS	1.29	1.68
CRIP	.05	.09	NS	.27	.29	.07	.08	NS	.28	.29	.13	.04	.05	.32	.27
FEAR	.02	0.0	NS	.26	.25	.01	.02	NS	.26	.26	.03	.03	NS	.26	.26
DES	.31	2.17	.026	1.90	1.07	0.0	0.0	NS	.25	.25	.18	.47	.022	2.37	1.26
BIZ	.01	.01	NS	.26	.26	0.0	0.0	NS	.25	.25	.01	0.0	NS	.25	.25
FAIL	.02	.10	.031	.26	.30	0.0	.01	NS	.25	.26	.02	.11	.0179	.26	.30
Σ M	8.38	6.77	.001	.77	1.21	2.0	2.26	NS	.53	.86	2.26	1.94	NS	.68	.91
Σ F	1.65	1.93	.0033	1.06	.60	8.44	8.42	NS	.88	1.16	.33	2.17	.0151	1.54	.96
Σ C	1.80	2.64	.0052	1.19	1.03	.11	.18	NS	.30	3.14	7.21	6.59	.05	1.01	1.61

by categories between intellectually bright and educable mentally retarded adolescents with respect to the responses elicited by the female stimulus cards. In four categories the Br group subjects perceived statistically significantly more responses than the EMR group subjects: EXH ($p < .09$), DIR ($p < .0009$), ACQ ($p < .016$), and ACT ($p < .0003$). On the basis of this assessment of the data the fifth hypothesis was rejected.

Hypothesis 6 stated that there will be no statistically significant differences in the frequency of responses by categories between intellectually bright and educable mentally retarded adolescents with respect to the responses elicited by the child stimulus cards. The child set proved to be the most productive in eliciting statistically signifcant differences between the Br and EMR group subjects. In all of the 9 differences, four of these indicated that the Br group subjects perceived statistically significantly more ACQ ($p < .0024$), DEP ($p < .082$) (a tendency), CRIP ($p < .05$) and ΣCHILD ($p < .05$) responses. Those categories in which the EMR group subjects gave statistically significantly more responses were ACT ($p < .0009$), PAS ($p < .0074$), DES ($p < .022$), FAIL ($p < .0179$) and ΣFEMALE ($p < .0151$). These differences led to the rejection of Hypothesis 6.

CHAPTER VI

DISCUSSION OF RESULTS

The major aim of this dissertation was to provide norms for a Modified Hand Test. While this investigation was not a comparison of the Hand Test and the Modified Hand Test, a comprehension of some of the similarities and differences of the two tests will help in the understanding of the reason for this investigation.

Both instruments use drawings of hands to which the subject makes a response by giving his interpretation of the way that he perceives the drawings. Responses can vary from a bizarre response in which the subject neglects the stimulus qualities of the drawing and gives a response devoid of reality testing to a response which is an unelaborated description of the hand.

The original Hand Test consisted of ten cards: nine had drawings of hands; the tenth was blank. The Modified Hand Test consists of thirty cards on which hands, one per card, had been drawn. Unlike the original Hand Test, the Modified Hand Test discriminated on two variables not discernible in the original Hand Test, sex and age.

Ten of the thirty cards comprising the Modified

Hand Test depicted drawings of hands which were selected because they were more frequently chosen as drawings of male hands; another ten were chosen because they were more often perceived as the drawings of female hands, and finally ten were selected because they were more often chosen as children's hands, an age discrimination dimension.

Selecting drawings of hands which discriminate on a sex and age variable depart from Wagner's original perhaps more ambiguous, concept. The question can be asked, "Do people react to the sex or the age of the hand?" This question is also asked of other projective techniques, like the Rorschach, where some hold that Card IV is the male or father card and Card VII, the female card or mother card. This practice is a very often used one in interpretation of the TAT cards where one method of interpretation depends on the concept of the subject identifying with the "hero". Just what variables are involved in a person's response to a card is not yet clear, even though some of the responses to "female" stimulus cards on the Modified Hand Test indicates that the subject reacted to the drawing as if it were a female hand; one subject whistled to the card designated H-31. Some of the responses were not discernibly related to either the age or sex of the drawings on the cards.

Jerome Kagan has produced some longitudinal developmental studies in connection with the Fels Research Institute, concerning sex and role expectancies for males and

females. Kagan (1964, pp. 137-144) defines "sex role standards as a publically shared belief regarding the appropriate characteristics for males and females". He also feels that the degree to which an individual regard themselves as masculine or feminine is their sex role identity. The complete set of attitudes he calls a self-concept or a self-identity. Kagan (1964, p. 140) sees boys as more aggressive and girls as more dependent, passive, and conforming.

From the beginning of modern psychology, the suggestion has been made that "society is imitation" and that children are "born mimics" (McLaughlin, 1971, p. 127). Tarade, William James, and McDougal held these ideas as early as 1903. In general, however, learning theories of imitative behavior have usually been patterned on the prevailing general learning theory.

The Hullian Model (McLaughlin, 1971, p. 130) provided the arguments for Miller and Dollard's theories which broke with earlier concepts and stressed that imitation was not a unitary process. These experimenters included three different paradigms: a matched-dependent paradigm where the weaker reads clues from the stronger, more skilled that they cannot discriminate; the same-behavior paradigm where two people perform the same act in response to independent stimulation by the same cue, each having learned independently to make the response; and finally a copying paradigm where the model guides the learner to respond to relevent

clues.

In the 1960's a theory of secondary reinforcement resulted from the fractional anticipatory goal-response, the r_g-S_g mechanism, that was thought to mediate responses in a behavioral chain. These ideas were espoused by theorists like Mowrer and Osgood. The theory depended upon, in some cases, verbal responses where some act or utterance occurred continuously with gratification. These acts and verbalizations acquired secondary reinforcement properties and the subsequent utterances or acts brought about responses in the absence of the model. This approach differed from Miller and Dollard where the response was performed and rewarded; here, the secondary reinforcement provided by the behavior was alone sufficient to bring it into action.

The present theory receiving attention is that of vicarious learning elaborated by Bandura. In his book, Principles of Behavior Modification, Bandura (1969, pp. 118-120) indicates that imitation is vicarious learning done by observational learning from a model.

> One of the fundamental means by which new modes of behavior are acquired and existing patterns are modified entails modeling and vicarious process. . . . virtually all learning phenomena resulting from direct experiences can occur on a vicarious basis through observation of other persons' behavior and its consequences for them . . . . merely by observing the performance of appropriate models; emotional responses can be conditioned observationally by witnessing the affective reactions of others undergoing painful or pleasurable experiences. . . . Modeling procedures are, therefore, ideally suited for effecting diverse outcomes including elimination of behavioral deficits, reduction of excessive fears and inhibitions, transmission of self-regulating

> systems and social facilitation of behavioral patterns on a group wide scale . . . . Vicarious phenomena are generally subsumed under a variety of terms. Among those in common usage are 'modeling', 'imitation', 'observational learning', 'identification', 'copying', 'vicarious learning', 'social facilitation', 'contagion', and 'role-playing' [but] . . . . unless it can be shown that vicarious learning of different classes of matching behavior is governed by separate variables, distinctions proposed in terms of types of emulating responses not only are gratuitous but also cause unnecessary confusion.

Bandura, like some before him, does not propose a unitary theory. He divided vicarious learning with its resultant behavioral modification into three different effects. The first occurs when a model exhibits a novel response unknown to the learner. This modification he calls observational or modeling effect. The second effect is the inhibitory and disinhibitory effect. This occurs as function of witnessing a model experiencing positive outcomes and is decreased by having observed a model under punishing consequences. The third, and final, type is stated by Bandura (1969, p. 120) in the following manner:

> Finally the behavior of others often serves merely as discriminative stimuli for the observer in facilitating the occurrence of previously learned responses in the same general class. This response facilitation effect is distinguished from disinhibitation and modeling by the fact that no new responses are acquired; disinhibitory processes are not involved because the behavior in question is socially sanctioned and, therefore, has rarely, if ever, incurred punishment.

Bandura cautions against misunderstanding what is learned.

In an experiment Bandura conducted (Bandura, 1969, pp. 128-129) boys and girls observed an aggressive model. Afterwards, the boys imitated more of the model's aggressive

behavior than the girls. But when both the boys and the girls were rewarded for reproduction of the model's aggressive behavior, no differences between the two groups was observed. Bandura concluded that the aggressive behavior had been learned by the girls as well as by the boys, but the girls did not perform aggressively unless rewarded. Thus, Bandura distinguished between learning and performance in that something might be learned but not necessarily performed.

Generally, sexual differences do contribute to the reaction of people. As well documented by Dirk L. Schaeffer in his book Sex Differences in Personality Readings (1971). In researching the responses of adolescents to a lengthened Hand Test with a sexual differentiation might prove interesting.

Anastasi (1968, p. 83) contends that if a test is lengthened "other things being equal. . . . the more reliable it will be". This contention is true only if additions to the test are similar to the test to which they have been added. Little (Murstein, 1965, p. 80) suggests that the lengthening of a projective test would help specify the links between personality structure and behavior. That approach is basically an idiographic global approach. Not all who are concerned with projective testing or test theory would agree with Little. Others contend that lengthening the test might just be giving greater opportunity for

environmental or organismic variables to be verbalized.

In understanding the results of this investigation the subjects were shown drawings of male, female, and child hands; but the experimenter cannot be sure, that what the subject responded to was the maleness, the femaleness, or the childness of the stimulus card. As Mischel (1968, p. 222) points out, knowing whether this stimulus caused the responses or not cannot be ascertained for certain. That the stimulus drawing is the stimulus reacted to is the classical position. This position now is no longer held.

When considering the results collapsed across the variables of sex and instructions, statistical differences occurred between the two groups of subjects, the EMR group subjects perceived more AFF responses than the Br group. The EMR appear to see more pleasurable relationships and mutual interchange of positive affect than the Br group subjects. The EMR perceived more mutual interchange of positive affect and saw actions which were interpreted, using Wagner's understanding of the feelings behind AFF responses, as getting along well with people and as possessing an attitude which was neither too proud to accept nor too impoverished to bestow love. The EMR group exhibit a more positive adjustment implication.

When the ACQ responses were compared the EMR group perceived more of that quality described as a subjective desire to aspire to be better than oneself. This perception

has a tension and a straining quality to it, caused by a tendency to set sights higher than those goals presently attained. Often this tension is accompanied by depression and the implication of failure.

Wagner has a category designated FAIL, which indicates an inability to respond meaningfully to the stimulus. More frequently this quality is seen in the EMR group than in the Br group, perhaps implying intellectual retardation.

When the results were considered collapsed across instructions but not across sex, some differences between the EMR males and the EMR female subjects were obtained. The female EMR subjects perceived more response to the male set cards as ΣCHILD than the male EMR subjects perceived them. When the female EMR subject did not perceive the male card as male, they chose to designate it as a child hand.

When responding to the female set, the female EMR subjects perceived significantly more COM and ACT responses, showing a response set for female EMR subjects to perceive the female drawing of hands possessing more communicative qualities. COM responses can represent good social intercourse and fellowship at one pole and argumentative carping communication at the other. One of the difficulties with Wagner's interpretations is that when a subject possesses a communicative quality just how that communicative quality will be expressed cannot be understood. Subjects who have

positive COM qualities are socially positive with reciprocal feedback in their interpersonal exchanges. They are also cognizant of and pay attention to the ideas and desires of other people. More of this quality is perceived by EMR females in their response to the female set.

The EMR females perceived statistically significantly more ACT responses in their reaction to the female set than the EMR males. This ACT quality is a psychological quality rather than a physical quality, involving constructive accomplishment, a kind of psychological investment in material achievement, according to Wagner. ACT involves environmental efficiency and occurs more often in the responses of the EMR females to the female set of drawing.

No differences were found to be statistically significant when the two groups responded to the child set. In this particular instance the two groups, EMR and Br, were not different.

When the comparisons of the Br group males and Br group females were considered significant differences between their responses to the male set of stimulus drawings of hands was observed. In responding to the female set again, ΣMALE was the only category which showed statistically significant differences. Here the female Br group subjects saw more of the female set as males than did the Br male group.

In response to the final set of child cards the only statistically significant difference between the Br male subjects and the Br female subjects was in response to the TEN category, a category that Wagner has designated as implying tension and subjective discomfort from energy expenditure that the subject feels keenly. He also sees the quality as accomplishing little in face of external difficulties. In this investigation the Br males perceived more tension than the Br females in their responses to drawings of children's hands.

Sarason (1954, p. 112) considers the presenting of the instructional variable to a subject being administered a projective technique as presenting "the individual with a problem which he is called upon to resolve by himself in some way in the presence of another person". The instructions may be stressful for some individuals. This process is contrasted to instructions which might contaminate the response in the direction of the investigator's bias.

When Wagner (1969) elaborated the instructions for the Hand Test, he gave several variations which could be used, but the word "doing" was always part of those instructions. The researcher suspects that the use of the word "doing" increases the number of ACT responses but that consideration was not part of the concern of this dissertation.

The overall impression of the investigator to the responses suggests that, with caution, the non-conventional

instructions produced more variability than the conventional instructions. The conventional instruction, used with the original Hand Test, was "What is this hand doing?" The non-conventional instruction used with the Modified Hand Test was "Tell me about this hand." Between the non-conventional instructions and those used in designating instructions for the Rorschach Test little difference is noticed in the wording.

In only one category did the conventional instructions differ statistically significantly more favorably from the non-conventional instructions. This difference occurred in response to the male set on the ACQ category. In the COM category the non-conventional instructions proved more productive in the EMR group subjects' responses to the female set, and in the Br group subjects' responses to the male and child set.

In the AGG category the non-conventional instructions produced more AGG responses to the child set for the EMR group subjects. The Br group subjects responded significantly more frequently to the non-conventional instructions in the TEN category when perceiving the female set. In only one instance, in response to the child set by the EMR group subjects was there any difference between the conventional and the non-conventional instructions. The ΣFEMALE category elicited statistically significantly more responses to the non-conventional instructions.

The central concern, and perhaps the most productive part of this investigation was over the norms for the Modified Hand Test when the responses were divided into the reactions to the male, female and child sets. Some differences were noticed, occurring when the division into sets was examined which had not occurred when the data was collapsed across the sex and instructional variables. One of these differences seemed to be contradictory. As a whole the EMR group saw significantly more responses with ACQ content when the group was examined collapsed across sets, but when analyzed in sets the Br group subjects show significantly more ACQ responses to the female and child sets.

In considering AFF responses no differences were shown to exist between the two groups in their response to male, female or child sets, in contrast to the data taken as a whole when the EMR perceived more AFF than the Br group as a whole in responding to the data collapsed across sets.

The Br group subjects in response to the child set perceived significantly more DEP responses. This characteristic is one which indicates a response where a person subordinates himself in order to receive care and protection. Perhaps, it is that the Br group see children as being in need of this kind of help. In AFF an ability to reciprocate and a tendency to immaturity is noted. Br group subjects

verbalize these qualities in responding to the child set.

In their reaction to the female set the Br group saw these drawings as possessing qualities which Wagner designates EXH responses. EXH responses have a quality of pleasure derived from receiving admiration from others. EXH people are suspected of being children who were rewarded for being good, or for having some kind of special talent. The essence, however, of the category is a need for praise and to be the center of attention. This quality Br group subjects perceived more often in the female set.

