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THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

# A COMPARISON OF HAND TEST RESPONSES OF HIGHER EDUCATION AND NON-HIGHER EDUCATION IRANIAN STUDENTS IN THE STATE OF OKLAHOMA

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

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degree of

DOCTOR OF PHILOSOPHY

BY

HESHMATALLAH KHORRAMZADEH

Norman, Oklahoma

1975

A COMPARISON OF HAND TEST RESPONSES OF HIGHER EDUCATION
AND NON-HIGHER EDUCATION IRANIAN STUDENTS
IN THE STATE OF OKLAHOMA

APPROVED BY

R E Ragland

Glenn R. Snider

Charlyce King

Leyde P. Williams

DISSERTATION COMMITTEE

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# A COMPARISON OF HAND TEST RESPONSES OF HIGHER EDUCATION AND NON-HIGHER EDUCATION IRANIAN STUDENTS IN THE STATE OF OKLAHOMA

## CHAPTER I

## INTRODUCTION

The term Projection came into existence as one of the central constructs of the psychoanalytic theory. It was a term used by Freud as early as 1895 to describe the famous Schreber Case. He alludes to this term as one of the defense mechanisms in regard to the origin of paranoid delusions. Freud (1911) describes the process in Schreber Case as:

> The mechanism of symtom-formation in paranoia requires that internal perception-feelings - shall be replaced by external perceptions. Consequently the proposition "I hate him" becomes transformed by Projection into another one: "He hates me, which will justify me in hating him." And thus the impelling unconscious feeling makes its appearance as though it were the consequence of an external perception.". I do not love him -- I hate him, because he persecutes me." (p. 63)

The core of projection as defined in the passage is clearly understood - the disturbed individual upon perceiving that his impulses or attitudes are unacceptable, would displace them into the outer world upon other individuals. It can also be understood that the projection is a normal

process by which the individual's perceptions of the outer world are influenced by his inner states.

Freud (1913) further eleaborates on the mechanism of projection while he is investigating the cultural phenomena in the field of anthropology, particularly the development of taboos. He states that the enforced taboos respected by the primitives in regard to death is the projection of the negative feelings felt toward the dead individuals. The relatives' ambivalence feelings (love versus hate) are resolved by the process of projecting the hate upon deceased. Thus, instead of the living hate the dead, the dead hate the living, and therefore, must be guarded against and appeased by the living; with the consequence that taboos become necessary. He goes on to remark:

> Both of the two sets of the feelings (the affectionate and the hotile), which, as we have good reason to believe, exist towards the dead person, seek to take effect at the time of the bereavement, as mourning and as satisfaction. There is bound to be a conflict between these two contrary feelings .... The hostility, of which the survivors know nothing and moreover wish to know nothing, is ejected from internal perception into external world, and thus detached from them and pushed on to someone else. It is no longer true that they are rejoicing to be rid of the dead man; on the contrary, they are mourning for him; but, strange to say, he has turned into a wicked demon ready to gloat over him their misfortune and eager to kill them. It then becomes necessary for them, the survivors, to defend themselves against this evil enemy; they are relieved of pressure from within, but have only exchange it for oppression from without. (p. 63)

Freud (1913) further states that projection is not solely a mechanism of defense to be applied only by neurotic or psychotic patients, or in situations where there exists

intense conflicts. It can also be created where there is no conflict. He considers it a mechanism which is both important in normal and pathological development. It can play an important part in creative process by which the artist, in his works, unwittingly would attempt to secure some expression for those unconscious impulses that were denied expression in his everyday life.

After Freud introduced the term projection in the field of psychoanalytic theory, many attempted to refine the concept and differentiate types of projection. Murray (1933) suggested the distinction between supplementary projection and complementary projection. The former occurs when the individual projects his own impulses upon another; the latter occurs where the individual perceives his environment to be congruent with his own impulses. Later, Murray (1951) alluded to contrast projection in which the individual perceives others as more dissimilar to him than they really are.

Bellak (1950) on the other hand suggests to abandon the broad term of projection in favor of an inclusive term apperceptive distortion. Included in this category is a variety of mechanisms which he labels projection, inverted projection, simple projection, sensitization, and externalization. He recommends using the term projection where a large degree of distortion is involved, where the individual misperceives others through assigning to them self-characteristics that are so unpleasant for him that he can only recognizes them through long therapy. By inverted projection,

he means the individual's unacceptable impulses prior to its being projected to the external world. Simple projection is used when the individual misperceives the outer world as a result of his inner states. The term sensitization is referred to the tendency of the person to pay attention to the stimuli of external world as they relate to and fit with his inner feelings. And externalization is a process by which the individual consciously attributes to the external world characteristics of himself.

It was on the basis of these concepts that the projective test has been created. It is an instrument that is considered to be sensitive to covert or unconscious aspects of the behavior. The instrument encourages and permits a variety of subjective responses which enables the subject react to the stimuli with a minimum awareness concerning the purpose of the test. The material presented by the projective test is ambiguous and it evokes fantasy responses. The answers to the projective test is neither right nor wrong. Therefore, the interpretation of it is based on holistic analysis.

In 1921, Herman Rorschach presented the world with the first projective test which received immediate recognition. The test was named after its designer and it is known today as the Rorschach Test. The Thematic Apperception Test (TAT) was the second projective test presented to the world which rivaled the Rorschach and gained immediate success too. Since then many projective tests have been created

but the most popular ones are: Bender Gestalt Test; Blacky Pictures; Szondi Test; Holtzman Inkblot Test; Rotter Incomplete Sentence Test; House-Tree Person Drawing Test; Human Figure Drawing Test; Children Apperception Test and Lowenfeld Mosaic Test.

The Hand Test, one of the newer projective tests, was created by Edwin Wagner, who was interested in the projection of aggression responses. Wagner's rationale concerning the Hand Test is reflected in the test manual (1971) as follow:

> The Hand Test utilizes relatively structured stimuli (pictures of hands) in relatively unstructured poses, permitting individual variations in responses yet restricting these responses to definable and classifiable categories, namely, descriptions of hand actions and attitudes. It is assumed, in way of rationale, that prototypal action tendencies will be projected into pictures of hands since the hand, both ontogenetically and functionally, is crucial for interacting with and relating to the external world. In the development of the human organism the ongoing, receprocal, feedback relationship between the brain and the hand makes it likely that perceptions and cognition of semi-structured pictures of hands will mirror significant perceptual-motor tendencies in the subject. Certainly, the importance of hands in establishing and maintaining reality contact cannot be denied (p. 1).

Projective techniques have been used widely by psychologists and psychoanalysts to get insight into the inner feelings and emotions of the man, to understand his behavior and to find out why he behaves the way he is behaving and why he does not behave the way he is supposed to.

## CHAPTER II

## REVIEW OF THE LITERATURE

Edwin Wagner deserves the credit for most of the research conducted on the Hand Test after he designed it. He and his colleagues have published studies which range from anti-social behavior in delinquents to the work performance of the mentally retarded and normal adults.

Wagner (1961, 1962, 1966, 1970), Wagner and Medvedeff (1963) and Hodge and Wagner (1964) were able to classify aggressive and non-aggressive patients from among a population of undifferentiated schizophrenic by using the Hand Test. In 1963 Wagner conducted a study to discriminate male neurotics who had sexual acting-out tendencies. He concluded that male neurotics produced significantly more responses (.02 level of confidence) with content indicators of sexual maladjustment than a group of male neurotic without any sexual aberration.

Wagner and Hawkins (1964) were able to differentiate between two groups of delinquents who were labelled as assaultive and non-assaultive. They used the Acting-Out Ratio scores of the Hand Test for their study. Their report

concluded that they successfully differentiated 47 out of the 60 subjects.

Wetsel, Shapior and Wagner (1967) attempted to establish the predictive validity of the Hand Test by using the Acting Out Ratio scores of the test. They discriminated delinquent recidivists from non-recidivists. They were able to classify 66 percent of the subjects. Their study indicated that the Aggression scores were markedly different between the two groups.