DIR responses are concerned with the quality of control. The interpersonal relationships are divested of affect in order to concentrate on domination and control. This quality differs with different people. The worst phase of this quality is the perception of the world as being populated by objects or people that must be manipulated. When considered positively this quality is an administrative and leadership quality. The Br group subjects saw this quality more statistically significantly in the female set.

Apparently EMR adolescents and Br adolescents perceived nondistinguishing amounts of AGG. This quality is not socially admired and has an element which is aimed at frightening and irritating others. Hostility is implied in the meaning of AGG. When large amounts of AGG are seen in a protocol Wagner suggests that the subject is an antisocial individual who seeks to hurt others. Whatever this quality

no differences were observed between the two groups.

In evaluating the category ACQ consideration is given to a quality of reaction with the environment and with other people that implies a willingness to exert oneself in order to obtain important goals. A need is felt to go beyond the readily available. Wagner sees these people as seeking increase in knowledge, power, of status. People with ACQ qualities, according to Wagner, are at times depressed and often involved in failure experiences. When collapsed across sets this characteristic is perceived more often by EMR group subjects; but when the sets are divided ACQ is perceived more by the Br group subjects in response to both the female and to the child set. This research suggests that, in general, the response to the three sets as a group brings out ACQ responses for the EMR but for the Br group subjects ACQ is perceived more frequently to the female and child stimulus cards.

ACT responses are those which typify an attitude which involves constructive achievement, a psychological investment in material achievement. This quality the Br group subjects perceived more in the female set, and the EMR group subjects perceived more in the child set. A question which is not answered in this dissertation and one of the basic questions for the field of projective techniques is: Is the subject projecting himself or is he projecting what he conceives the role of male, female and child to be?

The EMR group subjects perceived the child set as eliciting more PAS responses than the Br group subjects. PAS responses have, in Wagner's consideration, a quality of psychological relaxation, a sense of allowing the world to go by; a feeling of passivity rather than activity. The PAS quality is that of following rather than leading, choosing a path devoid of struggle. The EMR subjects responded more to this quality in the child set than the Br group.

TEN response, according to Wagner, involve the implication of tension and subjective discomfort. Expended energy results in a subjective feeling of accomplishment which lacks success in the face of external difficulties. As stated earlier, the Br male group subjects perceived more TEN in response to the child set. When the data is collapsed across sets and analyzed without the distinction of male and female responses, no distinguishing differences between the two groups, EMR and Br group subjects, was observed. When the data is analyzed with the male and female EMR group subjects and the Br group subjects in the same group there were no differences between the two groups statistically in the manner in which they responded to the male, female or child sets.

CRIP responses have a quality which indicate that the subject projects his own psychological insufficiencies and inadequacies by physically incapacitating the hand.

Wagner also concluded that its perception may correlate with actual physical inferiority and/or impotence. In any case, a subjective feeling is projected. Any kind of inferiority intellectual, emotional, or physical, may be indicated. This quality is perceived more frequently by the Br group subjects when the data is considered collapsed across all sets and only to the child set when the material is divided into the three sets.

The category of FEAR showed no significant differences in any of the different variables. FEAR responses Wagner felt were qualities that were perceived which indicated a concern with psychological or physical injury to the self. He also indicated that sometimes the source of this fear is in other people or other things but this quality can also result from a person's own internalized hostility. On none of the variables did the EMR differ from the Br group subjects.

The category which represents a "safe" reaction to reality Wagner designated as a DES response. This response he found was typical of organics and schizophrenics, although neurotics and normals of low intellectual ability could also respond in this manner. He further indicated that fifty-five percent of the Organics gave this response while only twenty-eight percent of the Mental Retarded subjects responded in this manner. The DES response is easy or safe because the subject does not attempt interpretation

but just describes the hand. When collapsed across sets this category was not a statistically significant difference between the two groups. When the two groups of subjects responded to the male and child sets, the EMR group subjects gave statistically significantly more responses than the Br group subjects.

Wagner considers the BIZ category responses as serious, because he feels that the subject is partially or completely ignoring the actual contours of the drawn hand. Here autistic projection is possible. BIZ is a rare and illogical perception. The past indications are that the response is typical of schizophrenic subjects. Normals and neurotics do not normally formulate BIZ responses, and a genuine BIZ response is usually indicative of severe pathology. In neither of the instances, that is, when the data was collapsed across sets and when the sets were examined individually, were any significant differences indicated. Of the five BIZ responses given by the 120 subjects, three Br group subjects, Subject 16, 34 and 54 gave BIZ responses. Subject 16 gave 2 BIZ responses. The EMR group subjects had only one subject, Subject 106, who gave a BIZ response.

Organics, according to Wagner, give the most number of FAIL responses, which is higher than those of Mental Retardates. In responses given by schizophrenics and normals some FAIL responses are indicated in Wagner's studies.

Basically a FAIL response is not a response at all but the lack of a response. Sometimes this may represent neurotic ambivalence concerning the acting out of a particular life role. In this study statistical significance was noted when the sets were collapsed, at which time, the EMR group subjects indicate more productivity than the Br group. In considering the data by sets, male, female and child, the data shows that the EMR group subjects have statistically significantly more FAIL responses to the male and child sets. Why no significance was found in the female set raises questions.

When considering the ΣMALE, ΣFEMALE, ΣCHILD categories, difficulties were experienced and differences were indicated in response to the male and the child sets. No differences were shown statistically between the responding of the Br subjects and the EMR group subject in their perception of gender of the female set.

In considering the male set the Br group subjects perceived more ΣMALE to the male set and the EMR group subjects perceived more ΣFEMALE and ΣCHILD. That is, the EMR group subjects when they did not see a male stimulus card as male tended to say they were either female or child more often than the Br group subjects. However, when considering the gender of the child set, the Br group subjects significantly more often said the stimulus cards represented a child, whereas the EMR group subjects were

inclined to say that it was a female card when not perceiving it as a child's card.

Considering the responses to the three individual sets, male, female and child it would appear that the child set was more able to elicit differences between the two groups of subjects than the other sets. The child set would appear to be more ambiguous and may have evoked a greater number of categories.

The problem of analyzing the meaning of the percentages of responses for each category for each stimulus card is a very difficult one and revolves around the central problems of projective techniques. Murstein (1965, p. 50) says that it is a grievous error to assume that the stimulus that is presented to the subject is the stimulus to which he reacts. In fact the stimulus cards themselves are only part of the total stimulus. Others to be considered are of an environmental or organismic nature.

Considerable concern is now being given to the ambiguity of stimulus cards. Eron (Murstein, 1965, p. 51) considers the relationship of ambiguity to productivity of them a curvilinear relationship. To Eron the most productive stimulus cards would be those with moderate ambiguity. Those with high ambiguity frequently elicited a "response set" which was a mild cheerful response.

The percentages of responses by cards on the Modified Hand Test for the Intellectually Bright groups indicated

that certain of the stimulus cards elicited high percentages of specific responses. Five of the drawings of hands were perceived with over 60 percent of the responses in one category. These were H9 on DIR, H10 on COM, H44 on AGG, H12 on TEN, H32 and H28 on ACT. With the exception of ACT each of the cards were perceived with only one high percentage category. In itself this high percentage might have the advantage of comparing people who do not give DIR, COM, AGG, TEN and ACT responses with those who do.

When observing the results of the percentage of responses by cards on the Modified Hand Test for the Educable Mentally Retarded groups, it was found that on only one card, H44 with 81.7 percent of the responses in the AGG category, did the percentages calculate to over 60 percent. The high percentage of AGG responses on this card was high for both the EMR and the Br group.

If the percentages scrutinized were lowered to 50 percent one additional card would be added to the Intellectually Bright Group subjects, namely, H40 on ACT. For the Educable Mentally Retarded group subjects the lowering to 50 percent would add two more cards, H10 on COM and H12 on TEN.

The drawings used in the Modified Hand Test were "white" hands; that is, no attempt was made to include drawings of any ethnical differences as was the case in the Paired Hands Test of Friendliness (Zucker and Jordan, 1969).

There are indications (Murstein, 1965, p. 53) that projective productivity was enhanced by the material on which the projections were being made being the same species. The study mentioned contrasted animal and human responses. However, when the stimulus was made more akin to the subjects within species, namely, physical similarity, occupation or appearance, more meaningful objective responses were not produced. Reference to this aspect of the study will be made in the suggestions for further study.

TABLE 8

PERCENTAGE OF RESPONSES BY CARD ON THE MODIFIED HAND TEST FOR THE INTELLECTUALLY BRIGHT GROUPS

CARD NO.	AFF	DEP	COM	EXH	DIR	AGG	ΣINT	ACQ	ACT	PAS	ΣENV	TEN	CRIP	FEAR	ΣMAL	DES	FAIL	BIZ	ΣWITH	fM	fF	fC
H5	0.0	0.0	13.3	5.0	0.0	28.3	46.7	1.7	18.3	8.3	28.3	11.7	3.3	0.0	15.0	8.3	0.0	1.7	10.0	90.0	8.3	1.7
H9	0.0	0.0	6.7	0.0	66.7	1.7	75.0	0.0	13.3	0.0	13.3	1.7	0.0	0.0	1.7	10.0	0.0	0.0	10.0	98.3	0.0	1.7
H10	0.0	0.0	66.7	3.3	1.7	0.0	71.7	0.0	21.7	0.0	21.7	1.7	0.0	0.0	1.7	5.0	0.0	0.0	5.0	76.7	11.7	11.7
H12	0.0	0.0	1.7	3.3	3.3	3.3	11.7	0.0	5.0	13.3	18.3	61.7	1.7	0.0	63.3	6.7	0.0	0.0	6.7	83.3	6.7	10.0
H16	0.0	0.0	15.0	0.0	55.0	1.7	71.7	0.0	13.3	0.0	13.3	0.0	0.0	0.0	0.0	15.0	0.0	0.0	15.0	80.0	8.3	11.7
H35	8.3	1.7	6.7	1.7	8.3	3.3	30.0	5.0	30.0	20.0	55.0	8.3	1.7	1.7	11.7	3.3	0.0	0.0	3.3	86.7	11.7	1.7
H38	21.7	0.0	3.3	0.0	0.0	16.7	41.7	18.3	31.7	1.7	51.7	5.0	0.0	0.0	5.0	0.0	1.7	0.0	1.7	71.7	8.3	20.0
H42	3.3	1.7	6.7	13.3	13.3	3.3	41.7	1.7	25.0	11.7	38.3	8.3	1.7	0.0	10.0	8.3	1.7	0.0	10.0	41.7	1.7	36.7
H43	6.7	0.0	18.3	1.7	6.7	6.7	40.0	3.3	20.0	30.0	53.3	3.3	0.0	0.0	3.3	3.3	0.0	0.0	3.3	93.3	3.3	3.3
H44	1.7	0.0	3.3	1.7	5.0	66.7	78.3	0.0	3.3	1.7	5.0	15.0	0.0	1.7	16.7	0.0	0.0	0.0	0.0	96.7	3.3	0.0
H13	0.0	3.3	38.3	5.0	48.3	0.0	95.0	0.0	1.7	0.0	1.7	0.0	0.0	0.0	0.0	3.3	0.0	0.0	3.3	3.3	93.3	3.3
H15	10.0	0.0	1.7	1.7	10.0	5.0	28.3	1.7	26.7	20.0	48.3	13.3	3.3	0.0	16.7	5.0	0.0	1.7	6.7	21.7	76.7	1.7
H22	6.7	0.0	0.0	0.0	0.0	15.0	21.7	30.0	30.0	5.0	65.0	8.3	0.0	0.0	8.3	5.0	0.0	0.0	5.0	31.7	66.7	1.7
H23	0.0	0.0	10.0	1.7	11.7	1.7	25.0	15.0	45.0	10.0	70.0	5.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	23.3	71.7	5.0

TABLE 8 - Continued

CARD NO.	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	FAIL	BIZ	Σ WITH	fM	fF	fC
H24	5.0	1.7	5.0	33.3	1.7	1.7	48.3	6.7	21.7	3.3	31.7	15.0	1.7	0.0	16.7	3.3	0.0	0.0	3.3	1.7	95.0	3.3
H31	1.7	0.0	0.0	23.3	0.0	1.7	26.7	15.0	45.0	1.7	61.7	1.7	5.0	1.7	8.3	1.7	0.0	1.7	3.3	1.7	95.0	3.3
H32	0.0	0.0	6.7	0.0	15.0	3.3	25.0	0.0	61.7	10.0	71.7	1.7	0.0	0.0	1.7	1.7	0.0	0.0	1.7	23.3	75.0	1.7
H40	0.0	0.0	1.7	3.3	1.7	6.7	13.3	1.7	56.7	3.3	61.7	20.0	3.3	0.0	23.3	1.7	0.0	0.0	1.7	21.7	75.0	3.3
H45	6.7	0.0	18.3	3.3	3.3	1.7	33.3	1.7	46.7	8.3	56.7	6.7	0.0	0.0	6.7	3.3	0.0	0.0	3.3	15.0	85.0	0.0
H46	1.7	0.0	10.0	3.3	1.7	5.0	21.7	1.7	23.3	35.0	60.0	13.3	0.0	0.0	13.3	5.0	0.0	0.0	5.0	0.0	98.3	1.7
H14	21.7	3.3	5.0	3.3	1.7	1.7	36.7	13.3	25.0	5.0	43.3	13.3	1.7	0.0	15.0	5.0	0.0	0.0	5.0	35.0	1.7	63.3
H17	5.0	8.3	3.3	3.3	0.0	1.7	21.7	6.7	16.7	33.3	56.7	10.0	5.0	0.0	15.0	5.0	1.7	0.0	6.7	3.3	3.3	93.3
H18	20.0	1.7	8.3	3.3	6.7	5.0	45.0	8.3	21.7	1.7	31.7	10.0	11.7	1.7	23.3	0.0	0.0	0.0	0.0	31.7	18.3	50.0
H28	1.7	0.0	10.0	1.7	1.7	3.3	18.3	1.7	65.0	10.0	76.7	1.7	0.0	0.0	1.7	3.3	0.0	0.0	3.3	53.3	20.0	26.7
H33	36.7	0.0	11.7	0.0	5.0	11.7	65.0	0.0	23.3	1.7	25.0	6.7	0.0	0.0	6.7	3.3	0.0	0.0	3.3	68.3	8.3	23.3
H34	0.0	0.0	1.7	1.7	13.3	16.7	33.3	3.3	31.7	8.3	43.3	18.3	1.7	0.0	20.0	3.3	0.0	0.0	3.3	16.7	3.3	80.0
H36	26.7	5.0	26.7	3.3	1.7	0.0	63.3	11.7	5.0	11.7	28.3	3.3	0.0	0.0	3.3	3.3	1.7	0.0	5.0	3.3	3.3	93.3
H39	5.0	3.3	43.3	0.0	0.0	0.0	51.7	20.0	10.0	1.7	31.7	5.0	1.7	0.0	6.7	8.3	0.0	1.7	10.0	5.0	1.7	93.3
H47	8.3	1.7	28.3	3.3	3.3	1.7	45.0	20.0	21.7	3.3	45.0	5.0	1.7	0.0	6.7	3.3	0.0	0.0	3.3	0.0	1.7	98.3
H49	1.7	5.0	8.3	5.0	5.0	8.3	31.7	35.0	13.3	0.0	48.3	8.3	5.0	3.3	16.7	3.3	0.0	0.0	3.3	13.3	0.0	86.6

TABLE 9

PERCENTAGE OF RESPONSES BY CARD ON THE MODIFIED HAND TEST FOR THE EDUCABLE MENTALLY RETARDED GROUPS

CARD NO.	AFF	DEP	COM	EXH	DIR	AGG	ΣINT	ACQ	ACT	PAS	ΣENV	TEN	CRIP	FEAR	ΣMAL	DES	FAIL	BIZ	ΣWITH	fM	fF	fC
H5	8.3	0.0	3.3	1.7	0.0	33.3	46.7	0.0	16.7	3.3	20.0	8.3	5.0	0.0	13.3	20.0	0.0	0.0	20.0	76.7	8.3	15.0
H9	0.0	0.0	36.7	1.7	15.0	1.7	55.0	1.7	13.3	1.7	16.7	0.0	0.0	0.0	0.0	28.3	0.0	0.0	28.3	78.3	13.3	8.3
H10	8.3	0.0	58.3	1.7	1.7	3.3	73.3	0.0	6.7	6.7	13.3	0.0	0.0	0.0	0.0	13.3	0.0	0.0	13.3	65.0	6.7	28.3
H12	0.0	0.0	0.0	1.7	0.0	0.0	1.7	0.0	3.3	20.0	23.3	51.7	3.3	0.0	55.0	11.7	8.3	0.0	20.0	73.3	3.3	23.3
H16	0.0	0.0	33.3	1.7	11.7	3.3	50.0	5.0	11.7	5.0	21.7	1.7	0.0	0.0	1.7	25.0	1.7	0.0	26.7	56.7	20.0	23.3
H35	8.3	0.0	10.0	0.0	6.7	1.7	26.7	8.3	10.0	21.7	40.0	5.0	3.3	0.0	8.3	23.3	1.7	0.0	25.0	51.7	46.7	1.6
H38	20.0	0.0	8.3	8.3	0.0	10.0	46.7	13.3	10.0	0.0	23.3	1.7	0.0	0.0	1.7	21.7	6.7	0.0	28.3	66.7	16.7	16.7
H42	0.0	0.0	15.0	3.3	6.7	10.0	35.0	5.0	21.7	5.0	31.7	3.3	5.0	0.0	8.3	16.7	8.3	0.0	25.0	45.0	15.0	40.0
H43	6.7	1.7	3.3	1.7	5.0	8.3	26.7	1.7	11.7	26.7	40.0	8.3	0.0	0.0	8.3	25.0	0.0	0.0	25.0	68.3	21.7	10.0
H44	0.0	0.0	3.3	0.0	0.0	81.7	85.0	0.0	1.7	0.0	1.7	6.7	0.0	0.0	6.7	6.7	0.0	0.0	6.7	96.7	1.7	1.7
H13	0.0	0.0	31.7	1.7	20.0	1.7	55.0	0.0	3.3	1.7	5.0	0.0	0.0	0.0	0.0	38.3	1.7	0.0	40.0	5.0	85.0	10.0
H15	10.0	1.7	0.0	6.7	0.0	1.7	20.0	6.7	8.3	35.0	50.0	8.3	0.0	0.0	8.3	20.0	1.7	0.0	21.7	10.0	83.3	6.7
H22	5.0	1.7	0.0	0.0	0.0	20.0	26.7	25.0	10.0	15.0	50.0	5.0	3.3	1.7	10.0	11.7	1.7	0.0	13.3	8.3	88.3	3.3
H23	0.0	0.0	13.3	0.0	10.0	1.7	25.0	6.7	36.7	11.7	55.0	0.0	0.0	0.0	0.0	18.3	1.7	0.0	20.0	18.3	75.0	6.7

TABLE 9 - Continued

CARD NO.	AFF	DEP	COM	EXH	DIR	AGG	INT	ACQ	ACT	PAS	ENV	TEN	CRIP	FEAR	MAL	DES	FAIL	BIZ	WITH	fM	fF	fC
H24	10.0	0.0	10.0	10.0	5.0	1.7	36.7	10.0	11.7	5.0	26.7	11.6	0.0	0.0	11.7	20.0	5.0	0.0	25.0	8.3	86.7	5.0
H31	5.0	1.7	15.0	15.0	0.0	3.3	40.0	5.0	20.0	6.7	31.7	1.7	5.0	0.0	6.7	18.3	3.3	0.0	21.7	5.0	90.0	5.0
H32	1.7	0.0	16.7	5.0	1.7	5.0	30.0	0.0	35.0	8.3	43.3	1.7	1.7	0.0	3.3	20.0	3.3	0.0	23.3	21.7	75.0	3.3
H40	1.7	0.0	0.0	3.3	0.0	13.3	18.3	1.7	21.7	15.0	38.3	26.7	1.7	0.0	28.3	13.3	1.7	0.0	15.0	33.3	55.0	11.7
H45	1.7	1.7	15.0	8.3	1.7	3.3	31.7	5.0	11.7	5.0	21.7	10.0	5.0	0.0	15.0	20.0	10.0	1.7	31.7	13.3	83.3	3.3
H46	10.0	0.0	6.7	3.3	3.3	8.3	31.7	1.7	13.3	16.7	31.7	6.7	1.7	0.0	8.3	26.7	1.7	0.0	28.3	3.3	95.0	1.7
H14	15.0	0.0	6.7	3.3	1.7	0.0	26.7	8.3	16.7	10.0	35.0	11.7	1.7	0.0	13.3	21.7	3.3	0.0	25.0	30.0	13.3	56.7
H17	3.3	0.0	3.3	10.0	0.0	1.7	18.3	1.7	6.7	41.7	50.0	16.7	0.0	0.0	16.7	11.7	3.3	0.0	15.0	15.0	1.7	83.3
H18	16.7	1.7	5.0	0.0	1.7	5.0	30.0	6.7	16.7	18.3	41.7	6.7	0.0	0.0	6.7	16.7	5.0	0.0	21.7	15.0	41.7	43.3
H28	0.0	0.0	18.3	5.0	0.0	1.7	25.0	3.3	31.7	18.3	53.3	1.7	0.0	0.0	1.7	16.7	3.3	0.0	20.0	41.7	30.0	28.3
H33	15.0	1.7	3.3	3.3	11.7	15.0	50.0	1.7	5.0	18.3	25.0	3.3	0.0	0.0	3.3	18.3	3.3	0.0	21.7	41.7	23.3	35.0
H34	3.3	0.0	6.7	0.0	6.7	23.3	40.0	3.3	15.0	10.0	28.3	11.7	5.0	0.0	16.7	13.3	1.7	0.0	15.0	50.0	3.3	46.7
H36	21.7	3.3	18.3	1.7	1.7	1.7	48.3	5.0	0.0	21.7	26.7	5.0	1.7	0.0	6.7	16.7	1.7	0.0	18.3	11.7	15.0	73.3
H39	3.3	1.7	33.3	0.0	0.0	3.3	41.7	3.3	13.3	5.0	21.7	5.0	1.7	0.0	6.7	30.0	0.0	0.0	30.0	1.7	11.7	86.7
H47	1.7	0.0	36.7	1.7	1.7	5.0	46.7	11.7	11.7	3.3	26.7	3.3	1.7	0.0	5.0	21.7	0.0	0.0	21.7	16.7	1.7	81.7
H49	3.3	3.3	18.3	0.0	3.3	8.3	36.7	18.3	11.7	3.3	33.3	6.7	0.0	0.0	6.7	18.3	5.0	0.0	23.3	16.7	3.3	80.0

CHAPTER VII

SUMMARY AND CONCLUSION

Summary

Wagner and his associates researched the original Hand Test and found that the test adequately identified basic personality characteristics. This information has been indicated in the review of the literature. Other independent researchers have with qualifications agreed with the original concepts. The Hand Test has been used to discriminate "good" and "bad" workers; assultive and non-assaultive delinquents; recidivist and non-recidivist delinquents; aggressive and non-aggressive undifferentiated schizophrenics; satisfactory and unsatisfactory workers; male neurotics with marked overt psycho-sexual problems and a group of neurotics without pronounced sexual abberations.

The Modified Hand Test was a completely new set of stimulus cards depicting the drawings of male, female and children's hands. Each set, the male set, the female set, and the child set consisted of ten drawings in each set similar to the original nine cards of the Hand Test with the difference that each set had its own identifiable drawings

of a hand as a male, female or child hand according to the particular set of drawings.

The primary reason for this investigation was not to further substantiate previously existing conclusions concerning the Hand Test but to investigate the effects of additional independent variables. The researcher was concerned with the additional variables of age and sex which were discriminable in the drawings of hands. Wagner's original drawings of hands appeared to the investigator to be extremely ambiguous concerning maleness, femaleness, or childness. Ambiguity also existed with respect to the age of the original drawings of hands in the Hand Test.

The researcher, in developing the Modified Hand Test attempted to alter Wagner's Hand Test using drawings of female, male, and children's hands which were otherwise comparable to Wagner's nine original hand drawings in line composition gesture, and size. The resulting 86 stimulus cards were further researched, resulting in the final 30 card Modified Hand Test. With this modified instrument the previously stated postulate that the perception of age and gender will influence the content of the projected responses. Although the researcher introduced an instructional variable, administration, scoring and qualitative considerations were based on Wagner's principles.

The Modified Hand Test was administered individually to two groups of subjects; one comprising 30 male and 30

female educable mentally retarded public school adolescents and the other group 30 male and 30 female intellectually bright public school adolescents. Each of these two groups were further divided into 15 male and 15 female educable mentally retarded public school adolescents and 15 male and 15 female intellectually bright public school adolescents. The division of the two main groups, intellectually bright and educable mentally retarded, was made in order that different instructions could be given to each half of the group. One half was given the instructions, called the conventional instructions: "What is the hand doing?" The other half was given the non-conventional instructions: "Tell me about this hand." The 120 subjects were all attending middle schools with enrollments exceeding 200 students in predominantly white middle-class communities in towns with a population of from 15 to 20 thousand.

The two groups, intellectually bright and educable mentally retarded, were matched on chronological age, number of children in the subject's family, the ordinal position of the adolescent in the family, as well as socio-economical status of the subject's family. The ages of the subjects ranged from 12 to 18 years.

The results of the responses on the Modified Hand Test were skewed. Medians and semi-interquartile ranges were calculated for each scoring category in each group. The Median Test, with Yates correction for continuity, was

used to test for significant differences between the groups.

Conclusions

All six of the null hypotheses were rejected and differences were shown to exist statistically between the two groups when the frequency of responses were compared across sets, between male and female educable mentally retarded subjects; between male and female intellectually bright subjects; between conventional and non-conventional instructions. Finally, the core of this investigation, between the educable mentally retarded adolescents and the intellectually bright adolescents as a result of their responding to the male, female, and child sets of drawings of hands.

The intellectually bright group subjects showed statistically significantly more CRIP responses than the educable mentally retarded group subjects who showed statistically significantly more ACQ, AFF, and FAIL responses when the data was considered collapsed across sets. The data indicated little difference between male and female educable mentally retarded subjects, the female perceiving statistically significantly more ΣCHILD in the male set, COM and ACT in the female set and no differences at all in the child set. The intellectually bright group males and females differed on only two categories. The males perceived statistically significantly more TEN to the child set and the females more ΣMALE to the female set.

Eight statistically significant differences occurred in comparing the conventional and non-conventional instructions. Seven of these were in favor of the non-conventional instructions: "Tell me about this hand." The non-conventional instructions would appear to be more productive than the conventional instructions but as there were no systematic differences this conclusion was cautiously accepted.

The responses to the male set showed the intellectually bright subjects statistically significantly more able to perceive ΣMALE than the educable mentally retarded subjects who saw more DES, FAIL, ΣFEMALE and ΣCHILD. In response to the female set the statistically significantly greater differences were all in the direction of the intellectually bright group who tended to see more EXH responses than the educable mentally retarded subjects and significantly differently on DIR, ACQ and ACT. In the very productive responses to the child set, the intellectually bright perceived more DEP, ACQ, CRIP, and ΣCHILD, while the educable mentally retarded produced significantly more responses by category to the ACT, PAS, DES, FAIL, and ΣFEMALE categories.

While the addition of the sex and age variables to the Modified Hand Test helps overcome some of the criticism of the original Hand Test the questionable scoring problems still remain. Another important question that still remains

is the use of this test in educational evaluation of children and adolescents in clinical settings. The theoretical basis for interpretation of results of either the Modified Hand Test or the original Hand Test is vague and not adequately articulated. A suggestion for the modification of the categories and the theoretical basis for interpretation is suggested in the following section.

Implications for Further Study

The normative data in this study covers only a small group and additional data will need to be collected on other groups. Some of the drawings are not as discriminating on the variable of age and sex as the pilot study indicated and further investigation with perhaps replacement of some of the drawings will need to be considered.

Theodore Million (1969, pp. 220-301) suggests a revised nosology for mild pathological patterns. In addition to his own understanding of abnormal psychology, he relates the revised nosological categories to older categories. He takes the traditional psychiatric syndomes, Freudian character types, Honey's neurotic types, Fromm's personality orientations, Leary's interpersonal personalities. Wolman's character neuroses and McNair and Lorr's interpersonal types, and relates them to his own eight mild patterns. The approach that Million takes is to divide the patterns into four attitudes. These are detached, dependent, independent and ambivalent. He then divides each of these into a passive

and active form which gives the eight mild pathological patterns. This could supply the groundwork for a theoretical basis for understanding the responses of a Modified Hand Test. There are parallels, for example, Wagner's EXH category appears clinically close to Million's active dependent type which he designates gregarious. The researcher feels that this could prove a fruitful area of research.

In the original work by Bricklin, Piotrowski and Wagner (1962, pp. 92-93) the relationship of the test to reading problems is raised. No studies have been published which relate to this question.