Wagner and Cooper (1963) conducted a study at the Goodwill Industries in Akron, Ohio, in order to differentiate between satisfactory and unsatisfactory workers. They utilized the active (ACT) score for this purpose. The immediate supervisors and the personnel director evaluated the individual workers. This was used as the criterion of the measurement of workers' efficiency. The Hand Test correctly differentiated forty-five out of fifty workers at the statistically significant level of .001. Huberman (1964) attempted to cross-validate the findings of Wagner and Cooper in the Douglas Fir Plywood mill on the Canadian West Coast. His findings did not support those of Wagner and Cooper.

Wagner and Hawver (1965) conducted a study to develop predictors of workshop success for severely retarded adults. They combined the active (ACT) score along with seven other psychological tests for their investigation. Each of the

eight tests were significant for their predictive values. Since there was no cross validation and the sample was small, they urged caution in interpretation of the findings. They stated that the test may have measured present performance rather than skills which existed prior to admittance to the workshop.

Another attempt was made by Wagner and Capotosto (1966) to discriminate between a group of poor worker who required too much supervision to be occupationally productive and a group of good workers who required only occasional supervision and who were occupationally productive. This study was conducted at the Lincoln State School in Illinois and the active (ACT) score was used for the study. The Hand Test correctly differentiated 74 percent of the subjects at the statistically significant level of .01.

Drummond (1966) attempted to cross-validate Wagner's studies involving the discrimination of aggressive and non-aggressive individuals. The study was based on acting-out score (AOS) and the withdrawal (WITH) score of the Hand Test. No significant difference could be obtained. The subjects were 66 undifferentiated schizophrenics and were labelled aggressive and non-aggressive according to certain definite criteria. The conclusion was that the lack of significance might be related to the very nature of the unpredicatable behavior of the schizophrenics.

Shaw and Linden (1964) were not certain if the Hand

Test could have a predictive validity. They felt that Wagner has failed to discriminate between predictive and concurrent validity, they said:

> Before these claims of predictive validity could be taken seriously it would seem preferable to complete at least one study specifically designed to determine the predictive qualities of the test (p. 284).

Steinmetz (Seig, 1965) utilized the aggression (AGG) score of the Hand Test along with five other tests for discrimination of aggressive and non-aggressive youths. She selected 16 youths with a mean age of 10-9 years from four elementary schools. The external criterion for the establishment of aggressive and non-aggressive youths was based on the combination rating of the teacher and peers. The Rorschach and the Color Pyramid Test were not able to discriminate between these two groups of eight children each. On the other hand, the Disfigures Test, Thematic Apperception Test and the Hand Test differentiated the two groups. Azcrate and Gutierrez (1969) established means for 100 boys at the National Training School in Virginia. They concluded that acting-out and maladjustive scores could be utilized to predict overt, aggressive behavior.

King (1973) in an attempt to discriminate between two groups of aggressive and non-aggressive blacks used Acting-out, Affection and Withdrawal scores of the Hand Test for his study. He concluded that aggressive blacks gave more withdrawal (WITH) responses than non-aggressive subjects. This was significant at .01 level of confidence.

Several other studies have been conducted to establish norms for mentally retarded and dull normal children on the Hand Test. Capotosts (Wagner, 1971) established means on imbeciles and morons; Gloss (Wagner, 1971) reported means on nine age groups of students in the Tallmadage, Ohio School District. Loftus (Wagner, 1971) furnished means and median on a stratified sample of the boys in a technical high school in Adelaide, Australia. The mean age for the boys was 14.6. Daugherty (Wagner, 1971) compared the responses of 30 normal and 30 dyslexic children on the Hand Test. The children were matched for age, sex, and IQ. Dyslexic group gave more tension responses which was significant at .01 level of confidence. Roberts (1971) reported the responses of bright and mentally retarded children on the Hand Test. Significant difference was found between these two groups in their attitudes towards others, in striving for distant goals and higher status.

Vier (Wagner, 1971) selected 197 children from 35 elementary schools (kindergarten through third grade) and gave them the Hand Test and reported the medians for each group. Thetford (1972) established norms for deaf school children. Thetford did not attempt any statistical procedures because of the smallness in variations between the responses of the normal and deaf children. The responses of the deaf were similar to the responses of the normal children in Vier's study.

Putoff (1972) selected 312 bilingual children from

rural first, second, and third grade in West Texas and reported norms on the Hand Test. He was able to obtain two statistically significant negative correlation coefficient between Peabody Picture Vocabulary Test and the Hand Test. He concluded that bilingual children responded with the least amount of responses to each category of the Hand Test.

In the literature we find only a few Hand Test studies using subjects from foreign countries. Seig (1965) reported on the Hand Test in German-speaking countries. Neuber (Wagner, 1971) reported measures of central tendency and variability for Guamanian elementary school children, high school students, college students and adults. His samples produced more responses than United States samples. Wagner (1971) states that Neuber's findings "can reflect, in an objective way, intercultural differences" (p. 67). Minoura (Wagner, 1971), a Japanese psychologist, assembled data on sixty Japanese Junior High School Boys (age 14) and sixty college students (ages 19-22). He found out that his norms were similar to American samples.

The review of the Hand Test literature reveals that different scoring categories have been used to differentiate between specific groups of the population. Unfortunately little research has been done on foreign subjects from foreign countries to investigate their responses to the Hand Test stimuli. This research uses four scoring categories of

the test in order to find out if the two different groups of this study would show statistically significant differences on the scoring categories of the test.

# CHAPTER III

## STATEMENT OF THE PROBLEM

The problem to be investigated in this research is: Are the responses of higher-education Iranian students to the Hand Test stimuli significantly different from the responses of non-higher education Iranian students to the Hand Test stimuli? This will be accomplished by administering the Hand Test according to the standard procedures as described by Wagner (1971) to two groups of Iranian students: (a) one group of male Iranian students who are in higher education and (b) another group of Iranian students who are not in higher education.

The scoring categories to be investigated are: (1) the interpersonal (INT) responses, (2) maladjustive (MAL) responses, (3) withdrawal (WITH) responses, and (4) acting-out score (AOS).

This author has selected one hundred Iranian students for this study. Half of these students have recently left their country and are living in the State of Oklahoma for less than six months. The other half have been living here for more than two and a half years.

According to Marvin Zonis (1971) Iran's society is structured and there is no place for permissiveness. The society is controlled by a political elite who run the country. The emphasis is on conformity of the individual and non-conformity is not allowed. On the contrary, the Western Culture places great emphasis on individuality rather than conformity (Bierstedt, 1970). It would be safe to assume that Iran's culture operates at the opposite direction of America's culture.

Half of the subjects in this study - those who have left Iran recently and are living here for less than six months - would be representatives of their group in Iran; the other half have been living here in a permissive society with a chance to express their individuality.

It is expected that no significant differences would be obtained and the Hand Test would not be able to differentiate between these two groups.

## Significance of the Study

This study will serve as a comparison with other researches conducted on the Hand Test. It will also provide the addition of a new group, Iranian students to the data concerning the Hand Test. It is felt that the responses of these students who are going to live in a different culture for a period of time would be most informative and would contribute to the Hand Test as a projective technique for personality assessment.

## Hypotheses to be Tested

Hypothesis 1: There is no difference between the median number of interpersonal (INT) responses of higher education Iranian students and the median number of interpersonal (INT) responses of non-higher education Iranian students to the Hand Test stimuli.

Hypothesis 2: There is no significant diference between the median number of maladjustive (MAL) response of higher education Iranian students and the median number of maladjustive (MAL) responses of non-higher education Iranian students to the Hand Test stimuli.

Hypothesis 3: There is no significant difference between the median number of withdrawal(WITH) responses of higher education Iranian students and the median number of withdrawl (WITH) responses of non-higher education Iranian students to the Hand Test stimuli.

Hypothesis 4: No difference exists between the median acting-out score (AOS) of the higher education Iranian students and the median acting-out score (AOS) of the non-higher education Iranian students to the Hand Test stimuli.

# CHAPTER IV

# METHODOLOGY

## The Instrument

The Hand Test is a projective technique developed by Wagner, Bricklin and Piotrowski in 1962. It consists of ten cards approximately three by five inches in size, with pictures of hands as a projective medium. On each card, except the last, a different picture of a hand is drawn. The tenth card is blank. The cards are presented one at a time and the subject must tell what the hands are doing. For the last (tenth) card the subject must imagine a hand and tell what it is doing. Appendix A shows the drawings of the hands that appear on the stimulus cards.

The reliability and validity of the Hand Test were reported by Wagner (1971), using the records compiled for his original sample (N=1,020). The Spearman - Brown, split-half reliability coefficients were computed independently by each of three scorers with the following results: scorer A, .85; scorer B, .84; scorer C, .85. Concurrent validity was established by comparing the results obtained in the normative groups to the results of the "known groups". The

known groups consist of normal adults, inmate of a state penitentiary, psychiatric patients, indigents, and normal children and teenagers.

Hand Test has fifteen different scoring categories. These categories are:

(1) Affection (AFF)
(2) Dependence (DEP)
(3) Communication (COM)
(4) Exhibitionism (EXH)
(5) Direction (DIR)
(6) Aggression (AGG)
(7) Acquisition (ACQ)
(8) Active Impersonal (ACT)
(9) Passive (PAS)
(10) Tension (TEN)
(11) Crippled (CRIP)
(12) Fear (FEAR)
(13) Description (DES)
(14) Failure (FAIL)
(15) Bizarre (BIZ)
(16) Acting-out score (AOS)

$$AOS = \Sigma(DIR + AGG) - \Sigma(AFF + DEP + COM)$$

In addition, there are four summation symbols which represent combinations of the symbols defined above. These are:

Interpersonal, INT: AFF, DEP, COM, EXH, DIR and AGG are combined for the 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 partitally 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.

In addition to these scoring categories and summation symbols, a S's responses may be adjudged by the scorer to be of sexual conent (SEX), immature content (IM), inanimate content (INAN), hiding content (HID), sensual content (SEN), internalization content (IN), denial content (DEN), and movement content (MOV).

## The Subjects

1. "Higher Education" Ss: The "Higher Education" Ss (N = 50) were selected randomly from among male Iranian students who were studying at The University of Oklahoma, Oklahoma City University, and Oklahoma State University for a Bachelor's or Master's Degree. Consideration was given to select those subjects who have lived in the state of Oklahoma for more than two and half years. The mean age for the group was 26 years, 5 months (Appendix B lists demographic data on these subjects.)

2. "Non-Higher Education" Ss: The "Non-Higher Education" Ss (N = 50) were male Iranian students who were attending the English Language Service (ELS) of The University

of Oklahoma. These subjects upon completion the ELS course will enter an institution of higher education. Consideration was given to select those subjects who have lived in U. S. A. for less than six months. The mean age for this group was 21 years, 6 months (Appendix C lists demographic data on these subjects).

## The Procedures

All the subjects were individually administered the Hand Test according to the standardized procedures (Wagner, 1971). All the subjects in each group were told that their responses to the test would be compared with the other group for differentiation purposes. No mention was made in regard to the four scoring categories of the test (INT, MAL, WITH and AOS responses) and the test as being a projective instrument. No subject refused to take the test and only two expressed a slight reluctance to do so. The Hand Test was administered by the researcher who has academic experience in the area, which included administering and scoring more than one hundred tests under supervision.

## Scoring

The author scored each one of the one hundred test protocols twice according to Wagner's instructions as stated in the Hand Test Manual (1971). This researcher experienced some difficulties when trying to differentiate between

responses that seemed capable of falling into several of the scoring categories, (e.g., ACT, DIR, ACQ). Roberts (1971) related similar difficulties as did the present author. Therefore, to safeguard against any mistakes, this researcher scored the responses in a consistent manner and followed the scoring instructions assiduously.

# CHAPTER V

## RESULTS

### Hypothesis One

$H_1$ (There is no difference between the median numbers of interpersonal responses of higher and non-higher education Iranian students to the Hand Test stimuli) was tested by using a Median Test (Downie and Heath, 1965). Table 1 gives the results of testing the hypothesis.

Table 1

RESULTS OF TESTING $H_1$

| | INT $>4$ | INT $\leq 4$ |
|---|---|---|
| Higher Ed. | 25 | 25 |
| Non-higher Ed. | 21 | 29 |

$df = 1$

$X^2 = .36$

$P > .05$

The median number of INT responses for the combined group was 4.33. More of the higher education Iranian students scored above the joint median than the other group but the results were not significant. The obtained value of Chi square

($X^2 = .36$), using Yate's correction for continuity, was not sufficient enough to reject $H_1$.

## Hypothesis Two

$H_2$ (There is no difference between the median numbers of maladjustive responses of higher and non-higher education Iranian students to the Hand Test stimuli) is presented in Table 2.

Table 2

RESULTS OF TESTING $H_2$

| | MAL>1 | MAL<1 |
|---|---|---|
| Higher Ed. | 17 | 33 |
| Non-higher Ed. | 22 | 28 |

$df = 1$

$X^2 = 1.51$

$P > .05$

The joint median for both groups was 1.19. More of the non-higher education scored above the joint median than the other group but the obtained value of $X^2$, using Yate's correction for continuity, did not warrant the rejection of $H_2$.

## Hypothesis Three

$H_3$ (There is no significant difference between the median numbers of withdrawal (WITH) responses of higher and

non-higher education Iranian students to the Hand Test stimuli) was tested by using the median test with Yate's correction for continuity. The results are presented in Table 3.

Table 3

RESULTS OF TESTING $H_3$

| | WITH $>0$ | WITH $\leq 0$ |
|---|---|---|
| Higher Ed. | 15 | 35 |
| Non-higher Ed. | 22 | 28 |

$df = 1$

$X^2 = 2.74$

$P > .05$

The obtained value of $X^2$ was not large enough to reject $H_3$ but again more of non-higher education subjects scored above the joint median of .29 than the other group.

## Hypothesis Four

$H_4$ (There is no significant difference between the median acting-out scores (AOS) of the higher and non-higher education Iranian students to the Hand Test stimuli) is presented in Table 4.

Table 4

RESULTS OF TESTING $H_4$

| | AOS $\geq 0$ | AOS $<0$ |
|---|---|---|
| Higher Ed. | 27 | 23 |

| | | |
|---|---|---|
| Non-higher Ed. | 24 | 26 |

$df = 1$

$X^2 = .16$

$P > .05$

The joint median for the both groups was -.44. More of the higher education subjects scored above the joint median than the other group. The value of $X^2 = .16$ was not large enough to reject $H_4$.

# CHAPTER VI

## DISCUSSION

This study was conducted to find out if the responses of higher-education Iranian students to the Hand Test stimuli are significantly different from the responses of non-higher education Iranian students. The study revealed no marked differences between the responses of the two groups.

Interpersonal (INT) responses are obtained by adding the sums of the AFF (Affection), DEP (Dependence), COM (Communication), EXH (Exhibition), DIR (Direction) and AGG (Aggression), As shown in Tables 5 and 6 higher education subjects gave 42.75% and non-higher subjects gave 40.55% in this category. This was expected to be the case because of the length of time the former group have lived in this country. Nonetheless, this difference was not statistically significant. One point of interest worth mentioning is that higher-education subjects gave 12% AFF responses whereas non-higher subjects gave 14.44%. This can be assumed as to the need of this group for the feeling of friendliness while adapting to their new environment. Another interesting point is the 2.22% COM responses of non-higher education subjects in

comparison of 6% COM responses of the other group.

Maladjustive (MAL) responses are derived by adding the sums of the TEN (tension), CRIP (crippled) and FEAR. Non-higher education subjects gave 13.5% and higher-education subjects gave 10.5% in this category. This difference was not statistically significant but it can be assumed that the former group will have some problem at the beginning of their adjustment. This assumption can be supported by the responses of the both groups in TEN category. The non-higher education group gave 8.14% whereas the higher education group gave only 6%.

Withdrawal (WITH) score is obtained by adding the sums of the DES (description), BIZ (bizarre) and FAIL (failure). According to Wagner (1971) a high frequency of WITH responses is indicative of a subject who has 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." Non-higher education subjects gave 5.92% and higher education subjects gave 4% in this category. This was not statistically significant.