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APPENDIX A

PILOT STUDY AND MODIFIED HAND TEST ILLUSTRATIONS

TABLE 10

RANK ORDER OF THE FIFTY HAND CARDS IN ORDER OF INCREASING SEX DISCRIMINABILITY

Hand Card Number	Proportion of the Ss Seeing a Male Hand	Proportion of the Ss Seeing a Female Hand	Chi Square	P
21	.49	.51	.024	>.90
36	.54	.46	.44	<.50
41	.46	.54	.44	<.50
30	.55	.45	.44	<.50
28	.56	.44	1.00	>.30
37	.57	.43	1.23	<.30
4	.42	.58	1.24	<.30
39	.41	.59	2.11	<.20
17	.59	.41		
14	.60	.40	3.16	<.10
47	.61	.39	3.24	<.10
8	.60	.40	3.16	<.10
18	.36	.64	5.51	<.02
26	.65	.35	6.12	<.02
29	.35	.65	6.61	<.01
25	.65	.35	6.61	<.01
33	.65	.35	7.11	<.01
50	.68	.32	8.68	<.01
19	.67	.33	8.55	<.01
2	.33	.67	9.68	<.01
27	.68	.32	9.11	<.01
11	.32	.68	9.11	<.01
12	.71	.29	12.96	<.001
20	.71	.29	13.61	<.001
49	.76	.24	19.01	<.001
16	.76	.24	19.01	<.001
10	.78	.22	23.90	<.001
34	.79	.21	27.13	<.001
3	.70	.30	26.12	<.001
6	.80	.20	28.44	<.001
23	.17	.83	33.38	<.001
43	.83	.17	33.38	<.001
35	.83	.17	33.38	<.001
38	.84	.16	36.00	<.001
32	.16	.84	36.00	<.001
42	.85	.15	38.71	<.001
1	.85	.15	38.71	<.001
5	.86	.14	41.52	<.001
7	.13	.87	44.44	<.001
48	.89	.11	48.65	<.001
40	.10	.90	50.57	<.001

TABLE 10 - Continued

Hand Card Number	Proportion of the Ss Seeing a Male Hand	Proportion of the Ss Seeing a Female Hand	Chi Square	P
22	.09	.91	52.81	<.001
15	.09	.91	52.81	<.001
9	.93	.07	60.49	<.001
45	.07	.93	60.49	<.001
44	.94	.06	60.49	<.001
13	.07	.93	60.49	<.001
24	.01	.99	75.11	<.001
31	.01	.99	75.11	<.001
46	.00	1.00	78.01	<.001

TABLE 11

ARRANGEMENT OF SEXUALLY AMBIGUOUS HANDS
ACCORDING TO AGE DISCRIMINABILITY

Hand Card Number	Proportion of Ss Seeing CHILD	Proportion of Ss Seeing ADULT	Chi Square	P
NEITHER CHILD OR ADULT:				
4	.49	.51	0	
21	.41	.59	1.82	<.20
37	.60	.40	3.16	<.10
SEEN AS ADULT HANDS:				
41	.35	.65	7.11	<.01
30	.21	.79	25.31	<.001
SEEN AS CHILDREN'S HANDS:				
28	.65	.35	6.61	<.01
14	.78	.22	23.11	<.001
36	.90	.10	50.57	<.001
39	.96	.04	70.31	<.001
8	.94	.06	60.49	<.001
17	.97	.03	69.32	<.001
47	.98	.02	73.11	<.001

NOTE: The numbers of sexually ambiguous hands placed in either the "child", "adult", or "age-ambiguous" category were 7, 2, and 3 respectively; these differences were not statistically significant, $\chi^2(df=2) = 3,50$, $p < .20$. In conclusion, a card that is identified as ambiguous with respect to sex, is just as likely to be seen as a child's hand, as an adult's hand, or as an age-ambiguous hand.

TABLE 12

ARRANGEMENT OF MALE HANDS IN TERMS OF THEIR AGE DISCRIMINABILITY

Hand Card Number	Proportion of Ss Seeing CHILD	Proportion of Ss Seeing ADULT	Chi Square	P
NEITHER CHILD OR ADULT:				
12	.43	.57	1.26	< .30
20	.56	.44	1.01	> .30
6	.58	.42	1.78	< .20
42	.40	.60	3.16	< .10
48	.52	.48	.05	< .80
38	.41	.59	2.41	> .10
SEEN AS ADULT HANDS:				
5	.37	.65	4.93	< .05
9	.13	.87	41.65	< .001
10	.28	.72	14.27	< .001
16	.31	.69	11.11	< .001
44	.09	.91	53.78	< .001
43	.20	.80	28.44	< .001
35	.04	.96	67.60	< .001
SEEN AS CHILDREN'S HANDS:				
27	.93	.07	56.11	< .001
26	.94	.06	58.53	< .001
25	.90	.10	49.61	< .001
19	.89	.11	45.57	< .001
3	.90	.10	49.61	< .001
1	.85	.15	38.71	< .001
49	.80	.20	26.78	< .001
34	.71	.29	12.32	< .001

NOTE: The numbers of male hands placed in either the "child", "adult", or "age ambiguous" category were 8, 7, and 6; these differences were not statistically significant, χ^2 (df=2) = 28, P <.90. In conclusion, a card that is identified as a male card is as likely to be seen as a child's hand as it is to be seen as an adult's hand or as an age-ambiguous hand.

TABLE 13

ARRANGEMENT OF FEMALE HANDS IN TERMS OF THEIR AGE DISCRIMINABILITY

Hand Card Number	Proportion of Ss Seeing CHILD	Proportion of Ss Seeing ADULT	Chi Square	P
NEITHER CHILD OR ADULT:				
11	.60	.40	2.81	.10
2	.43	.57	1.23	.30
SEEN AS ADULT HANDS:				
7	.32	.68	9.68	.01
15	.12	.88	44.44	.001
13	.17	.83	33.38	.001
22	.15	.85	37.81	.001
24	.07	.93	57.08	.001
29	.33	.67	9.11	.01
31	.31	.69	12.01	.001
40	.20	.80	28.44	.001
32	.09	.91	53.77	.001
45	.04	.96	66.60	.001
23	.07	.93	57.08	.001
46	.09	.91	52.81	.001
SEEN AS CHILDREN'S HANDS:				
18	.71	.29	13.61	.001
33	.67	.33	8.35	.01

NOTE: The numbers of female hands placed in either the "child", "adult", or "age ambiguous" category were 2, 12, and 2 respectively; these differences were statistically significant, $\chi^2(df=2) = 12.50$, $P < .01$. In conclusion, a card that is identified as a female hand is most likely to be seen as an Adult hand also.

Differences in Sex-Age Identification between Males and Females

There were 81 college subjects who responded to the 50 original drawings (one blank); among these 55 were females and 26 males. To determine whether males and females differed in the average number of cards identified as male-adult, male-child, female-adult, and female-child hands, four separate independent sample t-tests (all meeting the homogeneity of variance assumption, F max) were calculated.

Male-Adult Identification. The average number of drawings identified as male-adult hands for males and females were 13.00 and 11.40 respectively, $t(df=79) = 1.44$, $P > .10$. Thus, males and females did not differ in their tendency to see male-adult drawings.

Male-Child Identification. The average number of drawings identified as male-child hands for males and females were 13.57 and 14.47 respectively, $t(df-79) = .70$, $P > .10$. Thus males and females did not differ in their tendency to see male-child drawings.

Female-Adult Identification. The average number of drawings identified as female-adult hands for males and females were 14.70 and 13.00 respectively, $t(df=79) = 1.75$, $P < .05$). Thus, males tended to see significantly more hands as female-adult hands than did females. This finding may have relevance in interpreting the dynamic significance of responses made to female-adult hands when admin-

istered to male subjects who tend to "see adult-feminine qualities" in hands to a greater extent than do females.

Female-Child Identification. The average number of drawings identified as female-child hands for males and females were 8.15 and 10.62 respectively, t(df=79) = 1.95, P .05. Thus females tended to see significantly more hands as female-child hands than did males. This finding may be useful in understanding the psychodynamics of females (or males) to child hands since males will tend to see fewer "female qualities" than females.

Hand Selection Procedure

1. Male Hand Drawings (N = 10) = 5, 9, 10, 12, 16, 35, 38, 42, 43, 44 (See Table 12).

The following seven hand drawings were selected by a significant majority of the raters as being predominantly adult male hands: (5, 9, 10, 16, 35, 43, 44).

Hand drawings 38 and 42 were selected because they showed a statistical trend toward being perceived as predominantly male adult hands. (38, 42).

From the remaining cards selected as male hand drawing cards, H-12 was selected because it was seen as significantly more male than female and as proportionately more adult than child.

2. Female Hand Drawings (N = 10) H = 13, 15, 22, 23, 24, 31, 32, 40, 45, 46 (See Table 4).

From the twelve cards seen significantly as being

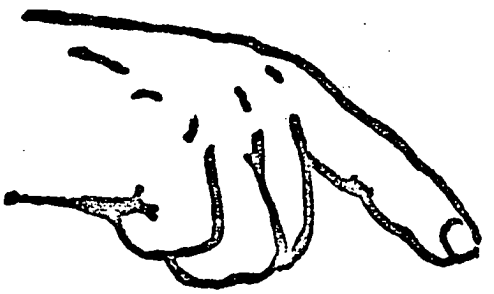
both adult and female hands, the ten most discriminating cards were selected.

3. Children's Hand Drawings (N = 10) H = 14, 17, 18, 28, 33, 34, 36, 39, 47, 49 (See Tables 2, 3, and 4).

Seven sexually ambiguous hands were seen as children's hands by a significant majority of the 81 raters (See Table 11). Of these seven only six, 14, 17, 28, 36, 39, 47, were retained since it was discovered that accidentally H-8 and H-17 were the same drawing. The proportion of raters seeing card 8 as a child's hand was .94 while the proportion of raters seeing card 17 as a child's hand drawing was .97; both had Chi Square significances at the .001 level. This evidence lends credibility to the reliability of the raters on age discriminability.

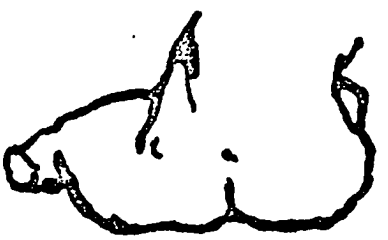
Four cards were selected from the remaining hand drawings which were perceived as being male child and female child. The resulting two male and two female cards were matched primarily for similarity of proportions on the child/adult dimension. (18, 33, 34, 49).

H-5
Male Set



H-9
Male Set

H-10
Male Set



H-12
Male Set

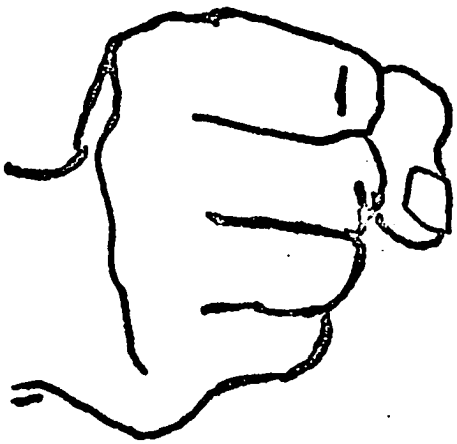
H-16
Male Set

H-35
Male Set

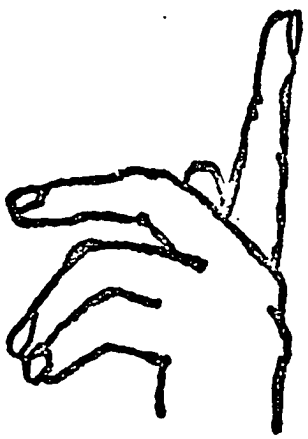
H-38
Male Set

H-42
Male Set

H-43
Male Set



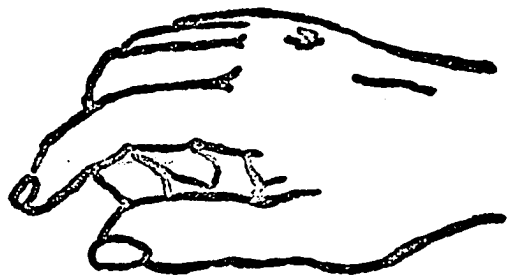
H-44
Male Set



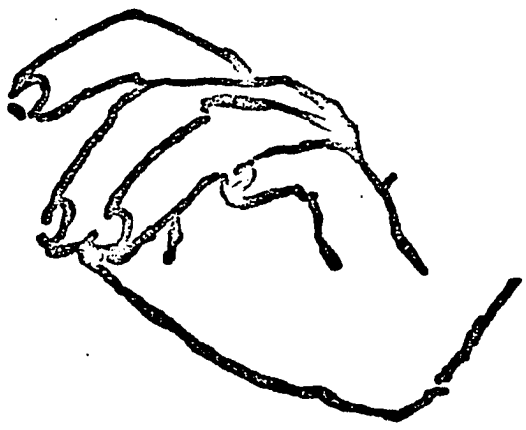
H-13
Female Set

H-15
Female Set

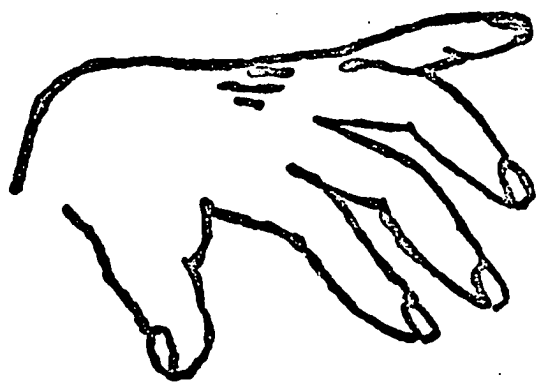
H-22
Female Set



H-23
Female Set



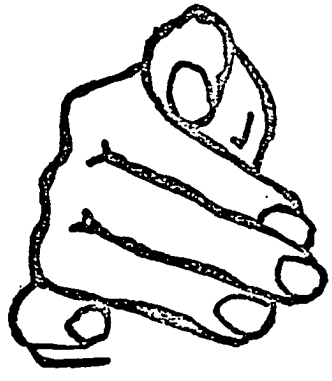
H-24
Female Set



H-31
Female Set

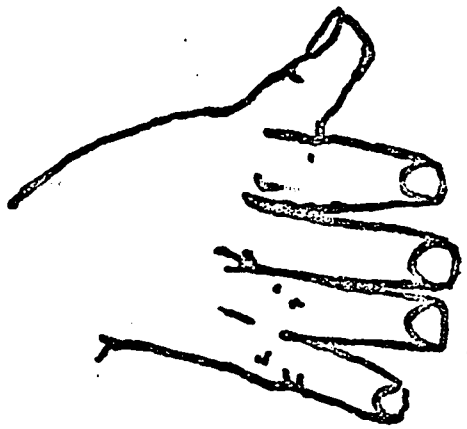
H-32
Female Set

H-40
Female Set



H-45
Female Set

H-46
Female Set

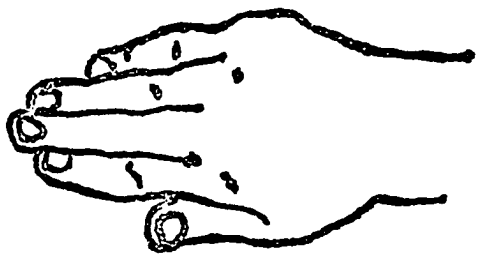


H-14
Child Set

H-17
Child Set

H-18
Child Set

H-28
Child Set

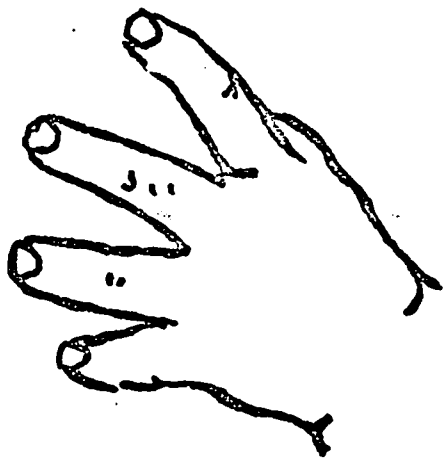


H-33
Child Set

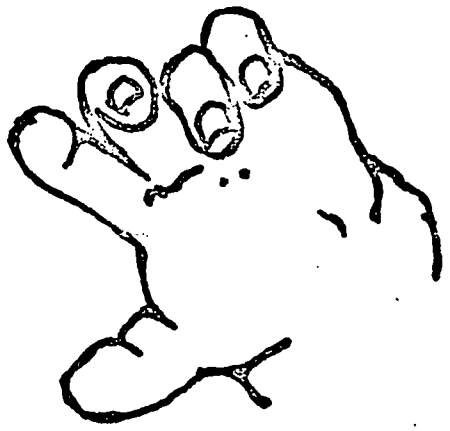
H-34
Child Set

H-36
Child Set

H-39
Child Set



H-47
Child Set



H-49
Child Set

APPENDIX B

INTERPRETIVE DATA

TABLE 14

DESCRIPTIVE INFORMATION FOR INTELLECTUALLY BRIGHT GROUP SUBJECTS

Subject	Sex	C.A. Years	I.Q.	Number of Children in Family	Ordinal Position of Subject	Socio-Economic Status	Instructional Variable (N = Novel) (C = Conventional)
S_1	M	13-9	119	3	2	M	C
S_2	F	13-9	122	4	2	L	N
S_3	M	13-11	120	3	2	M	N
S_4	F	16-2	120	2	1	M	C
S_5	M	12-7	116	5	1	L	C
S_6	F	15-7	118	4	2	M	N
S_7	M	13-4	114	3	2	M	N
S_8	F	15-4	118	3	2	M	C
S_9	M	13-2	115	2	2	M	C
S_{10}	F	13-1	112	5	5	L	N
S_{11}	M	15-2	116	2	2	U	N
S_{12}	F	12-8	115	3	1	M	C
S_{13}	M	14-0	120	4	3	M	C
S_{14}	F	17-9	120	3	3	U	N
S_{15}	M	14-1	111	5	1	M	N
S_{16}	F	17-1	111	3	2	U	C
S_{17}	M	15-2	110	5	4	M	C
S_{18}	F	16-5	120	4	4	L	N
S_{19}	M	16-3	115	2	1	M	N
S_{20}	F	18-4	120	2	2	M	C

TABLE 14 - Continued

Subject	Sex	C.A. Years	I.Q.	Number of Children in Family	Ordinal Position of Subject	Socio-Economic Status	Instructional Variable (N = Novel) (C = Conventional)
S_{21}	M	15-0	117	2	1	M	C
S_{22}	F	16-1	113	3	1	M	N
S_{23}	M	12-5	122	5	2	M	N
S_{24}	F	12-7	123	6	4	M	C
S_{25}	M	13-10	122	3	1	M	C
S_{26}	F	14-2	121	3	1	M	N
S_{27}	M	14-4	112	2	2	L	N
S_{28}	F	14-3	110	3	2	M	C
S_{29}	M	14-4	114	7	4	L	C
S_{30}	F	18-1	118	2	2	M	N
S_{31}	M	18-2	111	5	4	M	N
S_{32}	F	17-4	112	9	7	L	C
S_{33}	M	14-3	122	3	2	L	C
S_{34}	F	17-0	117	9	8	L	N
S_{35}	M	12-1	113	2	2	M	N
S_{36}	F	16-3	118	2	2	M	C
S_{37}	M	17-10	115	2	2	U	C
S_{38}	F	17-10	121	3	3	L	N
S_{39}	M	17-11	121	2	2	M	N
S_{40}	F	17-3	120	1	1	U	C
S_{41}	M	17-4	110	4	2	M	C

TABLE 14 - Continued

Subject	Sex	C.A. Years	I.Q.	Number of Children in Family	Ordinal Position of Subject	Socio-Economic Status	Instructional Variable (N = Novel) (C = Conventional)
S_{42}	F	18-0	124	3	2	M	N
S_{43}	M	16-6	115	4	4	M	N
S_{44}	F	12-4	120	3	3	L	C
S_{45}	M	17-0	119	6	1	M	C
S_{46}	F	13-1	125	4	2	M	N
S_{47}	M	15-0	113	1	1	U	N
S_{48}	F	13-4	124	4	3	M	C
S_{49}	M	12-5	119	3	3	M	C
S_{50}	F	17-4	116	6	1	M	N
S_{51}	M	13-5	111	3	2	M	N
S_{52}	F	12-6	112	5	4	L	C
S_{53}	M	12-6	117	2	1	M	C
S_{54}	F	12-9	125	4	4	U	N
S_{55}	M	16-2	121	3	1	U	N
S_{56}	F	12-8	125	3	1	U	C
S_{57}	M	12-5	121	5	3	U	C
S_{58}	F	12-9	123	8	5	L	N
S_{59}	M	15-0	117	3	1	M	N
S_{60}	F	17-11	123	3	3	U	C

TABLE 15

DESCRIPTIVE INFORMATION FOR EMR SUBJECTS

Subject	Sex	C.A. Yr.	C.A. Mo.	I.Q.	Number of Children in family	Ordinal Position	Socio-economic status	Instructional variable
S_{61}	M	14	1	77	3	2	Mid	C
S_{62}	F	14	8	69	4	2	Low	N
S_{63}	M	14	1	71	3	2	Mid	N
S_{64}	F	16	4	66	2	1	Mid	C
S_{65}	M	13	4	77	5	1	Low	C
S_{66}	F	15	8	66	4	2	Mid	N
S_{67}	M	14	3	65	3	2	Mid	N
S_{68}	F	15	0	70	3	2	Mid	C
S_{69}	M	12	3	78	2	2	Mid	C
S_{70}	F	13	4	76	5	5	Low	N
S_{71}	M	15	11	72	2	2	Upper	N
S_{72}	F	13	6	71	3	1	Mid	C
S_{73}	M	14	11	65	4	3	Mid	C
S_{74}	F	17	8	77	3	3	Upper	N
S_{75}	M	13	3	76	5	2	Mid	N
S_{76}	F	17	3	79	3	2	Upper	C
S_{77}	M	15	4	73	5	4	Mid	C
S_{78}	F	15	11	68	4	4	Low	N
S_{79}	M	15	2	75	2	1	Mid	N
S_{80}	F	18	10	65	2	2	Mid	C

TABLE 15 - Continued

Subject	Sex	C.A. Yr.	C.A. Mo.	I.Q.	Number of Children in family	Ordinal Position	Socio-economic status	Instructional variable
S_{81}	M	15	1	68	2	1	Mid	C
S_{82}	F	16	4	67	3	1	Mid	N
S_{83}	M	12	9	77	5	2	Mid	N
S_{84}	F	12	6	63	6	4	Mid	C
S_{85}	M	13	5	78	2	1	Mid	C
S_{86}	F	14	5	66	3	1	Mid	N
S_{87}	M	14	5	77	2	2	Low	N
S_{88}	F	14	0	65	3	2	Mid	C
S_{89}	M	15	3	68	7	4	Low	C
S_{90}	F	17	3	72	2	2	Mid	N
S_{91}	M	18	11	74	5	4	Mid	N
S_{92}	F	17	9	68	9	7	Low	C
S_{93}	M	15	1	73	3	2	Low	C
S_{94}	F	16	1	75	9	8	Low	N
S_{95}	M	18	5	79	2	2	Mid	N
S_{96}	F	16	6	68	2	2	Mid	C
S_{97}	M	17	2	79	2	2	Upper	C
S_{98}	F	17	1	66	3	3	Low	N
S_{99}	M	18	10	76	2	2	Mid	N
S_{100}	F	17	2	65	1	1	Upper	C
S_{101}	M	17	9	75	4	2	Mid	C

TABLE 15 - Continued

Subject	Sex	C.A. Yr.	C.A. Mo.	I.Q.	Number of Children in family	Ordinal Position	Socio-economic status	Instructional variable
S_{102}	F	17	6	72	3	2	Mid	N
S_{103}	M	16	9	66	4	4	Mid	N
S_{104}	F	12	11	75	3	3	Low	C
S_{105}	M	17	0	65	6	1	Mid	C
S_{106}	F	12	11	65	4	2	Mid	N
S_{107}	M	15	4	65	1	1	Upper	N
S_{108}	F	14	2	78	4	2	Mid	C
S_{109}	M	12	5	73	3	3	Mid	C
S_{110}	F	16	11	66	6	1	Mid	N
S_{111}	M	14	0	69	3	2	Mid	N
S_{112}	F	12	2	76	5	4	Low	C
S_{113}	M	12	0	73	2	1	Mid	C
S_{114}	F	12	2	65	4	4	Upper	N
S_{115}	M	15	11	74	3	1	Upper	N
S_{116}	F	12	9	65	3	1	Upper	C
S_{117}	M	13	2	74	5	3	Upper	C
S_{118}	F	12	11	68	8	5	Low	N
S_{119}	M	15	8	77	3	1	Mid	N
S_{120}	F	17	2	65	3	3	Upper	C

TABLE 16

ITEM ANALYSIS OF RESPONSES FOR CONTROL GROUP SUBJECTS ON THE MODIFIED HAND TEST

	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	FAIL	BIZ	Σ WITH	Σ M	Σ F	Σ C
S_1																						
M	1	0	1	0	2	1		0	2	1		1	0	0		1	0	0		9	0	1
F	0	0	1	1	1	0		1	4	1		1	0	0		0	0	0		0	10	0
C	0	1	2	0	0	0		1	3	1		1	1	0		0	0	0		2	1	7
Total	1	1	4	1	3	1	11	2	9	3	14	3	1	0	4	1	0	0	1	11	11	8
S_2																						
M	0	0	0	0	3	2		1	1	1		2	0	0		0	0	0		9	1	0
F	0	0	1	0	2	0		2	4	1		0	0	0		0	0	0		1	9	0
C	1	0	2	1	0	0		1	5	0		0	0	0		0	0	0		4	0	6
Total	1	0	3	1	5	2	12	4	10	2	16	2	0	0	2	0	0	0	0	14	10	6
S_3																						
M	0	0	0	0	2	2		4	0	1		0	0	0		1	0	0		6	0	4
F	0	0	0	0	1	1		1	2	3		0	1	0		0	0	0		1	9	0
C	0	0	1	0	0	1		0	6	1		0	0	0		1	0	0		4	0	6
Total	0	0	1	0	3	4	8	5	8	5	18	0	1	0	1	2	0	0	2	11	9	10

TABLE 16 - Continued

	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	FAIL	BIZ	Σ WITH	Σ M	Σ F	Σ C
S_4																						
M	0	0	1	1	2	2		0	1	1		2	0	0		0	0	0		9	0	1
F	0	0	1	1	1	0		1	3	2		1	0	0		0	0	0		2	8	0
C	1	1	0	0	0	1		4	1	0		1	0	1		0	0	0		3	0	7
Total	1	1	2	2	3	3	12	5	5	3	13	4	0	1	5	0	0	0	0	14	8	8
S_5																						
M	0	0	1	0	2	1		0	3	3		0	0	0		0	0	0		9	1	0
F	0	0	1	1	1	0		0	6	1		0	0	0		0	0	0		5	5	0
C	0	0	3	0	0	0		3	4	0		0	0	0		0	0	0		4	1	5
Total	0	0	5	1	3	1	10	3	13	4	20	0	0	0	0	0	0	0	0	18	7	5
S_6																						
M	1	0	5	0	0	2		0	1	0		1	0	0		0	0	0		10	0	0
F	2	0	4	0	0	0		1	3	0		0	0	0		0	0	0		1	9	0
C	2	1	1	1	0	0		3	1	1		0	0	0		0	0	0		4	0	6
Total	5	1	10	0	2	19	4	5	1	10	1	0	0	1	0	0	0	0	0	15	9	6
S_7																						
M	1	0	2	0	1	1		0	2	1		2	0	0		0	0	0		7	2	1
F	0	0	1	0	0	1		1	3	0		4	0	0		0	0	0		2	8	0
C	0	0	4	0	2	0		0	2	0		1	0	0		1	0	0		0	3	7
Total	1	0	7	0	3	2	13	1	7	1	9	7	0	0	7	1	0	0	1	9	13	8

TABLE 16 - Continued

	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	FAIL	BIZ	Σ WITH	Σ M	Σ F	Σ C
S_8																						
M	2	0	2	1	1	0		1	0	0		2	0	0		0	1	0		8	2	0
F	0	0	1	2	1	0		0	3	1		2	0	0		0	0	0		1	9	0
C	0	1	1	2	1	0		1	0	3		1	0	0		0	0	0		4	0	6
Total	2	1	4	5	3	0	15	2	3	4	9	5	0	0	5	0	1	0	1	13	11	6
S_9																						
M	0	0	1	0	0	4		0	2	1		0	1	0		1	0	0		8	0	2
F	0	0	0	1	1	0		0	2	2		0	1	0		0	0	0		1	9	0
C	0	0	0	0	0	1		0	2	2		0	2	0		3	0	0		3	1	6
Total	0	0	1	1	1	5	8	-	6	5	11	0	4	0	4	4	0	0	4	12	10	8
S_{10}																						
M	0	0	0	1	3	2		0	1	0		2	1	0		0	0	0		8	2	0
F	0	0	0	1	1	0		1	4	2		0	1	0		0	0	0		0	8	2
C	1	0	1	0	0	1		0	2	0		1	3	0		1	0	0		2	4	4
Total	1	0	1	2	4	3	11	1	7	2	10	3	5	0	8	1	0	0	1	10	14	6
S_{11}																						
M	0	0	3	0	3	3		0	1	0		0	0	0		0	0	0		8	1	1
F	0	0	1	0	2	0		1	5	0		1	0	0		0	0	0		0	10	0
C	2	3	0	0	0	1		1	2	0		1	0	0		0	0	0		1	1	8
Total	2	3	4	0	5	4	18	2	8	0	10	2	0	0	2	0	0	0	0	9	12	9

TABLE 16 - Continued

	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	FAIL	BIZ	Σ WITH	Σ M	Σ F	Σ C
S_{12}																						
M	0	0	2	0	1	1		0	1	3		1	1	0		0	0	0		8	1	1
F	2	0	1	2	0	0		0	3	1		0	1	0		0	0	0		0	10	0
C	2	0	3	0	0	1		1	2	1		0	0	0		0	0	0		2	0	8
Total	4	0	6	2	1	2	15	1	6	5	12	1	2	0	3	0	0	0	0	10	11	9
S_{13}																						
M	2	0	3	0	2	1		0	0	0		1	0	0		1	0	0		7	0	3
F	1	0	2	2	1	1		0	1	0		2	0	0		0	0	0		1	9	0
C	0	0	3	0	0	1		1	1	1		1	1	0		0	1	0		3	1	6
Total	3	0	8	2	3	3	19	1	2	1	4	4	1	0	5	1	1	0	2	11	10	9
S_{14}																						
M	0	0	2	1	4	0		0	2	0		1	0	0		0	0	0		9	1	0
F	0	0	0	2	2	0		1	2	1		1	0	0		0	0	0		0	10	0
C	3	0	0	1	4	0		1	1	0		0	0	0		0	0	0		4	1	5
Total	3	0	2	4	10	0	19	2	5	1	8	2	0	0	2	0	0	0	0	13	12	5
S_{15}																						
M	0	0	3	1	1	2		0	1	1		0	0	0		1	0	0		8	0	2
F	0	0	2	1	0	0		2	2	2		1	0	0		0	0	0		1	9	0
C	1	0	3	0	1	0		0	2	1		2	0	0		0	0	0		3	0	7
Total	1	0	8	2	2	2	15	2	5	4	11	3	0	0	3	1	0	0	1	12	9	9