Acting-out score (AOS) is derived by subtracting the sums of the AFF, DEP, and COM responses from the sums of DIR and AGG responses. Higher education subjects gave 16.30% in DIR and AGG; and 20% in AFF, DEP and COM categories.

Non-higher education group gave 16.11% and 19.8% respectively. It seems the AOS for both groups is the same regardless of the length of the time the former group has spent in this country.

A limitation of the study is that the author, knowing which group each subject belonged to, scored the test himself. He could have been unconsciously biased in his scoring so as to make the results conform to his hypotheses.

Table 5

RESPONSES OF "HIGHER EDUCATION" Ss
(N = 50)

| Scoring Categories | Hands $H_1$ | $H_2$ | $H_3$ | $H_4$ | $H_5$ | $H_6$ | $H_7$ | $H_8$ | $H_9$ | $H_{10}$ | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AFF | 22 | 0 | 0 | 25 | 0 | 1 | 7 | 0 | 5 | 5 | 65 | 12% |
| DEP | 2 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | 1 | 1 | 10 | 2% |
| COM | 8 | 2 | 1 | 4 | 1 | 1 | 3 | 2 | 3 | 6 | 31 | 6% |
| EXH | 2 | 5 | 0 | 2 | 5 | 1 | 3 | 3 | 6 | 11 | 38 | 7% |
| DIR | 12 | 1 | 8 | 2 | 0 | 1 | 9 | 0 | 2 | 0 | 35 | 6% |
| AGG | 0 | 9 | 0 | 3 | 1 | 30 | 2 | 2 | 1 | 6 | 54 | 10% |
| INT | 46 | 17 | 9 | 36 | 8 | 34 | 29 | 7 | 18 | 29 | 233 | 42.75% |
| ACQ | 0 | 10 | 0 | 8 | 2 | 1 | 1 | 1 | 3 | 0 | 26 | 5% |
| ACT | 10 | 15 | 44 | 13 | 11 | 7 | 8 | 39 | 14 | 16 | 177 | 32.5% |
| PAS | 2 | 3 | 0 | 0 | 15 | 0 | 6 | 0 | 4 | 0 | 30 | 5.5% |
| ENV | 12 | 28 | 44 | 21 | 28 | 8 | 15 | 40 | 21 | 16 | 233 | 42.75% |
| TEN | 0 | 4 | 0 | 0 | 6 | 11 | 1 | 2 | 5 | 5 | 34 | 6% |
| CRIP | 0 | 3 | 0 | 0 | 9 | 0 | 2 | 1 | 6 | 0 | 21 | 4% |
| FEAR | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 3 | .5% |
| MAL | 0 | 8 | 0 | 0 | 15 | 12 | 4 | 3 | 11 | 5 | 58 | 10.5% |
| DES | 2 | 3 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 8 | 1.5% |
| FAIL | 1 | 1 | 0 | 2 | 1 | 0 | 4 | 0 | 2 | 0 | 11 | 2% |
| BIZ | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | .36% |
| WITH | 3 | 4 | 0 | 2 | 2 | 0 | 7 | 0 | 3 | 0 | 21 | 4% |
| DIR+AGG | 12 | 10 | 8 | 5 | 1 | 31 | 11 | 2 | 3 | 6 | 89 | 16.30% |
| TOTAL | 61 | 57 | 53 | 59 | 53 | 54 | 55 | 50 | 53 | 50 | 545 | 100% |

Table 6

RESPONSES OF "NON-HIGHER EDUCATION" Ss
(N = 50)

| Scoring Categories | Hands $H_1$ | $H_2$ | $H_3$ | $H_4$ | $H_5$ | $H_6$ | $H_7$ | $H_8$ | $H_9$ | $H_{10}$ | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AFF | 23 | 0 | 2 | 24 | 2 | 2 | 12 | 0 | 2 | 11 | 78 | 14.44% |
| DEF | 2 | 6 | 1 | 3 | 0 | 0 | 1 | 0 | 2 | 2 | 17 | 3.41% |
| COM | 0 | 0 | 1 | 4 | 0 | 2 | 1 | 0 | 2 | 2 | 12 | 2.22% |
| EXH | 3 | 1 | 0 | 2 | 4 | 2 | 2 | 2 | 1 | 8 | 25 | 4.62% |
| DIR | 19 | 2 | 2 | 1 | 0 | 0 | 10 | 0 | 1 | 1 | 36 | 6.66% |
| AGG | 2 | 9 | 0 | 3 | 2 | 26 | 0 | 1 | 2 | 6 | 51 | 9.44% |
| INT | 49 | 18 | 6 | 37 | 8 | 32 | 26 | 3 | 10 | 30 | 219 | 40.55% |
| ACQ | 1 | 7 | 0 | 4 | 3 | 1 | 0 | 1 | 2 | 2 | 21 | 3.88% |
| ACT | 3 | 10 | 47 | 10 | 7 | 5 | 8 | 42 | 11 | 12 | 155 | 28.7% |
| PAS | 0 | 6 | 1 | 4 | 14 | 0 | 7 | 1 | 7 | 0 | 40 | 7.40% |
| ENV | 4 | 23 | 48 | 18 | 24 | 6 | 15 | 44 | 20 | 14 | 216 | 4% |
| TEN | 1 | 5 | 1 | 2 | 5 | 15 | 1 | 0 | 5 | 9 | 44 | 8.14% |
| CRIP | 1 | 2 | 0 | 1 | 14 | 0 | 2 | 0 | 7 | 0 | 27 | 5% |
| FEAR | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | .37% |
| MAL | 2 | 9 | 1 | 3 | 19 | 15 | 3 | 0 | 12 | 9 | 73 | 13.51% |
| DES | 0 | 4 | 0 | 0 | 0 | 3 | 4 | 1 | 3 | 0 | 14 | 2.59% |
| FAIL | 1 | 0 | 0 | 0 | 3 | 0 | 3 | 2 | 8 | 0 | 17 | 3.14% |
| BIZ | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | .18% |
| WITH | 1 | 4 | 0 | 0 | 4 | 3 | 7 | 3 | 10 | 0 | 32 | 5.92% |
| DIR+AGG | 21 | 11 | 2 | 4 | 2 | 26 | 10 | 1 | 3 | 7 | 87 | 16.11% |
| TOTAL | 56 | 54 | 55 | 58 | 55 | 56 | 51 | 50 | 52 | 53 | 540 | 100% |

# CHAPTER VII

## SUMMARY AND RECOMMENDATIONS

Hand Test was administered to one hundred Iranian students. Half of these students were studying for a Bachelor's or Master's degree in the University of Oklahoma, Oklahoma City University, and Oklahoma State University. Consideration was given to select those students who have lived in the State of Oklahoma for more than two and a half years. The other half of the subjects were those who were studying at the English Language Service of the University of Oklahoma and had lived here for less than six months. The higher and non-higher education groups had a mean age of 25 years, 5 months and 21 years, 6 months respectively.

The study was conducted to find out if the responses of these two groups to the Hand Test stimuli were statistically significant at .05 level of confidence. The study revealed no marked differences between the responses of the two groups.

Four hypotheses were tested by using a Median Test (Downie and Heath, 1965). The results of hypotheses were as follows:

1. There was no significant difference between the higher and non-higher education Iranian students in the number of INT (interpersonal) responses of the Hand Test.

2. There was no significant difference between the higher and non-higher education Iranian students in the number of MAL (maladjustive) responses of the Hand Test.

3. There was no significant difference between the higher and non-higher education Iranian students in the number of WITH (withdrawal) responses of the Hand Test.

4. There was no significant difference between higher and non-higher education Iranian students on the acting-out score of the Hand Test.

It was determined that although no significant difference were obtained in this study, the higher education group scored more on INT and COM responses and scored less on MAL and WITH responses in comparison with the other group. AOS for both groups were almost the same.

## Recommendation for Further Study

The Hand Test is a new projective technique which has great potential for future research designs. It needs to be refined and perfected as an instrument for personality assessment. The following are suggested for future research.

1. Development of normative data on the Hand Test for Iranian students living in U. S. A.

2. Development of normative data on the Hand Test on the different groups in Iran.

3. Modification or revision of some scoring criterion for the elimination of some ambiguities in the instrument.

4. More correlative studies of the Hand Test with other projective tests.

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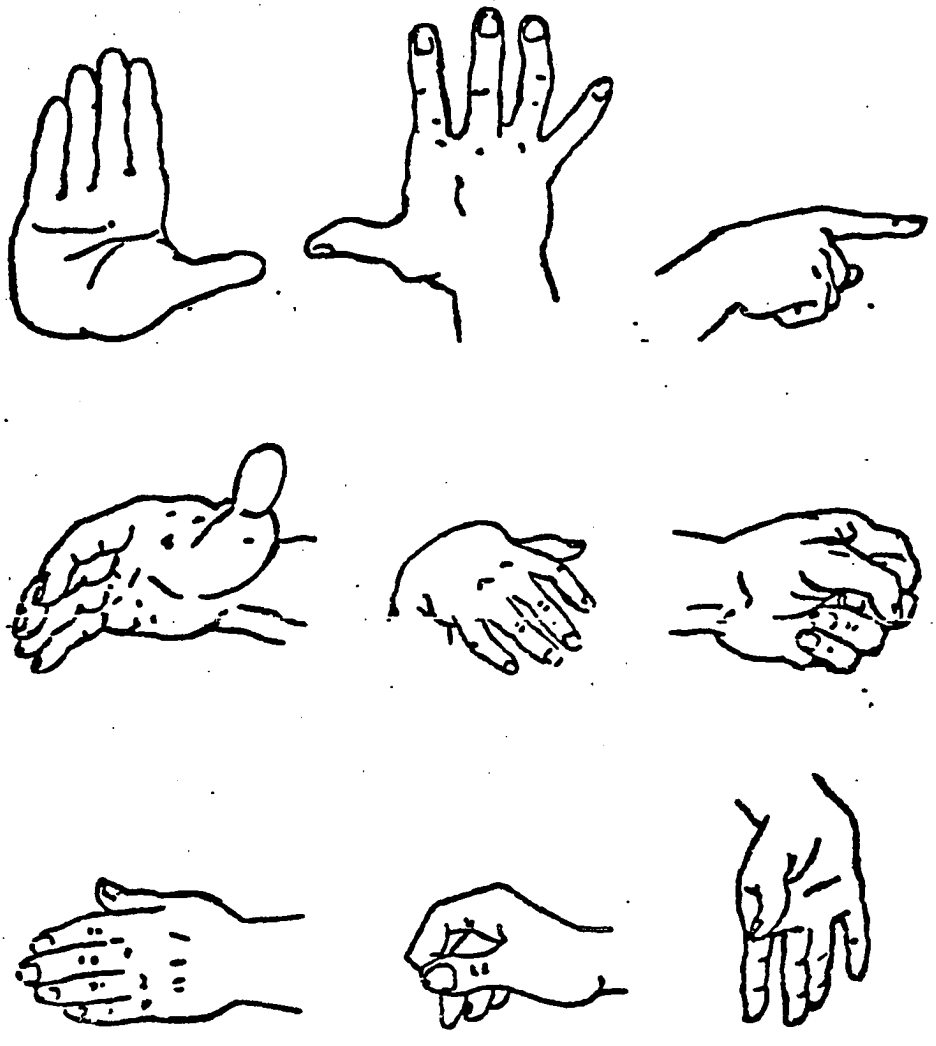
# APPENDIX A

## STIMULUS ITEMS OF THE HAND TEST



*Test Materials as Reproduced in the Book*
*are Available from*
*Doctor Edwin E. Wagner*
*Department of Psychology, University of Akron*
*Akron, Ohio*

# APPENDIX B

## DEMOGRAPHIC DATA ON "HIGHER EDUCATION" SUBJECTS

DESCRIPTIVE DATA ABOUT "HIGHER EDUCATION" Ss

| Subject | Sex | Race | CA Yr. Mo. |
|---|---|---|---|
| $S_1$ | M | W | 28-10 |
| $S_2$ | M | W | 24-1 |
| $S_3$ | M | W | 25-11 |
| $S_4$ | M | W | 25-5 |
| $S_5$ | M | W | 26-9 |
| $S_6$ | M | W | 26-1 |
| $S_7$ | M | W | 21-3 |
| $S_8$ | M | W | 27-11 |
| $S_9$ | M | W | 28-3 |
| $S_{10}$ | M | W | 25-0 |
| $S_{11}$ | M | W | 29-2 |
| $S_{12}$ | M | W | 24-7 |
| $S_{13}$ | M | W | 29-4 |
| $S_{14}$ | M | W | 23-3 |
| $S_{15}$ | M | W | 23-9 |
| $S_{16}$ | M | W | 25-7 |
| $S_{17}$ | M | W | 29-4 |
| $S_{18}$ | M | W | 26-7 |
| $S_{19}$ | M | W | 28-4 |
| $S_{20}$ | M | W | 21-2 |
| $S_{21}$ | M | W | 27-1 |
| $S_{22}$ | M | W | 21-9 |
| $S_{23}$ | M | W | 26-0 |
| $S_{24}$ | M | W | 23-7 |
| $S_{25}$ | M | W | 24-9 |

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DESCRIPTIVE DATA ABOUT "HIGHER EDUCATION" Ss

| Subject | Sex | Race | CA Yr. Mo. |
|---|---|---|---|
| $S_{26}$ | M | W | 25-3 |
| $S_{27}$ | M | W | 26-3 |
| $S_{28}$ | M | W | 29-5 |
| $S_{29}$ | M | W | 25-8 |
| $S_{30}$ | M | W | 29-5 |
| $S_{31}$ | M | W | 25-7 |
| $S_{32}$ | M | W | 27-7 |
| $S_{33}$ | M | W | 22-4 |
| $S_{34}$ | M | W | 28-1 |
| $S_{35}$ | M | W | 27-9 |
| $S_{36}$ | M | W | 27-5 |
| $S_{37}$ | M | W | 24-11 |
| $S_{38}$ | M | W | 23-5 |
| $S_{39}$ | M | W | 25-5 |
| $S_{40}$ | M | W | 25-1 |
| $S_{41}$ | M | W | 27-1 |
| $S_{42}$ | M | W | 25-1 |
| $S_{43}$ | M | W | 25-11 |
| $S_{44}$ | M | W | 29-11 |
| $S_{45}$ | M | W | 28-6 |
| $S_{46}$ | M | W | 27-3 |
| $S_{47}$ | M | W | 28-8 |
| $S_{48}$ | M | W | 27-5 |
| $S_{49}$ | M | W | 26-6 |
| $S_{50}$ | M | W | 25-2 |

# APPENDIX C

## DEMOGRAPHIC DATA ON "NON-HIGHER EDUCATION" SUBJECTS

DESCRIPTIVE DATA ABOUT "NON-HIGHER EDUCATION" Ss

| Subject | Sex | Race | CA Yr. Mo. |
|---|---|---|---|
| $S_1$ | M | W | 19-3 |
| $S_2$ | M | W | 21-5 |
| $S_3$ | M | W | 21-11 |
| $S_4$ | M | W | 18-9 |
| $S_5$ | M | W | 19-0 |
| $S_6$ | M | W | 19-5 |
| $S_7$ | M | W | 22-10 |
| $S_8$ | M | W | 20-3 |
| $S_9$ | M | W | 26-4 |
| $S_{10}$ | M | W | 23-1 |
| $S_{11}$ | M | W | 19-8 |
| $S_{12}$ | M | W | 24-11 |
| $S_{13}$ | M | W | 18-10 |
| $S_{14}$ | M | W | 22-10 |
| $S_{15}$ | M | W | 20-11 |
| $S_{16}$ | M | W | 20-5 |
| $S_{17}$ | M | W | 19-6 |
| $S_{18}$ | M | W | 19-2 |
| $S_{19}$ | M | W | 21-6 |
| $S_{20}$ | M | W | 23-4 |
| $S_{21}$ | M | W | 20-9 |
| $S_{22}$ | M | W | 25-1 |
| $S_{23}$ | M | W | 20-11 |
| $S_{24}$ | M | W | 22-1 |
| $S_{25}$ | M | W | 23-9 |