TABLE 16 - Continued

	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	FAIL	BIZ	Σ WITH	Σ M	Σ F	Σ C
S_{16}																						
M	1	0	3	0	1	1		0	1	0		1	0	0		1	0	1		10	0	0
F	0	1	1	3	0	0		4	0	0		1	0	0		0	0	0		2	8	0
C	1	0	1	0	0	0		3	3	1		0	0	0		0	0	1		3	0	7
Total	2	1	5	3	1	1	13	7	4	1	12	2	0	0	2	1	0	2	3	15	8	7
S_{17}																						
M	0	0	0	0	0	1		1	1	3		2	0	0		2	0	0		7	1	2
F	0	0	0	1	0	0		0	2	5		0	0	0		0	0	0		0	10	0
C	4	0	0	0	0	1		2	0	1		0	1	0		1	0	0		3	0	7
Total	4	0	0	1	0	2	7	3	3	9	15	2	1	0	3	3	0	0	3	10	11	9
S_{18}																						
M	0	0	1	0	3	2		0	3	0		1	0	0		0	0	0		7	1	2
F	0	0	1	0	0	3		1	5	0		0	0	0		0	0	0		0	10	0
C	2	0	1	1	0	0		0	3	1		2	0	0		0	0	0		2	0	8
Total	2	0	3	1	3	5	14	1	11	1	13	3	0	0	3	0	0	0	0	9	11	10
S_{19}																						
M	1	0	1	0	1	1		0	4	1		1	0	0		0	0	0		10	0	0
F	0	0	1	0	1	0		1	6	0		1	0	0		0	0	0		10	0	0
C	2	0	3	0	0	0		1	3	1		0	0	0		0	0	0		3	0	7
Total	3	0	5	0	2	1	11	2	13	2	17	2	0	0	2	0	0	0	0	23	0	7

TABLE 16 - Continued

	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	FAIL	BIZ	Σ WITH	Σ M	Σ F	Σ C
S_{20}																						
M	2	0	1	0	3	0		0	1	2		1	0	0		0	0	0		9	1	0
F	0	0	1	1	1	0		0	3	0		4	0	0		0	0	0		1	9	0
C	1	0	3	0	0	0		3	3	0		0	0	0		0	0	0		2	1	7
Total	3	0	5	1	4	0	13	3	7	2	12	5	0	0	5	0	0	0	0	12	11	7
S_{21}																						
M	0	0	3	0	0	1		1	3	0		2	0	0		0	0	0		8	1	1
F	0	0	0	0	1	1		0	5	0		2	0	0		0	0	0		2	8	0
C	0	0	3	0	0	2		1	3	0		1	0	0		0	0	0		0	0	10
Total	0	0	6	0	1	4	11	2	11	0	13	5	0	0	5	0	0	0	0	10	9	11
S_{22}																						
M	0	0	2	0	0	1		0	2	0		3	0	0		2	0	0		9	0	1
F	0	0	2	0	0	0		1	6	0		1	0	0		0	0	0		2	8	0
C	1	0	2	1	0	0		1	2	1		0	0	1		1	0	0		4	1	5
Total	1	0	6	1	0	1	9	2	10	1	13	4	0	1	5	3	0	0	3	15	9	6
S_{23}																						
M	0	0	0	0	1	2		0	3	1		2	0	0		1	0	0		6	2	2
F	0	0	3	0	1	2		2	2	0		0	0	0		0	0	0		1	8	1
C	3	0	1	0	0	1		1	2	0		2	0	0		0	0	0		2	0	8
Total	3	0	4	0	2	5	14	3	7	1	11	4	0	0	4	1	0	0	1	9	10	11

TABLE 16 - Continued

	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	FAIL	BIZ	Σ WITH	Σ M	Σ F	Σ C
S_{24}																						
M	0	0	1	0	1	2		0	1	0		0	0	0		5	0	0		8	1	1
F	1	0	0	0	3	1		0	4	0		0	0	0		0	0	0		1	7	2
C	0	0	0	0	0	1		0	6	0		0	1	0		2	0	0		1	0	9
Total	1	0	1	0	4	4	10	0	11	0	11	0	1	0	1	7	0	0	7	10	8	12
S_{25}																						
M	0	0	2	1	2	0		0	2	1		1	0	1		0	0	0		7	1	2
F	0	0	1	1	1	0		0	5	0		1	0	0		0	0	0		1	9	0
C	1	1	4	1	1	0		1	1	0		0	0	0		0	0	0		3	0	7
Total	1	1	7	3	4	0	16	2	8	1	11	2	0	1	3	0	0	0	0	11	10	9
S_{26}																						
M	0	0	3	0	2	2		0	2	0		1	0	0		0	0	0		9	0	1
F	0	0	1	0	3	0		1	5	0		0	0	0		0	0	0		3	7	0
C	0	0	3	1	0	0		1	4	1		0	0	0		0	0	0		5	0	5
Total	0	0	7	1	5	2	15	2	11	1	14	1	0	0	1	0	0	0	0	17	7	6
S_{27}																						
M	1	0	0	0	2	2		0	3	1		1	0	0		0	0	0		8	2	0
F	1	0	0	0	2	0		0	2	1		2	1	0		0	0	0		3	7	0
C	1	0	0	0	0	0		3	4	1		1	0	0		0	0	0		0	1	9
Total	3	0	0	0	4	2	9	3	9	3	15	4	1	0	5	0	0	0	0	11	10	9

TABLE 16 - Continued

	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	ΣMAL	DES	FAIL	BIZ	ΣWITH	ΣM	ΣF	ΣC
S_{28}																						
M	0	0	0	0	2	2		0	5	0		1	0	0		0	0	0		6	3	1
F	0	0	0	0	2	1		2	2	1		2	0	0		0	0	0		1	8	1
C	0	1	1	0	1	2		0	4	1		0	0	0		0	0	0		0	0	10
Total	0	1	1	0	5	5	12	2	11	2	15	3	0	0	3	0	0	0	0	7	11	12
S_{29}																						
M	0	0	0	0	1	1		1	2	1		2	0	0		2	0	0		7	1	2
F	0	0	1	0	1	0		1	4	1		0	1	0		0	0	0		2	8	0
C	1	0	1	0	0	0		0	3	2		3	0	0		0	0	0		1	1	8
Total	1	0	2	0	2	1	6	2	9	4	15	5	1	0	6	2	0	0	2	10	10	10
S_{30}																						
M	1	0	2	1	2	0		0	1	2		1	0	0		0	0	0		10	0	0
F	0	0	3	0	1	0		1	1	3		1	0	0		0	0	0		0	10	0
C	1	1	0	0	0	0		3	3	1		1	0	0		0	0	0		2	2	6
Total	2	1	5	1	3	0	12	4	5	6	15	3	0	0	3	0	0	0	0	12	12	6
S_{31}																						
M	0	0	1	0	1	2		0	3	2		1	0	0		0	0	0		8	1	1
F	0	0	0	1	2	3		0	2	2		0	0	0		0	0	0		4	6	0
C	3	0	3	0	0	2		1	0	1		0	0	0		0	0	0		2	0	8
Total	3	0	4	1	3	7	18	1	5	5	11	1	0	0	1	0	0	0	0	14	7	9

TABLE 16 - Continued

	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	FAIL	BIZ	Σ WITH	Σ M	Σ F	Σ C
S_{32}																						
M	0	0	3	0	0	1		1	3	0		0	0	0		2	0	0		8	0	2
F	1	0	1	1	0	0		0	5	2		0	0	0		0	0	0		2	8	0
C	1	0	3	0	0	0		0	2	0		2	1	0		1	0	0		2	0	8
Total	2	0	7	1	0	1	11	1	10	2	13	2	1	0	3	3	0	0	3	12	8	10
S_{33}																						
M	0	0	0	0	2	2		0	2	2		1	0	0		1	0	0		9	1	0
F	0	0	2	1	0	1		0	3	0		1	0	0		0	0	0		1	9	0
C	0	0	3	0	1	0		0	2	1		2	1	0		0	0	0		1	0	9
Total	0	0	5	1	3	3	12	0	7	3	10	4	1	0	5	1	0	0	1	11	10	9
S_{34}																						
M	1	1	3	0	2	1		0	1	0		1	0	0		0	0	0		8	1	1
F	0	0	1	1	1	0		1	5	1		0	0	0		0	0	0		2	7	1
C	3	1	0	0	1	0		2	2	0		0	0	0		0	0	1		3	0	7
Total	4	2	4	1	4	1	16	3	8	1	12	1	0	0	1	0	0	1	1	13	8	9
S_{35}																						
M	1	0	2	1	2	0		0	0	2		1	1	0		0	0	0		8	1	1
F	1	0	1	0	0	0		0	6	1		1	0	0		0	0	0		2	8	0
C	1	0	1	0	1	0		0	3	2		2	0	0		0	0	0		2	1	7
Total	3	0	4	1	3	0	11	0	9	5	14	4	1	0	5	0	0	0	0	12	10	8

TABLE 16 - Continued

	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	FAIL	BIZ	Σ WITH	Σ M	Σ F	Σ C
S_{36}																						
M	1	0	0	0	2	0		1	3	1		2	0	0		0	0	0		9	1	0
F	1	1	0	1	0	0		2	3	2		0	0	0		0	0	0		0	10	0
C	3	0	0	0	0	0		4	1	1		1	0	0		0	0	0		5	0	5
Total	5	1	0	1	2	0	9	7	7	4	18	3	0	0	3	0	0	0	0	14	11	5
S_{37}																						
M	0	0	0	0	3	1		0	3	0		3	0	0		0	0	0		9	0	1
F	1	0	0	0	2	0		0	4	2		1	0	0		0	0	0		3	7	0
C	1	0	2	0	0	0		5	1	0		1	0	0		0	0	0		3	0	7
Total	2	0	2	0	5	1	10	5	8	2	15	5	0	0	5	0	0	0	0	15	7	8
S_{38}																						
M	0	0	2	0	2	2		0	2	1		1	0	0		0	0	0		9	1	0
F	0	0	1	1	0	0		1	4	1		2	0	0		0	0	0		2	7	1
C	3	0	0	0	0	0		2	4	0		1	0	0		0	0	0		2	0	8
Total	3	0	3	1	2	2	11	3	10	2	15	4	0	0	4	0	0	0	0	13	8	9
S_{39}																						
M	0	0	2	1	0	2		0	3	0		0	0	0		2	0	0		8	0	2
F	0	0	0	0	1	0		2	2	4		1	0	0		0	0	0		3	7	0
C	2	0	1	1	0	1		1	2	1		1	0	0		0	0	0		2	0	8
Total	2	0	3	2	1	3	11	3	7	5	15	2	0	0	2	2	0	0	2	13	7	10

TABLE 16 - Continued

	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	FAIL	BIZ	Σ WITH	Σ M	Σ F	Σ C
S_{40}																						
M	0	0	3	1	1	0		0	1	3		1	0	0		0	0	0		7	1	2
F	0	0	1	3	0	0		1	2	2		1	0	0		0	0	0		2	8	0
C	2	0	3	2	0	0		0	1	0		2	0	0		0	0	0		1	1	8
Total	2	0	7	6	1	0	16	1	4	5	10	4	0	0	4	0	0	0	0	10	10	10
S_{41}																						
M	0	0	1	1	2	1		0	1	2		2	0	0		0	0	0		9	0	1
F	0	0	2	2	1	0		0	3	1		1	0	0		0	0	0		2	8	0
C	1	0	3	1	0	0		1	1	2		1	0	0		0	0	0		2	0	8
Total	1	0	6	4	3	1	15	1	5	5	11	4	0	0	4	0	0	0	0	13	8	9
S_{42}																						
M	0	0	2	1	3	2		0	1	0		1	0	0		0	0	0		7	1	2
F	0	0	1	1	1	0		0	5	0		2	0	0		0	0	0		1	8	1
C	1	1	0	0	1	0		0	5	0		2	0	0		0	0	0		0	1	9
Total	1	1	3	2	5	2	14	0	11	0	11	5	0	0	5	0	0	0	0	8	10	12
S_{43}																						
M	0	0	2	0	0	1		0	1	1		3	0	0		2	0	0		9	0	1
F	1	0	0	0	1	0		0	4	1		2	0	1		0	0	0		2	8	0
C	2	1	2	0	0	1		1	1	1		1	0	0		0	0	0		1	2	7
Total	3	1	4	0	1	2	11	1	6	3	10	6	0	1	7	2	0	0	2	12	10	8

TABLE 16 - Continued

	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	FAIL	BIZ	Σ WITH	Σ M	Σ F	Σ C
S_{44}																						
M	2	0	1	0	2	3		1	0	1		0	0	0		0	0	0		9	0	1
F	2	0	0	2	2	0		0	3	1		0	0	0		0	0	0		1	9	0
C	6	0	0	0	0	1		0	3	0		0	0	0		0	0	0		1	0	9
Total	10	0	1	2	4	4	21	1	6	2	9	0	0	0	0	0	0	0	0	11	9	10
S_{45}																						
M	1	0	3	1	1	1		0	0	1		0	0	1		1	0	0		9	1	0
F	0	0	0	2	0	0		0	4	2		1	0	0		0	0	0		1	9	0
C	2	0	1	0	0	2		0	0	0		1	2	0		2	0	0		5	0	5
Total	3	0	4	3	1	3	14	0	4	3	7	2	2	1	5	3	0	0	3	15	10	5
S_{46}																						
M	0	0	2	0	2	1		1	2	0		1	0	0		1	0	0		9	1	0
F	1	0	3	0	0	0		1	3	0		2	0	0		0	0	0		1	9	0
C	2	0	3	0	2	0		1	2	0		0	0	0		0	0	0		1	0	9
Total	3	0	8	0	4	1	16	3	7	0	10	3	0	0	3	1	0	0	1	11	10	9
S_{47}																						
M	1	0	1	0	1	2		1	2	0		1	0	0		1	0	0		9	1	0
F	0	0	2	1	2	0		1	4	0		0	0	0		0	0	0		1	9	0
C	2	1	1	1	0	0		0	2	2		0	0	0		1	0	0		1	0	9
Total	3	1	4	2	3	2	15	2	8	2	12	1	0	0	1	2	0	0	2	11	10	9

TABLE 16 - Continued

	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	FAIL	BIZ	Σ WITH	Σ M	Σ F	Σ C
S_{48}																						
M	0	0	2	0	3	0		1	1	1		2	0	0		0	0	0		9	1	0
F	0	0	0	0	1	0		1	3	1		2	0	0		0	0	0		0	10	0
C	0	0	3	0	0	0		0	0	1		4	0	1		1	0	0		3	0	7
Total	0	0	5	0	4	0	9	2	4	3	9	8	0	1	9	1	0	0	1	12	11	7
S_{49}																						
M	0	0	1	1	1	3		0	1	0		3	0	0		0	0	0		7	3	0
F	1	0	0	1	1	1		2	3	0		1	0	0		0	0	0		1	9	0
C	1	0	2	0	0	2		1	2	0		2	0	0		0	0	0		1	1	8
Total	2	0	3	2	2	6	15	3	6	0	9	6	0	0	6	0	0	0	0	9	13	8
S_{50}																						
M	1	0	1	0	1	1		1	3	1		1	0	0		0	0	0		8	0	2
F	0	0	0	1	0	1		0	7	0		1	0	0		0	0	0		4	3	3
C	2	1	0	0	1	1		1	3	0		0	0	0		1	0	0		3	4	3
Total	3	1	1	1	2	3	11	2	13	1	16	2	0	0	2	1	0	0	1	15	7	8
S_{51}																						
M	1	0	1	0	1	0		1	4	0		2	0	0		0	0	0		5	3	2
F	0	0	2	0	0	2		0	5	0		0	0	0		0	0	0		3	6	1
C	0	0	2	1	0	1		1	5	0		0	0	0		0	0	0		3	1	6
Total	1	0	5	1	1	3	11	2	14	0	16	2	0	0	2	0	0	0	0	11	10	9