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DESCRIPTIVE DATA ABOUT "NON-HIGHER EDUCATION" Ss

| Subject | Sex | Race | CA Yr. Mo. |
|---|---|---|---|
| $S_{26}$ | M | W | 25-6 |
| $S_{27}$ | M | W | 22-7 |
| $S_{28}$ | M | W | 26-7 |
| $S_{29}$ | M | W | 26-5 |
| $S_{30}$ | M | W | 18-10 |
| $S_{31}$ | M | W | 19-6 |
| $S_{32}$ | M | W | 22-6 |
| $S_{33}$ | M | W | 18-10 |
| $S_{34}$ | M | W | 23-8 |
| $S_{35}$ | M | W | 23-8 |
| $S_{36}$ | M | W | 20-3 |
| $S_{37}$ | M | W | 19-8 |
| $S_{38}$ | M | W | 18-0 |
| $S_{39}$ | M | W | 18-4 |
| $S_{40}$ | M | W | 20-10 |
| $S_{41}$ | M | W | 22-6 |
| $S_{42}$ | M | W | 21-9 |
| $S_{43}$ | M | W | 25-2 |
| $S_{44}$ | M | W | 25-2 |
| $S_{45}$ | M | W | 23-9 |
| $S_{46}$ | M | W | 24-7 |
| $S_{47}$ | M | W | 22-6 |
| $S_{48}$ | M | W | 23-7 |
| $S_{49}$ | M | W | 22-5 |
| $S_{50}$ | M | W | 20-9 |

# APPENDIX D

## SCORING CATEGORIES OF THE HAND TEST

## HAND TEST SCORING CATEGORIES

1. Affection, AFF: Interpersonal responses involving an interchange or bestowment of pleasure, affection or friendly feeling.

"Waving to a friend--a greeting."
"Signaling." (Q) Saying 'hi!', in a gesture of friendship."
"A friendly salute to a fellow officer."
"Patting someone on the back."
"Shaking hands."
"Petting my cocker spaniel."
"The hand of a lover." (Q) "An embrace."
"Priest blessing someone."
"Mother's hand helping her child across the street."
"Comforting hand of a nurse."

2. Dependence, DEF: Interpersonal responses involving an expressed dependence or need for succor from another person.

"A hand folded in prayer, asking for forgiveness."
"Hitch hiker thumbing a ride."
"Begging ... panhandling."
"Someone pleading for mercy."
"A drowning person calling for help."
"Hand's in the air." (Q) "I surrender!"
"Little child reaching for mother's skirt."
"Holding hand out to receive something." (Q) "Money."
"Saluting your leader."
"Child holding hand up in class." (Q) "To leave the room."

3. Communication, COM: Interpersonal responses involving a presentation or exchange of information.

"Giving a speech--wants to make a point."
"Like saying, 'Oh, you're joshing!' (D)."
"Stressing a point in conversation."
"A child holding fingers up, showing how old he is."
"Sign language." (Q) "A deaf mute talking."

"Describing something to somebody."
"Communicating with your sign-man."
"Talking with your hands."
"Saying, don't you understand?"
"Playing that Italian game: rock, paper, scissors."

4. Exhibition, EXH: Interpersonal responses which involve displaying or exhibiting one's self in order to obtain approval from others or to stress some special noteworthy characteristic of the hand.

"Showing off his muscles."
"A minstrel man--dancing."
"Showing off her diamond ring."
"A ballet dancer with graceful hand movements."
"Making shadow pictures on the wall."
"Hand of a lady held out to be kissed."
"Child showing off his clean hand."
"A comedian doing his stuff."
"Like Hitler." (Q) "On the balcony receiving heils from his people--he's a big deal."
"Flashing her new bracelet."

5. Direction, DIR: Interpersonal responses involving influencing the activities of, dominating, or directing others.

"Policeman saying stop."
"Teacher sending a child to the board."
"Traffic signals. Making a right turn."
"Giving a command."
"Shoving a dog out the door."
"Leading an orchestra."
"Inciting the workers to a riot."
"Quarterback calling a huddle."
"Someone saying shush!"
"Crain operator." (Q) "Lower the boom!"

6. Aggression, AGG: Interpersonal responses involving the giving of pain, hostility, or aggression.

"Trying to scare someone."
"Grabbing someone with violence."
"A judo punch to break the shoulder blade."

"Making a fist." (Q) "To hit somebody."
"Slapping a fly."
"A punch in the mouth."
"Pushing someone off a cliff."
"Pow! Right in the kisser!"
"Boxing in the ring."
"Wringing a chicken's neck."

7. Acquition, ACQ: Environmental responses involving an attempt to acquire or obtain a goal or object. The movement is ongoing and the goal is yet to be obtained and, to some extent, still in doubt.

"Reaching for something on a high shelf."
"Kid trying to get into a cookie jar."
"Trying to catch a football."
"Jumping up to grab hold of a tree branch."
"Stretched out." (Q) "Grabbing for something going by."
"Grabbing for something that has fallen."
"Reaching for the rung of a ladder."
"A climber." (Q) "Trying to grab a ledge."
"Like on a bus." (Q) "Reaching for the strap."
"Groping for something caught in a crevice."

8. Active, ACT: Environmental responses involving an action or attitude designed to constructively manipulate, 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.

"Might be trping."
"Picking up a coin."
"Writing with a pencil."
"Sprinkling salt."
"Carrying a suitcase."
"Threading a needle."
"Throwing a ball."
"Dropping money in a tilt."
"Pulling in a fish."

9. Passive, PAS: Environmental responses involving an attitude or rest and/or relaxation in relation to the force of gravity, and a deliberate and appropriate withdrawal of energy from the hand.

"Just resting."
"Laying your hand flat on the table."
"Drying your fingernails."
"Laying out like this." (D) (Q) "Just limp."
"Hand folded in your lap."
"A sleeping hand."
"Just danging over a chair arm."
"A natural, relaxed hand. Like in the statue of the thinker."
"Hanging limp at your side."
"Folded over." (Q) "Like when you're relaxed reading a book."

10. Tension, TEN: Energy is being exerted but little or nothing is being accomplished. A feeling of anxiety, tension or malaise is present, TEN responses also include cases where energy is exerted to support onself against the pull of gravity accompanied by a definite feeling of strain and effort.

"A fist clenched in anger."
"Pushing upward." (Q) "Trying to get up."
"Tensing hard to see if the nerves are steady."
"Clenching your fingers to keep from saying wrong things."
"Hanging on to the edge of a cliff."
"Holding something very tight."
"A clenched fist of nervousness."
"Hand is stretched and twisted back."
"Straining on a parallel bar."

11. Crippled, CRIP: Hand is crippled, sore, dead, disfigured, sick, injured or incapacitated.

"A dead person's hand."
"Someone's ill-sick hand-just about hanging on to life."

"Looks sorta deformed."
"That hand is bleeding."
"Cerebral palsy."
"Been in an accident. Hanging out of the car window."
"All beat up."
"Woman's hand, she's been hurt. Raped maybe."
"Fingers cut off."
"Got black spots on it."
"Frozen stiff. Been out in the cold."

12. 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.

"Trembling ... it's frightened by something."
"Person going down for the third time."
"Shielding his face." (Q) "Against an atomic blast."
"Pretty morbid ... (Q) Terrified ... ugh!"
"Walled in. Trying to get out but can't."
"My father's hand ... like he's going to hit me."
"Like a hand in the night trying to strangle me."
"Falling back. Trying to save himself."
"Raised up to ward off a blow or flying glass."
"Being sucked into quicksand."

13. Description, DES: Subject can do no more than acknowledge the presence of the hand with perhaps a few accompanying inconsequential descriptive details or feeling tones.

"Just a hand."
"Palm up." (Q) "That's all."
"Kust straight out ... not doing anything."
"A left hand." (Q) "Lady." (Q) "That's all."
"A fist." (Q) "No nothing."
"Hand with a string tied around it's finger."
"A plain ordinary hand."
"Five fingers. Two fingers together. That's all."
"Fingers closed." (Q) "Nothing else."