TABLE 16 - Continued

	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	FAIL	BIZ	Σ WITH	ΣM	ΣF	ΣC
S_{52}																						
M	0	0	2	0	2	2		1	0	2		0	0	0		1	0	0		5	2	3
F	0	0	3	0	0	1		0	4	0		0	1	0		0	0	0		3	6	1
C	0	0	3	1	0	1		3	0	0		2	0	0		0	0	0		1	2	7
Total	0	0	8	1	2	4	15	4	4	2	10	2	1	0	3	1	0	0	1	9	10	11
S_{53}																						
M	0	0	0	0	2	0		1	3	1		3	0	0		0	0	0		7	2	1
F	0	0	0	0	2	3		1	2	0		2	0	0		0	0	0		2	6	2
C	1	0	0	0	1	1		1	6	0		0	0	0		0	0	0		2	1	7
Total	1	0	0	0	5	4	10	3	11	1	15	5	0	0	5	0	0	0	0	11	9	10
S_{54}																						
M	0	0	1	0	1	2		0	2	1		1	0	0		1	0	1		9	0	1
F	0	0	0	1	3	0		0	3	2		1	0	0		0	0	0		2	8	0
C	2	0	1	0	0	1		0	1	1		1	1	0		2	0	0		2	0	8
Total	2	0	2	1	4	3	12	0	6	4	10	3	1	0	4	3	0	1	4	13	8	9
S_{55}																						
M	1	0	1	0	1	1		1	0	1		1	1	0		2	0	0		9	0	1
F	1	0	0	1	2	0		1	4	1		0	0	0		0	0	0		1	9	0
C	0	0	0	0	1	0		0	3	3		1	1	0		1	0	0		2	0	8
Total	2	0	1	1	4	1	9	2	7	5	14	2	2	0	4	3	0	0	3	12	9	9

TABLE 16 - Continued

	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	FAIL	BIZ	Σ WITH	ΣM	ΣF	ΣC
S_{56}																						
M	1	1	0	0	2	1		1	2	1		1	0	0		0	0	0		8	1	1
F	0	1	1	0	1	0		3	2	2		0	0	0		0	0	0		0	10	0
C	2	0	1	0	1	1		4	0	1		0	0	0		0	0	0		3	0	7
Total	3	2	2	0	4	2	13	8	4	4	16	1	0	0	1	0	0	0	0	11	11	8
S_{57}																						
M	0	0	0	0	2	3		0	1	2		1	0	0		1	0	0		8	0	2
F	0	0	0	0	1	1		1	7	0		0	0	0		0	0	0		0	10	0
C	1	0	1	0	0	1		1	2	4		0	0	0		0	0	0		1	0	9
Total	1	0	1	0	3	5	10	2	10	6	18	1	0	0	1	1	0	0	1	9	10	11
S_{58}																						
M	1	0	0	3	2	1		0	2	0		1	0	0		0	0	0		9	0	1
F	1	0	0	4	0	0		1	4	0		0	0	0		0	0	0		3	7	0
C	0	2	1	0	1	0		2	3	0		1	0	0		0	0	0		4	0	6
Total	2	2	1	7	3	1	16	3	9	0	12	2	0	0	2	0	0	0	0	16	7	7
S_{59}																						
M	0	0	1	0	1	1		1	5	0		1	0	0		0	0	0		9	1	0
F	0	0	1	0	0	0		1	5	2		0	0	0		0	0	0		1	9	0
C	1	0	2	0	0	0		0	2	2		0	1	0		2	0	0		3	1	6
Total	1	0	4	0	1	1	7	2	12	4	18	1	1	0	2	2	0	0	2	13	11	6

TABLE 16 - Continued

	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	FAIL	BIZ	Σ WITH	Σ M	Σ F	Σ C
S_{60}																						
M	0	0	1	1	0	2		0	2	0		1	0	0		3	0	0		9	0	1
F	1	0	2	0	1	1		2	2	0		1	0	0		0	0	0		2	8	0
C	2	0	0	0	0	0		3	2	1		1	0	0		1	0	0		0	1	9
Total	3	0	3	1	1	3	11	5	6	1	12	3	0	0	3	4	0	0	4	11	9	10

TABLE 17

ITEM ANALYSIS OF RESPONSES ON THE MODIFIED HAND TEST FOR EMR

Subj.	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	BIZ	FAIL	Σ WITH	Σ M	Σ F	Σ C
S_{61}																						
M	0	0	1	0	3	2		1	2	0		1	0	0		0	0	0		9	0	1
F	0	0	2	0	2	0		0	3	0		3	0	0		0	0	0		2	8	0
C	0	0	1	0	2	1		0	1	3		1	1	0		0	0	0		3	1	6
Total	0	0	4	0	7	3	14	1	6	3	10	5	1	0	6	0	0	0	0	14	9	7
S_{62}																						
M	0	0	1	0	1	2		0	2	2		0	0	0		1	0	1		8	2	0
F	0	0	2	0	0	0		0	1	6		0	0	0		1	0	0		0	10	0
C	0	0	0	0	0	1		1	0	8		0	0	0		0	0	0		1	0	9
Total	0	0	3	0	1	3	7	1	3	16	20	0	0	0	0	2	0	1	3	9	12	9
S_{63}																						
M	0	0	0	0	0	2		1	1	1		1	0	0		4	0	0		5	2	3
F	3	0	0	0	0	1		2	1	1		0	0	0		1	0	1		1	9	0
C	5	0	0	0	0	1		3	1	0		0	0	0		0	0	0		2	2	6
Total	8	0	0	0	0	4	12	6	3	2	11	1	0	0	1	5	0	1	6	8	13	9
S_{64}																						
M	1	0	1	1	0	1		0	3	0		1	1	0		1	0	0		6	2	2
F	0	0	0	2	0	0		1	5	0		1	0	0		1	0	0		2	8	0
C	1	0	2	0	0	0		0	7	0		0	0	0		0	0	0		2	0	8
Total	2	0	3	3	0	1	9	1	15	0	16	2	1	0	3	2	0	0	2	10	10	10

TABLE 17 - Continued

Subj.	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	BIZ	FAIL	Σ WITH	Σ M	Σ F	Σ C
S_{65}																						
M	1	0	1	0	0	3		1	1	0		1	0	0		1	0	1		7	1	2
F	0	0	1	0	0	0		3	1	1		3	1	0		0	0	0		0	8	2
C	3	0	3	1	0	0		0	1	0		2	0	0		0	0	0		3	0	7
Total	4	0	5	1	0	3	13	4	3	1	8	6	1	0	7	1	0	1	2	10	9	11
S_{66}																						
M	0	0	2	0	0	3		0	1	1		1	0	0		2	0	0		7	3	0
F	2	0	1	0	0	2		0	3	0		1	0	0		1	0	0		2	8	0
C	0	0	1	1	0	1		0	4	1		2	0	0		0	0	0		4	0	6
Total	2	0	4	1	0	6	13	0	8	2	10	4	0	0	4	3	0	0	3	13	11	6
S_{67}																						
M	1	0	1	0	0	2		0	3	2		1	0	0		0	0	0		8	0	2
F	1	0	0	0	1	1		0	3	1		1	2	0		0	0	0		2	8	0
C	2	0	1	1	1	1		0	2	1		1	0	0		0	0	0		2	1	7
Total	4	0	2	1	2	4	13	0	8	4	12	3	2	0	5	0	0	0	0	12	9	9
S_{68}																						
M	0	0	4	0	0	2		1	1	0		2	0	0		0	0	0		4	3	3
F	2	0	3	0	0	0		1	1	2		0	0	0		1	0	0		3	7	0
C	0	1	2	1	0	0		1	2	3		0	0	0		0	0	0		5	2	3
Total	2	1	9	1	0	2	15	3	4	5	12	2	0	0	2	1	0	0	1	12	12	6

TABLE 17 - Continued

Subj.	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	BIZ	FAIL	Σ WITH	Σ M	Σ F	Σ C
S_{69}																						
M	0	0	0	0	0	5		1	0	2		1	0	0		1	0	0		7	2	1
F	0	0	1	3	1	3		0	2	0		0	0	0		0	0	0		2	7	1
C	0	0	5	0	0	1		0	3	0		0	0	0		1	0	0		2	1	7
Total	0	0	6	3	1	9	19	1	5	2	8	1	0	0	1	2	0	0	2	11	10	9
S_{70}																						
M	1	0	2	0	0	2		0	2	0		2	1	0		0	0	0		5	3	2
F	0	0	1	0	0	1		1	5	1		0	0	0		1	0	0		3	4	3
C	2	0	1	1	0	0		2	3	1		0	0	0		0	0	0		1	2	7
Total	3	0	4	1	0	3	11	3	10	2	15	2	1	0	3	1	0	0	1	9	9	12
S_{71}																						
M	1	0	0	0	0	4		1	1	1		2	0	0		0	0	0		6	0	4
F	1	0	0	1	0	1		2	1	3		0	0	0		1	0	0		1	2	7
C	3	0	0	0	0	2		1	3	0		0	0	0		1	0	0		0	0	10
Total	5	0	0	1	0	7	13	4	5	4	13	2	0	0	2	2	0	0	2	7	2	21
S_{72}																						
M	0	0	4	0	0	1		0	1	2		2	0	0		0	0	0		6	4	0
F	2	0	0	0	0	0		0	3	2		2	0	1		0	0	0		1	9	0
C	3	0	4	0	0	1		0	0	1		0	0	0		1	0	0		3	2	5
Total	5	0	8	0	0	2	15	0	4	5	9	4	0	1	5	1	0	0	1	10	15	5

TABLE 17 - Continued

Subj.	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	BIZ	FAIL	Σ WITH	Σ M	Σ F	Σ C
S_{73}																						
M	0	0	0	0	0	2		0	0	2		1	0	0		5	0	0		5	1	4
F	0	0	0	0	0	0		0	1	2		3	1	0		3	0	0		1	8	1
C	2	0	0	0	0	0		0	0	1		3	2	0		2	0	0		2	0	8
Total	2	0	0	0	0	2	4	0	1	5	6	7	3	0	10	10	0	0	10	8	9	13
S_{74}																						
M	1	0	2	0	0	1		0	1	2		0	0	0		0	0	3		9	1	0
F	0	0	2	2	0	0		2	1	1		0	0	0		0	0	2		0	10	0
C	1	0	5	1	1	0		0	1	0		0	0	0		0	0	1		1	1	8
Total	2	0	9	3	1	1	16	2	3	3	8	0	0	0	0	0	0	6	6	10	12	8
S_{75}																						
M	5	0	0	0	1	2		0	1	0		1	0	0		0	0	0		6	2	2
F	1	0	0	1	1	2		0	3	0		1	1	0		0	0	0		3	7	0
C	1	0	0	0	0	3		2	0	1		3	0	0		0	0	0		1	2	7
Total	7	0	0	1	2	7	17	2	4	1	7	5	1	0	6	0	0	0	0	10	11	9
S_{76}																						
M	0	0	2	0	1	2		3	0	0		2	0	0		0	0	0		5	2	3
F	0	0	1	0	2	1		1	1	1		2	0	0		0	0	1		2	8	0
C	1	0	3	0	0	0		2	0	1		3	0	0		0	0	0		1	1	8
Total	1	0	6	0	3	3	13	6	1	2	9	7	0	0	7	0	0	1	1	8	11	11

TABLE 17 - Continued

Subj.	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	BIZ	FAIL	Σ WITH	Σ M	Σ F	Σ C
S_{77}																						
M	0	0	1	1	1	1		0	1	1		2	2	0		0	0	0		7	2	1
F	0	2	0	0	2	1		0	3	2		0	0	0		0	0	0		1	9	0
C	2	0	4	1	0	0		0	0	1		0	2	0		0	0	0		3	1	6
Total	2	2	5	2	3	2	16	0	4	4	8	2	4	0	6	0	0	0	0	11	12	7
S_{78}																						
M	0	0	2	2	4	0		0	2	0		0	0	0		0	0	0		7	0	3
F	0	0	4	1	1	0		0	0	1		3	0	0		0	0	0		1	6	3
C	0	0	5	0	2	1		0	1	0		1	0	0		0	0	0		1	0	9
Total	0	0	11	3	7	1	22	0	3	1	4	4	0	0	4	0	0	0	0	9	6	15
S_{79}																						
M	3	0	0	0	2	1		0	2	1		1	0	0		0	0	0		7	2	1
F	2	0	0	0	1	0		1	3	0		2	0	0		1	0	0		0	10	0
C	1	0	0	0	0	1		3	3	0		2	0	0		0	0	0		6	1	3
Total	6	0	0	0	3	2	11	4	8	1	13	5	0	0	5	1	0	0	1	13	13	4
S_{80}																						
M	0	0	1	2	1	1		1	2	1		0	0	0		1	0	0		8	1	1
F	1	0	0	1	1	0		0	3	0		2	0	0		1	0	1		2	6	2
C	2	0	3	2	0	2		1	0	0		0	0	0		0	0	0		0	3	7
Total	3	0	4	5	2	3	17	2	5	1	8	2	0	0	2	2	0	1	3	10	10	10

TABLE 17 - Continued

Subj.	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	BIZ	FAIL	Σ WITH	Σ M	Σ F	Σ C
S_{81}																						
M	1	0	2	0	0	1		0	1	2		1	0	0		2	0	0		9	1	0
F	0	0	0	3	0	1		0	2	1		2	0	0		1	0	0		1	9	0
C	3	0	1	0	0	1		0	4	0		0	0	0		1	0	0		6	1	3
Total	4	0	3	3	0	3	13	0	7	3	10	3	0	0	3	4	0	0	4	16	11	3
S_{82}																						
M	0	0	0	0	0	0		0	0	1		0	0	0		9	0	0		6	1	3
F	0	0	0	0	0	0		0	0	1		0	0	0		9	0	0		3	6	1
C	0	0	0	0	0	0		0	0	0		0	0	0		9	0	1		1	1	8
Total	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	27	0	1	28	10	8	12
S_{83}																						
M	0	0	1	0	1	1		0	5	1		1	0	0		0	0	0		8	1	1
F	0	0	0	0	0	0		0	6	0		0	1	0		3	0	0		4	5	1
C	0	0	1	0	0	2		0	4	2		1	0	0		0	0	0		3	0	7
Total	0	0	2	0	1	3	6	0	15	3	18	2	1	0	3	3	0	0	3	15	6	9
S_{84}																						
M	0	0	0	0	0	0		0	0	0		0	1	0		9	0	0		7	3	0
F	0	0	0	0	0	0		0	0	0		0	0	0		9	0	1		1	9	0
C	0	0	0	0	0	0		0	0	0		0	1	0		9	0	0		2	6	2
Total	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	27	0	1	28	10	18	2

TABLE 17 - Continued

Subj.	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	BIZ	FAIL	Σ WITH	Σ M	Σ F	Σ C
S_{85}																						
M	0	0	2	1	0	1		0	2	1		1	1	0		1	0	0		7	1	2
F	1	0	0	1	0	1		0	3	1		0	0	0		3	0	0		2	6	2
C	2	0	2	0	1	0		0	2	1		0	1	0		1	0	0		2	2	6
Total	3	0	4	2	1	2	12	0	7	3	10	1	2	0	3	5	0	0	5	11	9	10
S_{86}																						
M	0	0	1	0	0	1		0	0	1		0	0	0		7	0	0		6	3	1
F	0	0	0	0	0	0		0	0	3		0	0	0		7	0	0		1	9	0
C	0	0	1	0	0	0		0	0	4		0	0	0		5	0	0		6	4	0
Total	0	0	2	0	0	1	3	0	0	8	8	0	0	0	0	19	0	0	19	13	16	1
S_{87}																						
M	1	0	1	0	0	2		0	0	3		0	1	0		1	0	1		3	1	6
F	0	0	0	0	0	2		0	3	2		0	2	0		1	0	0		2	6	2
C	0	0	0	1	0	0		3	2	3		0	0	1		0	0	0		1	2	7
Total	1	0	1	1	0	4	7	3	5	8	16	0	3	1	4	2	0	1	3	6	9	15
S_{88}																						
M	0	0	1	0	0	1		0	0	0		0	0	0		8	0	0		3	1	6
F	0	0	1	0	0	1		0	0	0		0	0	0		8	0	0		3	4	3
C	0	0	0	0	0	0		0	0	1		0	0	0		9	0	0		3	2	5
Total	0	0	2	0	0	2	4	0	0	1	1	0	0	0	0	25	0	0	25	9	7	14

TABLE 17 - Continued

Subj.	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	BIZ	FAIL	Σ WITH	Σ M	Σ F	Σ C
S_{89}																						
M	0	0	0	0	0	0		0	3	1		2	1	0		3	0	0		8	2	0
F	1	0	0	0	0	0		0	0	1		2	0	0		6	0	0		2	8	0
C	0	0	0	0	0	0		0	0	2		4	0	0		4	0	0		7	3	0
Total	1	0	0	0	0	0	1	0	3	4	7	8	1	0	9	13	0	0	13	17	13	0
S_{90}																						
M	0	0	4	0	0	1		2	2	0		1	0	0		0	0	0		5	3	2
F	0	0	2	2	0	0		2	1	1		2	0	0		0	0	0		1	9	0
C	1	1	2	0	0	0		1	1	2		2	0	0		0	0	0		1	1	8
Total	1	1	8	2	0	1	13	5	4	3	12	5	0	0	5	0	0	0	0	7	13	10
S_{91}																						
M	2	0	2	0	2	1		0	0	0		2	1	0		0	0	0		9	1	0
F	1	0	0	1	1	1		1	3	2		0	0	0		0	0	0		0	10	0
C	3	0	1	1	0	0		1	2	1		1	0	0		0	0	0		2	3	5
Total	6	0	3	2	3	2	16	2	5	3	10	3	1	0	4	0	0	0	0	11	14	5
S_{92}																						
M	0	0	2	1	2	1		1	1	1		1	0	0		0	0	0		8	0	2
F	1	1	2	0	1	0		0	1	2		1	0	0		1	0	0		0	10	0
C	2	0	2	0	1	0		2	0	2		1	0	0		0	0	0		5	2	3
Total	3	1	6	1	4	1	16	3	2	5	10	3	0	0	3	1	0	0	1	13	12	5

TABLE 17 - Continued

Subj.	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	BIZ	FAIL	Σ WITH	Σ M	Σ F	Σ C
S_{93}																						
M	0	0	2	1	2	1		1	1	1		1	0	0		0	0	0		8	0	2
F	1	1	2	0	1	0		0	1	2		1	0	0		1	0	0		0	10	0
C	2	0	2	0	1	0		2	0	2		1	0	0		0	0	0		5	2	3
Total	3	1	6	1	4	1	16	3	2	5	10	3	0	0	3	1	0	0	1	13	12	5
S_{94}																						
M	0	0	6	0	1	1		0	1	0		1	0	0		0	0	0		6	1	3
F	0	0	3	2	0	0		1	0	3		1	0	0		0	0	0		0	10	0
C	0	1	3	0	1	1		0	0	4		0	0	0		0	0	0		0	2	8
Total	0	1	12	2	2	2	19	1	1	7	9	2	0	0	2	0	0	0	0	6	13	11
S_{95}																						
M	1	0	1	0	0	1		1	3	1		1	0	0		1	0	0		9	0	1
F	0	0	3	0	0	0		1	3	0		3	0	0		0	0	0		0	10	0
C	1	0	0	0	0	1		2	1	0		5	0	0		0	0	0		6	0	4
Total	2	0	4	0	0	2	8	4	7	1	12	9	0	0	9	1	0	0	1	15	10	5
S_{96}																						
M	3	0	3	0	0	2		1	0	0		1	0	0		0	0	0		7	1	2
F	1	0	0	0	1	0		3	3	0		1	0	0		1	0	0		1	9	0
C	2	0	1	1	0	0		1	2	1		1	0	0		1	0	0		1	0	9
Total	6	0	4	1	1	2	14	5	5	1	11	3	0	0	3	2	0	0	2	9	10	11

TABLE 17 - Continued

Subj.	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	BIZ	FAIL	Σ WITH	ΣM	ΣF	ΣC
S_{97}																						
M	1	0	3	0	1	1		0	0	0		1	0	0		1	0	2		9	1	0
F	0	0	4	0	0	0		0	0	3		2	0	0		0	0	1		0	10	0
C	0	0	2	0	0	0		0	2	4		1	0	0		0	0	1		4	3	3
Total	1	0	9	0	1	1	12	0	2	7	9	4	0	0	4	1	0	4	5	13	14	3
S_{98}																						
M	0	0	2	0	0	2		0	3	2		0	0	0		1	0	0		7	3	0
F	1	0	0	2	0	0		1	4	1		0	0	0		0	0	1		0	10	0
C	0	0	0	0	0	0		0	4	2		0	0	0		3	0	1		2	3	5
Total	1	0	2	2	0	2	7	1	11	5	17	0	0	0	0	4	0	2	6	9	16	5
S_{99}																						
M	0	0	1	0	0	1		0	0	0		1	0	0		7	0	0		4	0	6
F	0	0	0	0	0	0		0	0	1		0	0	0		9	0	0		2	8	0
C	0	0	0	0	0	0		0	0	2		0	0	0		8	0	0		1	1	8
Total	0	0	1	0	0	1	2	0	0	3	3	1	0	0	1	24	0	0	24	7	9	14
S_{100}																						
M	0	0	4	1	0	1		0	0	0		0	0	0		3	0	1		9	0	1
F	0	0	2	1	0	0		1	6	0		0	0	0		0	0	0		0	10	0
C	2	0	4	0	0	0		2	1	1		0	0	0		0	0	0		2	0	8
Total	2	0	10	2	0	1	15	3	7	1	11	0	0	0	0	3	0	1	4	11	10	9

TABLE 17 - Continued

Subj.	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	BIZ	FAIL	Σ WITH	Σ M	Σ F	Σ C
S_{101}																						
M	1	0	1	0	0	3		0	0	0		0	0	0		5	0	0		5	0	5
F	0	0	0	0	0	1		0	0	0		0	0	0		6	0	3		0	10	0
C	0	0	1	0	0	1		0	0	2		0	0	0		6	0	0		1	0	9
Total	1	0	2	0	0	5	8	0	0	2	2	0	0	0	0	17	0	3	20	6	10	14
S_{102}																						
M	0	0	4	0	0	0		0	0	4		1	0	0		1	0	0		8	0	2
F	0	0	5	0	0	0		0	0	2		0	0	0		3	0	0		1	9	0
C	0	0	4	0	0	0		0	0	1		1	0	0		4	0	0		1	0	9
Total	0	0	13	0	0	0	13	0	0	7	7	2	0	0	2	8	0	0	3	10	9	11
S_{103}																						
M	0	1	2	0	1	1		0	1	1		0	0	0		1	0	2		6	0	4
F	0	0	1	0	0	2		0	2	1		0	0	0		3	0	1		0	10	0
C	2	1	2	0	1	1		0	0	1		0	0	0		2	0	0		2	0	8
Total	2	2	5	0	2	4	15	0	3	3	6	0	0	0	0	6	0	3	9	8	10	12
S_{104}																						
M	0	0	1	0	0	1		1	3	1		3	0	0		0	0	0		4	4	2
F	1	1	0	0	2	2		1	1	2		0	0	0		0	0	0		0	10	0
C	0	3	0	0	0	1		2	3	1		0	0	0		0	0	0		1	2	7
Total	1	4	1	0	2	4	12	4	7	4	15	3	0	0	3	0	0	0	0	5	16	9

TABLE 17 - Continued

Subj.	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	BIZ	FAIL	Σ WITH	Σ M	Σ F	Σ C
S_{105}																						
M	0	0	2	0	1	2		3	0	1		0	0	0		1	0	0		9	1	0
F	0	0	1	1	0	1		1	2	2		0	0	0		2	0	0		4	6	0
C	0	0	1	0	0	1		1	1	1		0	0	0		5	0	0		2	4	4
Total	0	0	4	1	1	4	10	5	3	4	12	0	0	0	0	8	0	0	8	15	11	4
S_{106}																						
M	0	0	3	0	0	1		0	0	2		2	0	0		2	0	0		7	3	0
F	0	0	2	0	0	2		0	2	2		0	0	0		1	1	0		3	7	0
C	0	0	1	0	0	2		0	1	4		1	0	0		1	0	0		7	3	0
Total	0	0	6	0	0	5	11	0	3	8	11	3	0	0	3	4	1	0	5	17	13	0
S_{107}																						
M	0	0	2	0	0	1		1	0	0		1	0	0		3	0	2		7	1	2
F	0	0	0	0	1	1		0	2	0		0	0	0		3	0	3		2	7	1
C	0	0	2	0	0	1		0	0	4		0	0	0		1	0	2		1	1	8
Total	0	0	4	0	1	3	8	1	2	4	7	1	0	0	1	7	0	7	14	10	9	11
S_{108}																						
M	0	0	1	0	0	5		0	0	1		1	1	0		1	0	0		7	2	1
F	2	0	1	0	0	3		1	2	0		0	0	0		1	0	0		2	8	0
C	1	0	0	0	2	2		0	2	1		0	0	0		2	0	0		0	4	6
Total	3	0	2	0	2	10	17	1	4	2	7	1	1	0	2	4	0	0	4	9	14	7

TABLE 17 - Continued

Subj.	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	BIZ	FAIL	Σ WITH	Σ M	Σ F	Σ C
S_{109}																						
M	0	0	2	0	0	1		0	0	0		0	0	0		7	0	0		6	1	3
F	0	0	1	0	0	0		0	0	0		0	0	0		9	0	0		1	9	0
C	0	0	1	0	0	0		0	0	0		0	0	0		9	0	0		2	2	6
Total	0	0	4	0	0	1	5	0	0	0	0	0	0	0	0	25	0	0	25	0	12	9
S_{110}																						
M	2	0	2	0	0	1		0	3	2		0	0	0		0	0	0		7	1	2
F	1	0	0	2	1	0		0	2	3		0	1	0		0	0	0		0	10	0
C	0	0	0	1	0	2		0	2	5		0	0	0		0	0	0		1	0	9
Total	3	0	2	3	1	3	12	0	7	10	17	0	1	0	1	0	0	0	0	8	11	11
S_{111}																						
M	0	0	3	0	0	1		0	0	1		0	0	0		5	0	0		6	2	2
F	0	0	1	0	0	0		0	0	2		0	0	0		7	0	0		1	9	0
C	1	0	0	0	0	0		0	0	2		0	0	0		7	0	0		1	1	8
Total	1	0	4	0	0	1	6	0	0	5	5	0	0	0	0	19	0	0	19	8	12	10
S_{112}																						
M	1	0	1	1	3	2		1	0	0		1	0	0		0	0	0		3	7	0
F	0	0	0	1	4	0		3	1	1		0	0	0		0	0	0		1	9	0
C	0	0	1	1	1	0		2	0	4		1	0	0		0	0	0		0	4	6
Total	1	0	2	3	8	2	16	6	1	5	12	2	0	0	2	0	0	0	0	4	20	6

TABLE 17 - Continued

Subj.	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	Σ MAL	DES	BIZ	FAIL	Σ WITH	Σ M	Σ F	Σ C
S_{113}																						
M	0	0	1	1	0	2		1	2	0		3	0	0		0	0	0		2	2	6
F	0	0	0	1	0	1		2	2	1		1	0	0		2	0	0		1	9	0
C	0	0	0	0	0	0		2	3	3		1	0	0		0	0	1		0	0	10
Total	0	0	1	2	0	3	6	5	7	4	16	5	0	0	5	2	0	1	3	3	11	16
S_{114}																						
M	0	0	3	1	1	1		0	0	1		1	0	0		1	0	1		10	0	0
F	0	0	4	1	1	0		0	0	1		1	0	0		2	0	0		1	9	0
C	0	0	3	0	1	0		0	0	2		0	0	0		4	0	0		2	1	7
Total	0	0	10	2	3	1	16	0	0	4	4	2	0	0	2	7	0	1	8	13	10	7
S_{115}																						
M	0	0	3	0	0	3		0	2	2		0	0	0		0	0	0		9	1	0
F	1	0	2	0	0	1		2	1	1		1	0	0		1	0	0		3	7	0
C	0	0	1	0	0	3		1	0	4		0	0	0		1	0	0		6	0	4
Total	1	0	6	0	0	7	14	3	3	7	13	1	0	0	1	2	0	0	2	18	8	4
S_{116}																						
M	0	0	0	0	0	0		0	0	4		0	0	0		6	0	0		4	6	0
F	0	0	0	0	1	0		0	1	3		0	2	0		3	0	0		2	8	0
C	0	0	0	1	1	1		0	0	3		1	0	0		3	0	0		7	3	0
Total	0	0	0	1	2	1	4	0	1	10	11	1	2	0	3	12	0	0	12	13	17	0

TABLE 17 - Continued

Subj.	AFF	DEP	COM	EXH	DIR	AGG	Σ INT	ACQ	ACT	PAS	Σ ENV	TEN	CRIP	FEAR	ΣMAL	DES	BIZ	FAIL	ΣWITH	ΣM	ΣF	ΣC
S_{117}																						
M	0	0	4	0	1	1		0	0	2		0	0	0		1	0	1		9	0	1
F	0	0	4	0	0	1		0	0	2		0	0	0		1	0	2		0	9	1
C	0	0	6	0	1	1		0	0	0		0	0	0		0	0	2		4	1	5
Total	0	0	14	0	2	3	19	0	0	4	4	0	0	0	0	2	0	5	7	13	10	7
S_{118}																						
M	0	0	1	0	0	0		0	0	0		0	0	0		9	0	0		8	2	0
F	0	0	1	0	0	0		0	0	0		0	0	0		9	0	0		2	7	1
C	0	0	0	0	1	0		0	0	0		0	0	0		9	0	0		2	2	6
Total	0	0	2	0	1	0	3	0	0	0	0	0	0	0	0	27	0	0	27	12	11	7
S_{119}																						
M	1	0	4	1	0	2		0	0	1		1	0	0		0	0	0		8	1	1
F	3	0	3	1	0	0		0	2	0		0	0	0		0	0	0		2	7	1
C	1	0	4	0	0	0		1	0	0		1	0	0		0	0	3		0	1	9
Total	5	0	11	2	0	2	20	2	2	1	5	2	0	0	2	0	0	3	3	10	9	11
S_{120}																						
M	0	0	0	0	0	5		1	1	0		0	0	0		1	0	2		6	3	1
F	1	0	0	0	1	2		0	2	0		0	0	0		1	0	3		2	8	0
C	0	0	0	0	0	3		0	5	0		0	0	0		1	0	1		3	1	6
Total	1	0	0	0	1	10	12	1	8	0	9	0	0	0	0	3	0	6	9	11	12	7