14. Bizarre, BIZ: A response predicted 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.

"The world--just looking at a distance--trying to get a feel."
"Give no hand as black. Pick up mama."
"A black bug."
"Crocodile creeping along the wall."
"Death's hand ... skull, skeleton, death."
"Hand of a virgin .. snow ... it's pure white."
"Culture, antidote, Dr. Heart, sleeping gas."
"A hand cord." (Q) "Going to see St. Thomas."
"See muscles? Brain comes from sunflowers."
"Bones, fingerbones, bone-bones, heart-bones."

15. Failure, FAIL: Subject can give no scorable response whatever to a particular card. A FAIL is tabulated in computing summary scoring, but is not included in the response total, R, since it is not really a response but a failure to respond.

Summarizing, there are fifteen possible symbols used in scoring the Hand Test protocal: AFF, DEP, COM, EXH, DIR, AGG, ACQ, ACT, PAS, TEN, CRIP, FEAT, DES, BIZ, FAIL.

In addition, there are four summation symbols which represent combinations of the symbols defined above. These are as follows:

Interpersonal, INT: AFF, DEP, COM, EXH, DIR and AGG are combined for the 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 are assumed to 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, difficults, and non-reinforcing that meaningful, effective life roles have been partially or completely abandoned.

# APPENDIX E

## ANALYSIS OF INDIVIDUAL RESPONSES OF "HIGHER EDUCATION" SUBJECTS ON THE HAND TEST

ANALYSIS OF INDIVIDUAL RESPONSES OF
"HIGHER EDUCATION" Ss ON THE HAND TEST

| Subject | AFF | DEP | COM | EXH | DIR | AGG | INT | ACQ | ACT | PAS | ENV | TEN | CRIP | FEAR | MAL | DES | FAIL | BIZ | WITH | DIR+AGG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $S_1$ | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 1 |
| $S_2$ | 1 | 1 | 1 | 0 | 0 | 2 | 5 | 0 | 2 | 1 | 3 | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 2 |
| $S_3$ | 1 | 0 | 0 | 0 | 0 | 2 | 3 | 1 | 4 | 0 | 5 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 2 |
| $S_4$ | 2 | 0 | 1 | 2 | 0 | 0 | 5 | 1 | 2 | 0 | 3 | 1 | 1 | 0 | 2 | 1 | 0 | 0 | 1 | 0 |
| $S_5$ | 3 | 0 | 0 | 1 | 1 | 0 | 5 | 0 | 5 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| $S_6$ | 2 | 0 | 0 | 0 | 2 | 1 | 5 | 3 | 4 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| $S_7$ | 2 | 0 | 0 | 0 | 1 | 1 | 4 | 0 | 1 | 2 | 3 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 2 |
| $S_8$ | 0 | 0 | 2 | 1 | 1 | 2 | 6 | 0 | 4 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| $S_9$ | 2 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 1 | 6 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| $S_{10}$ | 0 | 0 | 1 | 3 | 1 | 2 | 7 | 0 | 2 | 1 | 3 | 0 | 2 | 0 | 2 | 1 | 0 | 0 | 1 | 3 |
| $S_{11}$ | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 6 | 1 | 7 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 |
| $S_{12}$ | 2 | 0 | 1 | 0 | 2 | 0 | 5 | 1 | 4 | 0 | 5 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| $S_{13}$ | 2 | 0 | 0 | 1 | 0 | 2 | 5 | 0 | 3 | 0 | 3 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 2 |
| $S_{14}$ | 3 | 0 | 2 | 0 | 0 | 1 | 6 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| $S_{15}$ | 4 | 0 | 0 | 2 | 2 | 1 | 9 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| $S_{16}$ | 0 | 1 | 1 | 1 | 1 | 0 | 4 | 0 | 5 | 0 | 5 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 1 |
| $S_{17}$ | 1 | 0 | 0 | 2 | 1 | 0 | 4 | 0 | 5 | 0 | 5 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |

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ANALYSIS OF INDIVIDUAL RESPONSES OF
"HIGHER EDUCATION" Ss ON THE HAND TEST

| Subject | AFF | DEP | COM | EXH | DIR | AGG | INT | ACQ | ACT | PAS | ENV | TEN | CRIP | FEAR | MAL | DES | FAIL | BIZ | WITH | DIR+AGG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $S_{18}$ | 1 | 1 | 1 | 0 | 0 | 1 | 4 | 0 | 4 | 0 | 4 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| $S_{19}$ | 1 | 0 | 0 | 1 | 0 | 2 | 4 | 1 | 5 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| $S_{20}$ | 1 | 0 | 0 | 0 | 3 | 2 | 6 | 1 | 3 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| $S_{21}$ | 2 | 0 | 1 | 3 | 0 | 1 | 7 | 0 | 4 | 3 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| $S_{22}$ | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 4 | 0 | 5 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| $S_{23}$ | 0 | 1 | 0 | 2 | 0 | 0 | 3 | 0 | 5 | 1 | 6 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| $S_{24}$ | 2 | 0 | 1 | 1 | 0 | 0 | 4 | 1 | 7 | 2 | 10 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| $S_{25}$ | 3 | 0 | 1 | 1 | 0 | 2 | 7 | 1 | 1 | 0 | 2 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| $S_{26}$ | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 5 | 2 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $S_{27}$ | 2 | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 2 | 0 | 3 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 2 | 2 |
| $S_{28}$ | 1 | 0 | 0 | 1 | 1 | 1 | 4 | 0 | 3 | 1 | 4 | 0 | 2 | 0 | 2 | 1 | 1 | 0 | 2 | 2 |
| $S_{29}$ | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 4 | 0 | 4 | 1 | 3 | 0 | 4 | 0 | 1 | 0 | 1 | 0 |
| $S_{30}$ | 1 | 2 | 0 | 2 | 1 | 1 | 7 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 2 |
| $S_{31}$ | 1 | 0 | 0 | 1 | 0 | 2 | 4 | 2 | 2 | 0 | 4 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| $S_{32}$ | 2 | 1 | 0 | 1 | 0 | 1 | 5 | 3 | 3 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| $S_{33}$ | 1 | 0 | 0 | 1 | 1 | 2 | 5 | 1 | 3 | 0 | 4 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 |
| $S_{34}$ | 0 | 0 | 2 | 1 | 2 | 3 | 8 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |

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## ANALYSIS OF INDIVIDUAL RESPONSES OF "HIGHER EDUCATION" Ss ON THE HAND TEST

| Subject | AFF | DEP | COM | EXH | DIR | AGG | INT | ACQ | ACT | PAS | ENV | TEN | CRIP | FEAR | MAL | DES | FAIL | BIZ | WITH | DIR+AGG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $S_{35}$ | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 4 | 2 | 6 | 2 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 1 |
| $S_{36}$ | 1 | 0 | 1 | 0 | 1 | 1 | 4 | 1 | 4 | 0 | 5 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| $S_{37}$ | 2 | 0 | 0 | 0 | 1 | 1 | 4 | 2 | 2 | 1 | 5 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| $S_{38}$ | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 0 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 3 | 3 |
| $S_{39}$ | 1 | 0 | 2 | 0 | 1 | 1 | 5 | 2 | 3 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| $S_{40}$ | 0 | 0 | 1 | 0 | 2 | 1 | 4 | 0 | 4 | 2 | 6 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 3 |
| $S_{41}$ | 1 | 0 | 2 | 0 | 0 | 3 | 6 | 0 | 2 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 2 | 3 |
| $S_{42}$ | 1 | 0 | 0 | 4 | 0 | 1 | 6 | 0 | 3 | 0 | 3 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| $S_{43}$ | 2 | 1 | 1 | 1 | 0 | 1 | 6 | 0 | 2 | 0 | 2 | 2 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 1 |
| $S_{44}$ | 3 | 0 | 3 | 2 | 2 | 1 | 11 | 0 | 6 | 0 | 6 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 3 |
| $S_{45}$ | 1 | 0 | 1 | 0 | 1 | 2 | 5 | 1 | 3 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| $S_{46}$ | 0 | 0 | 1 | 0 | 0 | 2 | 3 | 1 | 4 | 1 | 6 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| $S_{47}$ | 1 | 0 | 1 | 0 | 0 | 3 | 5 | 0 | 3 | 2 | 5 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 3 |
| $S_{48}$ | 1 | 1 | 1 | 0 | 0 | 2 | 5 | 0 | 3 | 0 | 3 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| $S_{49}$ | 0 | 0 | 0 | 3 | 0 | 1 | 4 | 0 | 5 | 0 | 5 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| $S_{50}$ | 2 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 4 | 1 | 5 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 |

# APPENDIX F

## ANALYSIS OF INDIVIDUAL RESPONSES OF "NON-HIGHER EDUCATION" SUBJECTS ON THE HAND TEST

ANALYSIS OF INDIVIDUAL RESPONSES OF
"NON-HIGHER EDUCATION" Ss ON THE HAND TEST

| Subject | AFF | DEP | COM | EXH | DIR | AGG | INT | ACQ | ACT | PAS | ENV | TEN | CRIP | FEAR | MAL | DES | FAIL | BIZ | WITH | DIR+AGG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $S_1$ | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 4 | 1 | 6 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| $S_2$ | 3 | 1 | 0 | 0 | 0 | 2 | 6 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| $S_3$ | 1 | 0 | 1 | 1 | 0 | 0 | 3 | 0 | 5 | 0 | 5 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| $S_4$ | 1 | 0 | 0 | 1 | 0 | 3 | 5 | 1 | 3 | 1 | 5 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 3 |
| $S_5$ | 2 | 2 | 2 | 1 | 1 | 1 | 9 | 0 | 2 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 2 |
| $S_6$ | 2 | 1 | 0 | 0 | 0 | 1 | 4 | 0 | 2 | 3 | 5 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| $S_7$ | 1 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 3 | 1 | 4 | 3 | 1 | 0 | 4 | 0 | 0 | 0 | 0 | 2 |
| $S_8$ | 1 | 4 | 0 | 0 | 1 | 2 | 8 | 0 | 3 | 2 | 5 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 3 |
| $S_9$ | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| $S_{10}$ | 1 | 0 | 0 | 0 | 2 | 2 | 5 | 1 | 2 | 2 | 5 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 4 |
| $S_{11}$ | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 3 | 3 | 0 | 6 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 1 |
| $S_{12}$ | 3 | 0 | 0 | 0 | 2 | 3 | 8 | 0 | 3 | 0 | 3 | 2 | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 5 |
| $S_{13}$ | 1 | 0 | 0 | 0 | 1 | 2 | 4 | 0 | 4 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 3 |
| $S_{14}$ | 1 | 0 | 1 | 0 | 1 | 0 | 3 | 0 | 4 | 2 | 6 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| $S_{15}$ | 3 | 1 | 1 | 0 | 0 | 0 | 5 | 0 | 4 | 0 | 4 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| $S_{16}$ | 2 | 0 | 0 | 1 | 0 | 1 | 4 | 0 | 2 | 0 | 2 | 1 | 1 | 0 | 2 | 2 | 0 | 2 | 2 | 1 |
| $S_{17}$ | 0 | 0 | 3 | 1 | 2 | 0 | 6 | 1 | 2 | 0 | 3 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 2 |

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ANALYSIS OF INDIVIDUAL RESPONSES OF
"NON-HIGHER EDUCATION" Ss ON THE HAND TEST

| Subject | AFF | DEP | COM | EXH | DIR | AGG | INT | ACQ | ACT | PAS | ENV | TEN | CRIP | FEAR | MAL | DES | FAIL | BIZ | WITH | DIR+AGG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $S_{18}$ | 1 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 7 | 0 | 7 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| $S_{19}$ | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 4 | 4 | 8 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| $S_{20}$ | 2 | 0 | 0 | 0 | 1 | 1 | 4 | 0 | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 |
| $S_{21}$ | 2 | 1 | 0 | 1 | 2 | 2 | 8 | 0 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 4 |
| $S_{22}$ | 4 | 1 | 0 | 3 | 0 | 1 | 9 | 1 | 6 | 2 | 9 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| $S_{23}$ | 2 | 0 | 0 | 2 | 2 | 1 | 7 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 3 |
| $S_{24}$ | 0 | 0 | 0 | 1 | 1 | 3 | 5 | 0 | 3 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 4 |
| $S_{25}$ | 0 | 1 | 1 | 0 | 1 | 0 | 3 | 0 | 4 | 0 | 4 | 4 | 0 | 0 | 4 | 0 | 1 | 0 | 1 | 1 |
| $S_{26}$ | 1 | 0 | 0 | 0 | 1 | 1 | 3 | 1 | 3 | 2 | 6 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 2 |
| $S_{27}$ | 3 | 0 | 0 | 0 | 2 | 1 | 6 | 1 | 2 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| $S_{28}$ | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 4 | 0 | 4 | 3 | 0 | 0 | 3 | 1 | 0 | 0 | 1 | 2 |
| $S_{29}$ | 1 | 0 | 0 | 0 | 1 | 1 | 3 | 2 | 4 | 0 | 6 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| $S_{30}$ | 1 | 0 | 0 | 0 | 1 | 1 | 3 | 1 | 2 | 0 | 3 | 2 | 0 | 0 | 2 | 1 | 1 | 0 | 2 | 2 |
| $S_{31}$ | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 5 | 6 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 |
| $S_{32}$ | 2 | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 3 | 0 | 4 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| $S_{33}$ | 2 | 0 | 1 | 0 | 0 | 1 | 4 | 1 | 3 | 0 | 4 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 1 |
| $S_{34}$ | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 4 | 1 | 7 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

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ANALYSIS OF INDIVIDUAL RESPONSES OF
"NON-HIGHER EDUCATION" Ss ON THE HAND TEST

| Subject | AFF | DEP | COM | EXH | DIR | AGG | INT | ACQ | ACT | PAS | ENV | TEN | CRIP | FEAR | MAL | DES | FAIL | BIZ | WITH | DIR+AGG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $S_{35}$ | 1 | 1 | 0 | 1 | 2 | 0 | 5 | 1 | 1 | 1 | 3 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 2 | 2 |
| $S_{36}$ | 2 | 0 | 1 | 0 | 0 | 2 | 5 | 0 | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| $S_{37}$ | 3 | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 3 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| $S_{38}$ | 0 | 0 | 0 | 2 | 1 | 2 | 5 | 0 | 2 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 3 |
| $S_{39}$ | 1 | 1 | 0 | 0 | 0 | 2 | 4 | 0 | 2 | 0 | 2 | 1 | 2 | 0 | 3 | 1 | 0 | 0 | 1 | 2 |
| $S_{40}$ | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 3 | 6 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 2 | 0 |
| $S_{41}$ | 1 | 0 | 0 | 0 | 1 | 2 | 4 | 0 | 3 | 0 | 3 | 0 | 2 | 0 | 2 | 1 | 0 | 0 | 1 | 3 |
| $S_{42}$ | 1 | 1 | 0 | 0 | 0 | 2 | 4 | 0 | 2 | 1 | 3 | 0 | 1 | 0 | 1 | 2 | 0 | 2 | 2 | 2 |
| $S_{43}$ | 3 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 1 | 0 | 2 | 2 | 3 | 0 | 5 | 0 | 0 | 0 | 0 | 1 |
| $S_{44}$ | 2 | 0 | 0 | 0 | 1 | 1 | 4 | 0 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 2 | 2 |
| $S_{45}$ | 3 | 1 | 0 | 1 | 1 | 1 | 7 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| $S_{46}$ | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 3 | 7 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| $S_{47}$ | 1 | 0 | 0 | 6 | 0 | 0 | 7 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 |
| $S_{48}$ | 3 | 0 | 0 | 0 | 1 | 1 | 5 | 0 | 3 | 1 | 4 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| $S_{49}$ | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 4 | 1 | 6 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| $S_{50}$ | 2 | 0 | 1 | 2 | 0 | 0 | 5 | 0 | 3 | 0 | 3 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |