Stanford-Ohwaki-Kohs Block Design Intelligence Test for the Blind

American Revision of the Ohwaki-Kohs Test

MANUAL

by Richard M. Suinn, Ph.D.
and William L. Dauterman, M.A.

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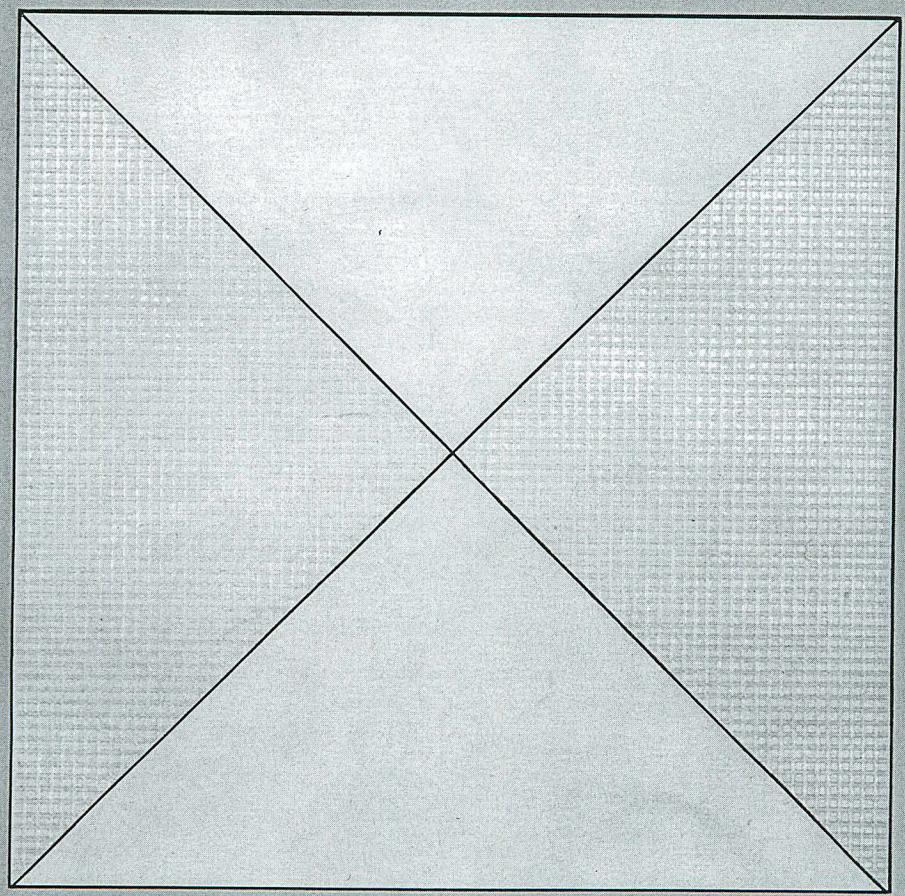

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FOREWORD

Measuring the intelligence of blind persons presents obvious difficulties. Most measures of intelligence consist mainly, and often solely, of paper-and-pencil tests, thus requiring vision. Vision is likewise required by those measures of intelligence that call for the performance of particular tasks.

Nor is the problem resolved by avoiding these difficulties through the use of the verbal portion of a Wechsler scale. True, the Wechsler verbal subtests have neither paper-and-pencil nor performance tasks; vision is not required. Does the limited range of verbal tasks, however, yield a generalizable estimate of the blind person's broad intelligence? How would he have fared on the performance portion of the Wechsler, if that could have been administered to him?

Efforts have been made to answer these questions by developing tactile counterparts of the Wechsler performance subtests. The success of such efforts has thus far been moderate. Not all the Wechsler performance subtests lend themselves to tactile adaptation.

The one performance subtest of the Wechsler scales with the greatest promise for adaptation to testing blind persons is the Kohs Block Design. This is true for both theoretical and practical reasons. Wechsler himself found the Block Design subtest to correlate highly with Full Scale IQ; it is, therefore, likely to provide one of the best brief measures of general intelligence. Practically, the Kohs Block Design has already shown initial success in an adaptation by Ohwaki.

The promise of the Kohs test for use with blind persons has been realized in the *Stanford-Ohwaki-Kohs Block Design Intelligence Test for the Blind.* Building on the Ohwaki-Kohs adaptation, the present test has improved the blocks and the test directions. By adding both simpler and more complex designs, it has at once lowered the floor and raised the ceiling. It also provides more useful norms.

This test is to be welcomed by the many willing workers with blind persons in the fields of rehabilitation and special education. Dedication must be accompanied by instrumentation; those willing must be made able. An enabling instrument for appraisal of intelligence is now available in the *Stanford-Kohs Block Design Test for the Blind.*

DANIEL SINICK, Ph.D.
George Washington University

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Chapter 1

INTRODUCTION

THE NEED FOR A PERFORMANCE INTELLIGENCE TEST FOR THE BLIND

The evaluation of intellectual capacity is of recognized importance to counselors. In the main, workers with the adult blind have relied upon the estimates obtained from use of verbal portions of the Wechsler Adult Intelligence Scale (Wechsler, 1955). However, there has also been a recognition that although the Wechsler results are valuable, nonverbal performance measures are sorely needed for several reasons. First of all, a performance test of intelligence would provide complementary information to the verbal data, permitting the counselor a more complete evaluation of the client's general intelligence. Secondly, verbal measures would be entirely inappropriate for some clients, such as the foreign-born, the educationally deprived, and those from socially impoverished backgrounds. Thirdly, an individual performance test could provide useful clues into the manner in which the client approaches and handles problems presented by the environment. Finally, a performance measure is desirable especially for the blind because of the likelihood that many blind persons develop a pseudoverbal facility which leads to questionably high scores on verbal tests. Cutsforth (1933) intially recognized and labelled this "verbal veneer" and has since received support from Donahue and Dabelstein (1950), Hayes (1952), and Bauman (1954).

Various attempts have been made by researchers to develop a performance scale of intelligence for use with the blind. Some of these never developed beyond the exploratory stages (Hayes, 1946; MacFarland, 1952; Newland, 1961), others lack data that would make the instruments of practical use as a test (Bauman, 1947; Wattron, 1956), and one was viewed as being so highly correlated with the WAIS as to add little new information (Anderson, 1964). Some progress has been made through the development of instruments such as the Haptic Intelligence Scale for the Adult Blind (Shurrager & Shurrager, 1964), the Vocational Intelligence Scale for the Blind (Tiffin, 1960), and the Tactual Reproduction Pegboard (Teare & Gruber, 1965). For a critical analysis of the difficulties of these latter tests, the reader is referred to Bauman and Mullen (1965).

The Ohwaki-Kohs Study in Japan

In 1960 Ohwaki (Ohwaki, et al., 1960) selected the Kohs Block Design Test as the basis for introducing a performance test of intelligence for the blind in Japan. By substituting fabric for colors, Ohwaki converted the Kohs test into a form appropriate for use with the visually disabled. This modified test was administered to 345 totally blind students enrolled in various schools for the blind in Japan. Both concurrent and construct validity data were reported. Significant correlation coefficients between test scores and ratings of school achievements were found ranging from .24 to .55. In addition, the age differentiation criterion was used and computed frequency tables show the expected increase in score as a function of increase in age level. Two test-retest reliability studies have been completed: the first resulted in a reliability coefficient of .85 (N=33, time elapsed = 2½ months), while the second showed a coefficient of .71 (N=46, time elapsed = 2 months).

The Stanford Research

In the Fall, 1964, a research grant to the Stanford University School of Medicine was approved by the Vocational Rehabilitation Administration, Department of Health, Education and Welfare for a three-year project (VRA Grant RD-1625S). The major intent of the research was the standardization of the Ohwaki-Kohs test on adults from the United States. The Ohwaki instrument was selected for the research because it had the advantages of (1) being based on a widely accepted performance measure of intelligence, the Kohs Block Design Test, (2) having produced validation data which demonstrated its usefulness with a Japanese sample, and (3) being comprised of items which appear to be of high intrinsic interest.

The Stanford research was directed towards certain specific goals:

(1) The development of a set of norms based on American adults. Although Ohwaki lists the test as suitable for children and adults, he also states that "we have excluded the subjects . . . over twenty-one years old (in the frequency table) because there were only few subjects belonging to such ages" (Ohwaki, et al., 1960, pg. 53). Therefore, since Ohwaki's data lacks sufficient adult norms, it was felt desirable to obtain data not only on American subjects, but on American adults through and beyond the age of 21.

(2) The development of a set of norms for the totally blind as well as the partially sighted, and if necessary, for the congenitally blind and the adventitiously blind. Again, Ohwaki's original normative data is limited since his subjects were all totally blind.

(3) The development of a set of norms based on subjects from as heterogeneous a population as possible. While Ohwaki's subjects come from schools for the blind, the Stanford project was aimed towards examining subjects from varying educational, occupational, and socioeconomic backgrounds.

(4) The development of a manual for administering the test in a form more suitable for American examiners. Although there is available an English translation of the Ohwaki manual, there is sufficient awkwardness in phrasing and presentation to make a major revision desirable.

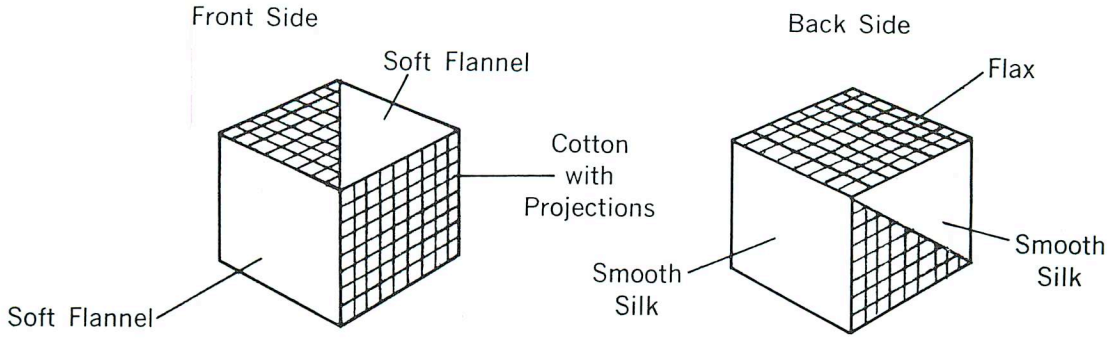

Figure 1

(5) The evaluation of the suitability of the physical format of the test materials for use in testing centers with blind clients.*

This manual is the end product of a year's study involving over 200 blind subjects. For examiners wishing to utilize the Ohwaki-Kohs Test in the United States, the authors recommend following the procedures outlined in this manual and referring to the appropriate tables herein for proper interpretation of the results. The name, **STANFORD-OHWAKI-KOHS BLOCK DESIGN TEST FOR THE BLIND,** should be used to identify results and interpretations based on this manual to prevent confusion with results and conclusions derived from reference to Ohwaki's Japanese norms and procedures.

Description of the Stanford-Ohwaki-Kohs Block Design Test for the Blind

This tactual version of the Kohs Block Design Test requires subjects to reproduce a stimulus design by assembling blocks. Of the designs, the practice design and 17 of the test designs are comparable to the patterns in the original Kohs Block Test. In addition, an extra design has been added and designated test design 1 B. The stimulus designs are formed by combinations of four differing fabrics: flannel, silk, flax, and cotton with raised projection (see Figure 1).

There are a total of 18 blocks provided in the test kit, although the maximum number used for completion of any stimulus design is 16. As with the stimulus designs, the blocks' surfaces are covered with differing fabrics such that any design can be duplicated by placing the blocks in correct positions. Unlike the original Kohs' blocks, the Ohwaki cubes measure 4 cm on each dimension.

Before using the test materials provided by Ohwaki, the Stanford researchers strongly recommend that the cotton fabric surfaces of the designs and the blocks be first brushed with a stiff-bristle brush, then coated with a thin layer of laquer. This helps in preserving the stimulus characteristics of the fabric—the cotton was originally selected to provide a tactual sensation of distinct "bumpiness" but often these "bumps" in the fabric become flattened from packing, storage, or usage.

*Following the first year's research experience (Dauterman & Suinn, 1966a), a major modification of the Ohwaki-Kohs test was considered imperative. The expressed emotional reactions of the subjects, the observations of the clinical personnel, and the durability problems of the materials were the critical factors involved. As a result, a new performance test for use with the blind, the STANFORD-KOHS BLOCK DESIGN TEST FOR THE BLIND was constructed (Suinn & Dauterman, 1966b).

The Stanford Standardization Study

The Ohwaki-Kohs test materials with a revised set of directions were administered as part of a battery of tests. Subjects were first interviewed by means of a standard interview schedule covering biographical and other information necessary for the study. A sandpaper tactual discrimination task (Dauterman & Suinn, 1966b) was then presented to screen out any person who had such gross impairment of tactual sensitivity as to be an invalid subject for the Ohwaki Test. The Ohwaki-Kohs materials were then administered, followed by an experimental Test of Imagery (Suinn, Dauterman, & Shapiro, 1966b), and a 120 item questionnaire involving questions about activities of daily living assumed to be necessary for effective adjustment to blindness (The Stanford Rehabilitation Sophistication Scale) (Dauterman & Suinn, 1966b). The testing session was concluded with the administration of the verbal portion of the Wechsler Adult Intelligence Scale.

Selection of the Sample

The sample was comprised of 202 persons who met the basic criterion of being legally blind, i.e., corrected visual acuity no better than 20/200 in the better eye, or a visual acuity greater than 20/200 but with a limitation in the fields of vision to the extent that the widest diameter of the visual field subtends an angle no greater than 20 degrees.* All Ss had been blind for a minimum duration of one year. Subjects were located through every means available: state and local agencies, organizations such as clubs for the blind, direct referrals from rehabilitation services, public schools, schools for the blind, word-of-mouth, and personal contacts. A small number were found through their participation in an earlier study on the Raven Progressive Matrices for the Blind (Anderson, 1964). All such persons were

*Definition by the American Medical Association, Section of Ophthamology, 1934 and revised by the U.S. Social Security Board, 1935.

then sent letters of invitation to participate as volunteer subjects. Confidentiality was assured and forms required for any release of research test information. Although the study was mainly directed towards adults, persons 16 years of age and over, a few children were also examined. This manual reports on the standardization of the test on the adult Ss. The number of children examined was insufficient for adequate analyses; their results were therefore excluded from the data.

Characteristics of the Sample

Of the original 202 subjects who participated in the study, valid data was obtained on 197 of these; 170 were 16 years of age or older, while the remaining 27 were 14 and 15 years of age. In terms of geographic locale, 150 were tested in Northern California, 27 in Washington, and 20 in Arkansas.** Pertinent characteristics of the adult sample are summarized in Tables 1-7.

In brief, the subjects examined represent heterogeneity in geographic location, age, employment status, educational achievement, visual characteristics, travel aid used, and cause of blindness. Such diversity is highly desirable since it ultimately makes it possible for the final instrument to be used with different types of clients. Furthermore, it permits the researchers to systematically determine whether separate norms are required for clients with differing characteristics, e.g., the adventitiously blind versus the congenitally blind.

However, if the mean or modal values are taken, it is feasible to refer to the "typical" subject involved in the standardization sample. The typical person examined is a male adult, married, with no children. He has been totally blind since adolescence from either developmental or traumatic causes. Since then, he has lived a competent life, having completed high school and then turning either to further schooling or responsible positions in the working world. In general, the subject has acquired independence of mobility, with over 50% utilizing the cane as an aid in travel.

TABLE 1

GENERAL DESCRIPTION OF THE ADULT SUBJECTS EXAMINED (N=170)

CHARACTERISTIC	ADULTS (OVER AGE 16)
Mean Age	31.28
Mean No. Years of Education	13.00
Mean Age of Onset of Blindness	11.50
Mean No. of Years of Blindness	19.10
Mean No. Pages Braille Read/Month	100-200
Mean Income (Employed Ss)	$5,400.00

**The Washington and Arkansas Ss were students enrolled at two centers for the blind and may in fact have residence in other states. To provide maximum heterogeneity, all Ss were grouped together for analyses.

TABLE 2

CLASSIFICATION OF ADULT SUBJECTS BY VISION AND AGE OF ONSET OF BLINDNESS

	ADULTS	
AMOUNT OF VISION	No.	%
Functionally Blind	110	65
Partially Sighted	60	35
TOTAL	170	100
AGE OF ONSET		
Congenitally Blind	83	49
Adventitiously Blind	87	51
TOTAL	170	100

TABLE 3

NUMBER OF SUBJECTS WITHIN EACH AGE GROUP

AGE	No.	%
16-17	34	20
18-19	32	19
20-24	17	10
25-34	28	17
35-44	21	12
45-54	24	14
55-older	14	8
TOTAL	170	100

TABLE 4

CAUSE OF BLINDNESS FOR ADULT SUBJECTS

CAUSE	PARTIALLY SIGHTED		FUNCTIONALLY BLIND	
	No.	%	No.	%
Trauma	16	27	20	18
Systemic*	6	10	11	10
Degenerative**	3	5	9	8
Hereditary***	7	12	10	9
Developmental****	20	33	47	43
Infectious	6	10	11	10
Neoplasm	2	3	2	2
TOTAL	60	100	110	100

*For example: diabetes, arteriosclerosis, and hypertension.
**For example: glaucoma, cataracts.
***For example: retinitis pigmentosa.
****For example: retro-lental fibroplasia, congenital cataracts.

TABLE 5

TRAVEL AID USED BY ADULT SUBJECTS

TRAVEL AID USED	PARTIALLY SIGHTED		FUNCTIONALLY BLIND	
	No.	%	No.	%
Cane	28	46	52	47
Dog	15	25	13	12
Human	4	7	13	12
None	13	22	28	25
No Information	0	0	4	4
TOTAL	60	100	110	100

TABLE 6

EMPLOYMENT STATUS OF ADULT SUBJECTS

EMPLOYMENT STATUS	PARTIALLY SIGHTED		FUNCTIONALLY BLIND	
	No.	%	No.	%
Employed	22	37	37	34
Unemployed	16	27	14	13
Retired	2	3	6	5
Student	20	33	52	47
Housewife	0	0	1	1
TOTAL	60	100	110	100

TABLE 7

MARITAL STATUS AND NUMBER OF CHILDREN OF ADULT SUBJECTS

MARITAL STATUS	PARTIALLY SIGHTED		FUNCTIONALLY BLIND	
	No.	%	No.	%
Single	31	52	59	54
Married	25	41	41	37
Divorced	4	7	7	6
Widowed	0	0	3	3
TOTAL	60	100	110	100

NO. OF CHILDREN	PARTIALLY SIGHTED		FUNCTIONALLY BLIND	
	No.	%	No.	%
None	39	65	72	66
One	8	13	8	7
Two	8	13	16	15
Three	4	7	7	6
Four or more	1	2	7	6
TOTAL	60	100	110	100

Chapter 2

STATISTICAL RESULTS

Validity Data

Construct Validity: The validity of a test of intelligence can be demonstrated by (1) showing that the distribution of scores by age groups conforms to the development expected of mental age, and (2) analysis of level of difficulty of the items:

(1) In general, intellectual test performance shows increments up to early adulthood, after which there is a decline with increasing age. Mental ability measured by performance tasks has its peak about age 22 and then drops very rapidly (Wechsler, 1955). Figure 2 shows the relationship between Stanford-Ohwaki-Kohs Test scores and age. There is the expected increment with a peak between ages 20 and 24 followed by a decrement with advancing age.

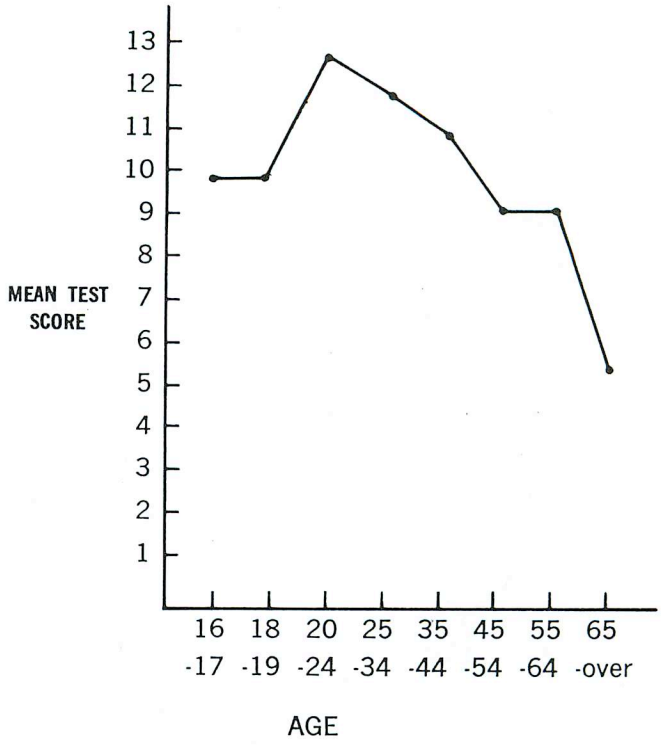

Fig. 2. Relationship between Stanford-Ohwaki-Kohs Score and age

(2) The Stanford-Ohwaki-Kohs Test items are assumed to be of increasing levels of difficulty. Figure 3 shows the percentages of Ss passing each item. There is a definite inverse relationship between the percentage of Ss passing and the level of the item attempted.

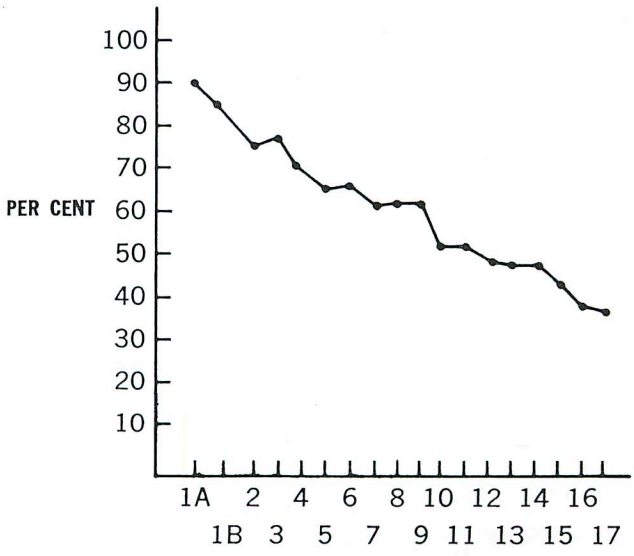

Fig. 3. Per Cent of Ss Who Pass Each Stanford-Ohwaki-Kohs Test Design

Concurrent Validity: The validity of a test of intelligence can be determined by examining its association with (1) other intelligence tests, or (2) life achievements which involve the use of intelligence such as educational level attained:

(1) Table 8 summarizes the correlations between Stanford-Ohwaki-Kohs scores and the Wechsler Adult Intelligence Test (WAIS) scores, and the Tactual Raven Progressive Matrices (TRPM) scores. The WAIS scores represent level of verbal intelligence, while the TRPM scores represent level of performance intelligence. Valid WAIS and Stanford-Ohwaki-Kohs data was available on 167 Ss and TRPM data on 27 Ss. Correlational results were generally highly significant, with higher correlations between the two performance tests.

TABLE 8

CORRELATIONS WITH WAIS & TRPM SCORES

SUBJECTS	WAIS VERBAL SCORE r	N	WAIS I.Q. r	N	TRPM r	N
All Adults	.33[d]	167	.31[d]	167	.68[d]	27
Congenitally Blind	.27[b]	82	.23[a]	82	.74[a]	9
Adventitiously Blind	.41[c]	85	.42[c]	85	.58[b]	18
Functionally Blind	.59[d]	107	.58[d]	107	.68[c]	21
Partially Sighted	n.s.		n.s.		.86[a]	6

[a] $p = .05$
[b] $p = .02$
[c] $p = < .001$
[d] $p = < .0001$

(2) Stanford-Ohwaki-Kohs scores were significantly correlated with number of years of education completed for the Functionally Blind Ss* ($r = .26$, $p = < .01$ level), and the Congenitally Blind Ss ($r = .22$, $p = .05$ level). In addition, test scores were significantly correlated with educational diploma or degree earned by the Functionally Blind Ss ($r = .30$, $p = < .01$ level).

Reliability

Fifty-four Ss were retested to obtain reliability information. From these, useable test results were obtained on 51 Ss. Test-retest reliability coefficients are summarized in Table 9. The average time elapsed between testing was 33 days.

*"Functionally Blind" includes all Ss who took the test using only their touch sense. "Partially Sighted" includes those Ss who used either vision alone, or vision plus touch in taking the test. In other words, this manual defines vision by a *functional* classification—the type of test behavior actually shown by the subject.

TABLE 9

STANFORD-OHWAKI-KOHS TEST-RETEST RELIABILITY CORRELATIONS

SUBJECTS	r	N	TIME ELAPSED (In Days)
All Adults	.90	51	32.74
Functionally Blind	.86	32	33.34
Partially Sighted	.90	19	32.29

Group Differences, Occupational and Rehabilitation Data Results

Group Differences: Analysis of variance figures were computed for several groups—(1) Men versus Women, (2) the Adventitiously Blind versus the Congenitally Blind, and (3) the Functionally Blind versus the Partially Sighted:

(1) Men vs. Women—no statistically significant result was found ($F = 0.68$).

(2) Adventitiously Blind Ss vs. Congenitally Blind Ss—no statistically significant result was found ($F = 0.03$). Similarly, correlational data showed that duration of blindness had no effect on test performance (the highest correlation was .13).

(3) Functionally Blind Ss vs. Partially Sighted Ss—a highly significant difference was found ($F = 71.71$, $p = < .0001$ level). The mean score for the Functionally Blind Ss was 7.46 items correct (S. D. = 5.99, N = 107), while the mean for the Partially Sighted Ss was 15.03 (S.D. = 4.08, N = 60).

Occupational Data: The relationship between test scores and certain occupational information was analyzed. The occupations of 53 Ss were reported in sufficient detail to be coded according to the Dictionary of Occupational Titles system (U.S. Dept. of Labor, 1949). In addition, there were 89 Ss who had been employed full-time sometime during their lives and for whom an "Employment Ratio" could be calculated. This ratio is equal to the number of years a Subject was actually employed

TABLE 10

ETA CORRELATIONS: OCCUPATIONAL VARIABLES

SUBJECTS	CURRENT OCCUPATION[a] r	N	ANNUAL SALARY r	N	EMPLOYMENT RATIO[b] r	N
Congenitally Blind	−.50	12	.54	12	.63	22
Adventitiously Blind	−.48	41	.63	41	.41	67
Functionally Blind	−.51	36	.58	36	.44	65
Partially Sighted	−.36	17	.44	17	.73	24

[a]Coded by the Dictionary of Occupational Titles system. Negative correlations mean that high test scores are related to higher level occupations.
[b]This is=the no. of years a person had been employed/the total no. of years he could have accepted employment.

divided by the number of years he could have accepted work. Since the distribution appeared to be non-linear, the correlation ratio correlation (eta) was computed. The results are summarized in Table 10. The general trend of the correlations suggests that those Ss of higher level occupations, those earning higher salaries, and those who have been employed for a longer period of their potential work career, tend to achieve higher scores on the test. However, none of the eta's reached the 5% level of statistical significance.

Rehabilitation Data: Significant relationships were found between test performance and (1) rehabilitation knowledge, (2) braille reading, and (3) travel aid employed:

(1) The Stanford Sophistication Scale (Dauterman, 1965, Dauterman & Suinn, 1966b) is comprised of 120 items answerable only if the Subject had been exposed to rehabilitation training or had acquired such knowledge through the experience of adapting to blindness. High scores reflect applied knowledge about living techniques necessary for successful return to normal daily activities. Correlations between the Sophistication Scale and the Stanford-Ohwaki-Kohs Test were significant for the following groups: all Ss ($r = .15$, $p = .05$ level, $N = 167$), the Congenitally Blind Ss ($r = .21$, $p = .05$ level, $N = 82$), and the Functionally Blind Ss ($r = .36$, $p = < .001$ level, $N = 107$).

(2) For the Ss who read braille materials, there are several "grades" of braille printing representing different levels of reading ability. A significant correlation was found between the test score and grade braille for the Partially Sighted Ss* ($r = .35$, $p = .05$ level, $N = 31$).

(3) All Ss were grouped according to the type of travel aid used. Analysis of variance showed that there were significant group differences ($F = 11.51$, $p = < .0001$ level). The mean Stanford-Ohwaki-Kohs test scores for the groups were as follows: No Travel Aid Used, Mean = 12.51 (S.D. = 6.45); Guide Dog, Mean = 11.25 (S.D. = 5.12); Cane, Mean = 8.06 (S.D. = 6.51); Human Companion, Mean = 5.25 (S.D. = 5.64).

*All Ss were legally blind and some of the Partially Sighted Ss had learned to read braille since their visual acuity was inadequate for reading inkprint.

Chapter 3

GENERAL TESTING CONSIDERATIONS

Standard Administration Procedures

A manual of directions for administering and interpreting the *original* Ohwaki-Kohs Tactile Block Design Intelligence Test for the Blind is available. However, any examiner wishing to utilize the norms and other information based on the *Stanford* research must follow the exact directions and methods outlined in this Manual. The printed directions, time limits, method for scoring, and interpretive tables were all systematically researched. Any deviation in procedure, whether by omission of phrases, or direct or indirect additions, increases the risk of error in assessment. For purposes of clarity, all data and test reports based on the Stanford administrative methodology and norms should be identified by use of the test title: *Stanford Ohwaki-Kohs Block Design Test for the Blind.*

Under certain conditions, examiners may wish to deliberately ignore or change the standardized testing procedures. For example, it might be informative to determine the maximum level of which the client is capable; the "testing the limits" concept. The examiner would therefore prolong the testing beyond the stage at which he would normally terminate. As another example, a client may be permitted to re-examine a previously failed design after testing has been completed if this appears clinically justified to the examiner. In any case where such variations are introduced, the test results must be viewed with extreme caution and the alteration in procedure clearly labelled in the test report. However, under no condition is the subject to be informed beforehand as to the correct method of assembly, or anything indicative of how well he performed on any individual items.

Examiner Preparation for Testing the Blind

Examiners should have the general training in testing required to administer any psychological test. In addition, a thorough familiarity with the statements to be read, and the manner of handling the test materials should be acquired. Although it is *not* recommended that the examiner administer the test by memory, familiarity through continued practice will facilitate a smooth and natural testing manner. In addition, it will permit the examiner to attend more to gathering relevant clinical observational data.

In the examining of the blind, the main objective is to establish a comfortable interaction between examiner and client. Some facilitating courtesies include orienting the client to the chair in which he is to be seated, explaining silences caused by the examiner's writing down information, and making it evident when the examiner is ready to make the transition from interviewing to the use of testing materials. Most totally blind clients will be helped by a casual report by the

examiner as to the activities in which he is engaged, e.g., setting up the test. Examiners should avoid making abortive moves or placing materials in front of the client before testing is actually ready to begin. Directions should be read clearly and distinctly, and loud enough to be comfortably heard and understood. Once the first test item has been presented, it is quite desirable to permit the client to place and locate the test materials to his own choosing. Moving the design booklet without informing the client, placing a block closer to the client's reach, or otherwise attempting to help him locate needed materials, tend to create more confusion than necessary. However, most clients do prefer help in searching for blocks inadvertently knocked off the desk.

Testing Conditions

Examiners should arrange for a quiet examining room provided with a table large enough to accommodate the test apparatus and space needed for the examiner's recording sheets. The room should be one which would be appropriate for the conducting of a private interview, with the client seated in a straight but comfortable chair at the table.

The standard test administration does not involve the use of a blindfold, occluder, or other means of controlling the client's use of residual sight. He is permitted to use whatever sight is available to him in the performance of the test. Great care should be taken to avoid testing a client when he is fatigued or ill. If a client becomes excessively fatigued despite the allotted rest periods, or if he becomes ill, the examination should be discontinued until a more appropriate occasion. If the test must be given at a psychologically inopportune time, a description of the conditions and caution regarding the results should be stressed in the test report.

Rapport and Motivation

Much has been written by others on the importance of good rapport and motivation, but little practical advice is available on how to accomplish these because of the individual differences among clients. What is a word of encouragement to one may be interpreted as a note of disparagement by another. However, some general recommendations can be offered. Certainly the preparation of the client for testing by the reduction of tension and anxiety and ambiguity is critical. In addition, general remarks of support and empathy (rather than evaluation) are useful. If the examiner feels inclined towards such phrases as "Good" or "That's fine," he should be careful to use these as rewards following the client's overall efforts, right or wrong. In other words, they should serve as rewards for trying. Any use of such phrases only after the client is actually successful at a test item is a source of information to the client about his accuracy of performance. Similarly, if the examiner is not careful about his tone of voice in reading the directions for the correction trials, the client may perceive a sense of rejection and react adversely. Of utmost aid is an overall attitude of respect, sincere interest, and empathy towards the client.

Stanford-Ohwaki-Kohs Test Procedures

Detailed directions for administering the test are given in the administrative section of this Manual (Chapter 5). Before proceeding to administer the test, examiners should thoroughly familiarize themselves with the following:

✓ (1) TIMING:

a. With the exception of the practice design, all test items have time limits. A stopwatch must be used.

b. When a stimulus card is placed before the client timing BEGINS at the precise moment that the client begins to explore the design with his hand or holds it up to his eyes (if he is partially sighted).

c. Timing is stopped if the subject has inadvertently knocked a block off the desk and stops to search for it. Timing is *not* stopped if the subject is merely searching for an unused block on the desk.

d. The time limits in seconds for the Functionally Blind and the Partially Sighted are listed below:

TABLE 11

TIME LIMITS (in Seconds)

DESIGN NO.	1A	1B	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Functionally Blind	65	65	90	90	90	160	90	255	100	100	360	270	465	465	465	720	720	720
Partially Sighted	65	65	60	60	60	90	90	180	100	100	270	240	345	420	420	420	420	420

(2) FAILURES:

a. A failure is defined as either (1) an *incorrect assembly* within the time limit, or (2) a partial assembly *beyond the time limit.*

b. After any "incorrect assembly" failure, the directions for corrections are to be read. The subject is permitted to continue work as long as the *total* time consumed is within the time limit (assembly time before correction plus correction attempt time). The time involved in reading the directions for corrections is not included.

c. Testing is discontinued after any two *consecutive* failures either due to incorrect assemblies or through exceeding the time limits. For this decision, any failure which occurs during the initial arrangement trial *is counted even though the client may have corrected the design within the time limit* during the correction trial.

(3) RECORDING THE TEST PERFORMANCE:

a. Subjects are encouraged to use the sense modality with which they feel most comfortable: Visual or Tactual. Record the predominant modality used on the Record Form. THIS FUNCTIONAL CLASSIFICATION DETERMINES WHICH NORMS TO USE. Ss who use only their sense of touch to inspect the designs are classified "Functionally Blind." Ss who use only their vision or who rely upon both vision and touch are classified "Partially Sighted."

b. Circle the "R" if the design was correctly assembled within the time limit. Circle the "W" if the design was incorrectly assembled within the time limit. (When two consecutive items receive the "W" mark, testing is discontinued)

c. For corrections: if the subject has attempted to correct an assembly, circle the appropriate letter under "Correction Attempt Result"—the "R" if the assembly was correct, the "W" if the assembly was still incorrect.

d. Record the *total* assembly time (including the time for the correction effort) in the appropriate space.

e. For the convenience of the examiner, space is provided for recording clinical impressions such as the client's approach to problem solving.

(4) SCORING THE TEST PERFORMANCE:

a. On the Record Form, circle the "1" for all items correctly assembled within the time limits. Full credit is given for assemblies which were initially improperly assembled, but which the subject was able to correct within the time limit.

No bonus points are assigned for speed in assembly of the designs as long as the assembly was completed within the allotted time limits.*

b. Circle the "O" for each item incorrectly assembled and without proper correction, or assembled beyond the allotted time limit for the item.

Clinical Impressions

The primary information obtainable from the test administration is quantitative: How high a score does the client attain; how good is this performance when compared with the scores of other similar clients? However, individually administered tests also offer a wealth of impressionistic data to the observant clinician. Such qualitative information is valuable towards arriving at a holistic and dynamic understanding of the client's performance. The client's approaches to solving the problems, his efforts to elicit assistance, his expressions related to self regard, and any observable or verbalized emotional responses to the test, are all clinical data which are as critical as the test score itself.

With experience, examiners will develop their own insights regarding significant examinee behavior. In addition, examiners may wish to refer to the following guides:

(1) *Initial Reaction of Client*—how does the client react to the impact of the experience?

(a) Regarding being tested: Is he challenged, disturbed, pleased, critical, wary?

(b) Regarding the tactual experience: (1) If totally blind, is he threatened by the fact that he must rely upon his sense of touch; (2) If partially sighted, does he still prefer to function as a sighted person, using his residual sight to examine the test and avoiding the use of his tactual sense for information?

(2) *Adjustment to Testing*—once past the initial reaction, how well does the client adapt?

(a) To being tested: Does he recover quickly from his earlier tension or uncertainty? Is he at ease, does he become increasingly more agitated?

(b) To the tactual experience: (1) Orientation — Does he continue to grope for the blocks? Does he appear oriented to spatial relationships between the needed test materials and working spaces, the edge of the table or spare blocks? (2) Organization—Are spare blocks pushed aside without thought? Are they organized and arranged neatly in a position as to be quickly found?

*Although Ohwaki's test manual assigns bonus points for speed in assembling the Ohwaki-Kohs blocks, statistical analyses on the Stanford data demonstrated that adding points on the basis of time (1) did *not* improve the validity of the test for adults, but (2) under some conditions actually *lowered* validity coefficients.

(3) Information Perception — Does the client seem to be meaningfully "processing" the information he is receiving through his touch? Does he appear to be fumbling and to be "touching without feeling" just as some sighted persons "look but don't see" or "listen but do not hear"?

(3) *Approach to Problem Solving*—how does the client attempt to arrive at solutions?
   (a) Is he slow, cautious, impetuous, quick?
   (b) Is his procedure systematic and dependent upon analysis and reason, random and dependent upon luck, entirely disorganized or based upon a misperception or misunderstanding of the task or test item? How successful is he at using a systematic approach? Where perceptual or cognitive distortion occurs, how extreme is it?
   (c) Does he profit from the experiences from previous items? Is each test item treated as an independent experience? When feasible, does he capitalize upon parts of a previously assembled design for use in constructing similar parts on the new design?

(4) *Reactions to Failure*—what happens when failure occurs?
   (a) Is the client aware of his error? Was an error recorded because the client: quit when he thought he had been unsuccessful, gave up knowing he had made an error but could not resolve it, gave up knowing of an error but refusing to pay further attention to resolving it?
   (b) If the time limit required termination of an item, is the client disturbed, relieved, unconcerned about a lack of closure on the item?
   (c) Is he inclined to work harder to prove himself? Does he accept failure without discomfort? Does it seem frustrating or undermine his self-confidence?
   (d) Does he defend against failures: by seeking reassurance about other people's performance, denial of the incorrectness of the assembly, ignoring the test by discussing other topics, stressing his prior successes, being hypercritical of the validity of the test?

(5) *Final Reactions*—what behavior characterizes the client when testing is terminated?
   (a) Does he recover readily and comfortably from the evaluational experience? Is he persistent in reliving his errors on items? Is he unduly concerned about how well he did?
   (b) If score interpretation is offered at a subsequent interview, how do the results seem to fit into the client's self-concept? How does the client handle any discrepancies? What comments or remarks does the client make now about the test?

Chapter 4

THE INTERPRETATION OF TEST SCORES

The Abilities Measured By the Stanford-Ohwaki-Kohs Test*

Basically, the block design task might be said to require mainly the eduction of relationships among abstract items. More particularly, it involves both perceptual and cognitive functioning—it challenges the ability of the client to accurately discriminate and analyze the components of the test items, to engage in a critical inquiry into the best method for solution, and to synthesize and translate these details into an immediate and appropriate performance. Although subjectively, attention span and the capacity to concentrate appear to be significant elements, other research (Witkin, 1965) found no support for this premise.

Attention might again be called to the ways in which the test results may supplement other intelligence test data. A good performance on the blocks alongside a poor performance on a verbal intelligence measure might indicate a client with good reasoning ability but below standard verbal development. Further, inasmuch as the block test designs represent a new problem experience, the results can be interpreted to reflect the client's ability to acquire or cope with new learning experiences. The results could then be compared or contrasted with measures of previously acquired knowledge. It is entirely conceivable that a client may be able to function acceptably when he is permitted to call upon past knowledge or experience such as in academic achievement tests but be quite ineffective when faced with resolving problems or adjusting to settings for which there is no precedent in his own background.

The manner in which a blind client approaches the test also provides valuable insights into the client's adjustment to his disability. For some, the stress of facing a new test recalls their reactions to the stress of their new mode of life, as a blind person. For still others, the tentativeness and even fearfulness with which they approach the materials with their hands represent their more general attitude of withdrawal from the world. This further reflects the fact that they have not yet gained a sense of confidence in substituting a tactual contact for their absent visual contact.

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*This section draws from several sources: the original insights of S. C. Kohs (1923), statistical findings on the Stanford-Ohwaki-Kohs Test (Suinn, Dauterman, & Shapiro, 1966a), data on a similar block design test (Witkin, 1965), and clinically derived conclusions based on close observations of Ss examined in the Stanford research.

Quantitative Interpretation of Raw Scores

The raw score is the sum of the points for all items attempted by the subject. There are several ways of arriving at an interpretation of the raw score: (1) comparison with the mean or median performance of similar subjects, (2) conversion to percentile scores, (3) reference to appropriate expectancy tables, or (4) conversion to IQ equivalents.

(1) *Comparison with mean or median performances:* The S's raw score can be compared with the average score obtained by Ss in the normative sample. Results are summarized in Table 12 for All Adults Ss, the Functionally Blind, the Partially Sighted, and in Table 13 for Ss by specific age groups. Although there was no significant difference in performance between the Congenitally Blind and the Adventitiously Blind Ss, their mean scores are also reported in Table 12 for the interested reader.

The median scores for the three major groups were: 11 items correct for all Ss combined, 8 for the Functionally Blind Ss, and 16 for the Partially Sighted Ss. The distributions of scores were skewed for the latter two groups: nearly one-third of the Functionally Blind Ss had less than 3 items correct (a skewness towards the low end), while over half of the Partially Sighted Ss received scores of 17 correct or better (a skewness towards the high end). Thus, a *high* score by a client is especially significant if he is *Functionally Blind* since most Ss in this group tend to score low. On the other hand, a *low* score is particularly significant if the client is *Partially Sighted* since most Ss in this group tend to score high.

TABLE 12

MEANS, STANDARD DEVIATIONS OF Ss BY GROUPS

GROUP	MEAN	S.D.	N
All Adults	10.15	6.51	167
Functionally Blind	7.46	5.99	107
Partially Sighted	15.03	4.08	60
Congenitally Blind	10.54	6.69	82
Adventitiously Blind	10.35	6.48	85

TABLE 13

MEANS, STANDARD DEVIATIONS BY AGE GROUPS

AGE GROUP	MEAN	S.D.	N
16-17	9.97	6.79	34
18-19	10.00	7.38	32
20-24	12.82	6.09	17
25-34	12.00	5.98	25
35-44	11.35	5.99	21
45-54	9.48	6.41	24
55-64	9.66	8.14	6
65 & over	5.40	4.80	8

(2) *Conversion to percentile scores:* Table 14 gives the percentile score corresponding to each raw score. To use this table, first calculate the S's raw score total (no. correct), locate it in Table 14 under the "RAW SCORE" column, read across to determine the percentile score for the appropriate group. For example, given a raw score of 9: Table 14 indicates that 42% of all Ss fall at or below this level; 56% of the *Functionally Blind* Ss fall at or below this level; and 13% of the *Partially Sighted* Ss fall at or below this level.

TABLE 14

PERCENTILE SCORES

RAW SCORE (NO. CORRECT)	GROUP		
	ALL ADULT Ss	FUNCTIONALLY BLIND Ss	PARTIALLY SIGHTED Ss
18	100	100	100
17	88	98	68
16	75	92	44
15	68	86	34
14	60	80	25
13	56	75	20
12	54	72	18
11	50	70	16
10	48	65	15
9	42	56	13
8	38	50	12
7	35	46	11
6	32	44	10
5	30	42	5
4	28	40	3
3	25	38	0
2	20	32	0
1	10	18	0
0	0	0	0

(3) *Reference to expectancy tables:* The expectancy tables provide information on the relationship between Stanford-Ohwaki-Kohs Test performance and certain criteria variables, such as educational level, (Tables 15 and 16) employment status, (Table 17) and type of travel aid used (Table 18). To use the tables, first select the table with the criterion variable of concern, locate the test score group in which the S's score belongs and read across to determine the per cent of Ss in each criterion category. For example, given a raw score of 11 obtained by a Functionally Blind subject: Table 15 is referred to if the examiner wishes to determine S's potential for enrollment in college. A score of 11 puts the subject in the "Lower Half" of Ss taking the test. Of this group, the Table indicates that only 24% of the Ss had been accepted to college. If this subject was Partially Sighted, then Table 16 is used. For Partially Sighted Ss, a raw score of 11 falls within the "Third Quartile." Only 10% of these Ss had been accepted to college. In other words, the subject would be a poor educational risk.

TABLE 15

PER CENT OF FUNCTIONALLY BLIND Ss IN THE UPPER & LOWER HALF OF STANFORD-OHWAKI-KOHS TEST WHO COMPLETED VARIOUS EDUCATIONAL LEVELS

TEST SCORE	NO. Ss IN SCORE GROUP	LESS THAN HIGH SCHOOL EDUCATION	COMPLETION OF HIGH SCHOOL	BEYOND HIGH SCHOOL		TOTAL PER CENT
		%	%	%		
Upper Half[a]	32	18	41	41	=	100
Lower Half[a]	90	40	36	24	=	100

[a]Upper Half=12 correct or better, Lower Half=11 correct or less.

TABLE 16

PER CENT OF PARTIALLY SIGHTED Ss IN EACH QUARTILE OF STANFORD-OHWAKI-KOHS TEST WHO COMPLETED VARIOUS EDUCATIONAL LEVELS

TEST SCORE	NO. Ss IN SCORE GROUP	LESS THAN HIGH SCHOOL EDUCATION	COMPLETION OF HIGH SCHOOL	BEYOND HIGH SCHOOL		TOTAL PER CENT
		%	%	%		
Highest Quartile[a]	34	38	50	12	=	100
Second Quartile[a]	16	38	38	24	=	100
Third Quartile[a]	10	50	40	10	=	100
Lowest Quartile[a]	0	—	—	—		—

[a]Highest Quartile=17 correct or better, Second Quartile=12-16 correct, Third Quartile=4-11 correct, Lowest Quartile=3 correct or less.

TABLE 17

PER CENT OF ALL Ss IN THE UPPER & LOWER HALF ON STANFORD-OHWAKI-KOHS TEST WHO ARE EMPLOYED OR UNEMPLOYED

TEST SCORE	NO. Ss IN SCORE GROUP	UNEMPLOYED	EMPLOYED		TOTAL PER CENT
		%	%		
Upper Half	32	28	72	=	100
Lower Half	37	32	68	=	100

TABLE 18

PER CENT OF FUNCTIONALLY BLIND Ss IN THE UPPER & LOWER HALF OF STANFORD-OHWAKI-KOHS TEST USING VARIOUS TRAVEL AIDS

TEST SCORE	NO. Ss IN SCORE GROUP	HUMAN	DOG	CANE		TOTAL PER CENT
		%	%	%		
Upper Half	27	11	15	74	=	100
Lower Half	72	72	24	7	=	100

(4) *Conversion to I.Q. equivalents:* Originally, the "Intelligence Quotient" served a highly desirable function in describing the mental development of children. Currently, the concept suffers from many difficulties and inconsistencies. For the most part, the use of other types of scores such as percentiles can provide as meaningful information for client evaluation as the I.Q. score.

However, occasionally an examiner may wish to estimate the verbal I.Q. score of a blind client from knowledge of the performance score. Table 19 gives the I.Q. equivalents of each Stanford-Ohwaki-Kohs Test score. These I.Q. equivalents were derived by converting the Stanford-Ohwaki-

Kohs scores into standard scores with a mean equal to the mean WAIS I.Q. for all Ss, and a standard deviation equal to the standard deviation for all Ss.* This method provided the I.Q. equivalents for Stanford-Ohwaki-Kohs scores for the total group. The same type of procedure was repeated for the Functionally Blind group, and the Partially Sighted group.

Since little is known about the comparability between verbal intelligence estimates and performance intelligence estimates, the I.Q. equivalents should be interpreted with caution. In addition, the WAIS performances of the Stanford groups were above average: Mean = 116.24 for all Ss (S.D. = 18.01), 116.58 for the Functionally Blind Ss (S.D. = 19.41), and 115.60 for the Partially Sighted Ss (S.D. = 15.19). This finding that the blind score high in verbal intelligence is consistent with the results reported by others (Donahue & Dabelstein, 1950; Hayes, 1952; Bauman, 1954).

TABLE 19

TABLE OF I.Q. EQUIVALENTS OF RAW SCORES

RAW SCORE (NO. CORRECT)	GROUP I.Q.		
	ALL ADULT Ss	FUNCTIONALLY BLIND Ss	PARTIALLY SIGHTED Ss
18	138	152	127
17	135	149	123
16	133	146	119
15	130	143	116
14	127	139	112
13	124	136	108
12	122	132	104
11	119	129	100
10	116	126	97
9	113	123	93
8	110	120	90
7	108	117	86
6	105	113	82
5	102	110	78
4	100	107	75
3	97	103	71
2	94	100	67
1	91	97	64
0	88	83	60

*An alternate method would have been to utilize the correlation coefficient to predict each WAIS score. However, this would involve both the error of estimate as well as the error of measurement, leading to uncertain results.

Chapter 5

DIRECTIONS FOR ADMINISTERING THE TEST

Instructions to Examiners

(1) The examiner is to read every statement to the examinee except those in parentheses which tell the examiner what he should do at certain points.

(2) Whenever a subject assembles an item incorrectly, but within the time limits, the appropriate directions on page 13 are read.

(3) Whenever a subject exceeds the time limit, the appropriate directions on page 13 are read.

(4) If a client inquires if the test is a timed test, the examiner may repeat the revelant directions on page 13 about time and accuracy.

(5) Subjects are encouraged to take a short break from testing after completion of design no. 9.

(6) The fact that there are diagonal divisions on two surfaces of every block should be made clear to the subject.

(7) If necessary, subjects can be informed that they are to respond to gross differences in surfaces, not minute inconsistencies.

(8) TESTING TERMINATES AFTER TWO CONSECUTIVE FAILURES. For this decision, a failure is counted even if the subject later corrects his error when asked to do so by the examiner. Spontaneously corrected errors do not count as failures.

(9) It is permissible for a subject to re-examine any design once testing is completed. *However, no solutions are to be provided.*

(10) Once testing is completed, examiners should make every effort to reduce any anxieties related to the test performance.

INSTRUCTIONS TO SUBJECTS

First let me show you one of the blocks we are going to work with. It has six square sides. Although the block is made of wood, it has been covered with various fabrics so that each of its sides feels different. (HAND BLOCK TO SUBJECT) **Here is a block. Please examine each side of the block. Notice that the surface of each side of the block is different. This is the rough side, this is the smooth side, this is the bumpy side, and this is the soft side.**

(MAKE SURE SUBJECT TOUCHES EACH SIDE AS IT IS NAMED.)

Notice that the two remaining sides are divided into triangles. Here is the side with the bumpy triangle and the soft triangle. Here is the side with the smooth triangle and the rough triangle.

Now can you tell that the surface of each side of the block feels different? Will you describe the sides of the block to me?

(IF SUBJECT DESCRIBES THE BLOCK CORRECTLY AND UNDERSTANDS THE DIFFERENCES IN EACH SIDE, PROCEED TO NEXT DIRECTIONS. IF NOT, REPEAT ABOVE PROCEDURE ENTIRELY. IF THREE FAILURES OCCUR, TESTING IS DISCONTINUED.)

Now I am going to give you three more of these blocks. (HAND THEM ONE BY ONE TO SUBJECT.)

Notice that they all have the same surfaces as the first block. Do you understand that the blocks are alike? Do you have any questions? (IF NECESSARY, EXAMINER LINES UP SAME SURFACES OF BLOCKS AND GOES OVER SIDES ON ALL 4 BLOCKS. THEN EXAMINER TAKES AWAY BLOCKS SAYING:)

Let me have the blocks. I am now going to place in front of you a *card* that has a design on it. Please examine the design. Can you see that this design is made of the same kinds of materials as the surfaces of the blocks? You see, it is made of the same kinds of materials as the blocks are. Look at the design again until you feel that you are familiar with it.

Now the next thing we are going to do is arrange these four blocks so that when they are placed side by side they will make up the same design on top as the one on the card.

First, *I* will complete the design with these four blocks, then I will give you a chance to duplicate the design.

Here is the design I just made with the blocks. And here is the design on the card. Will you examine them both and compare them to make sure they are the same design? Do you understand what you have to do to make the design with the four blocks? Now I want you to make the same design using these four blocks.

(EXAMINER BREAKS ARRANGEMENT OF BLOCKS AND LETS SUBJECT COPY DESIGN ON CARD.)

Please tell me when you have completed the design.

(IF SUBJECT COMPLETES AND UNDERSTANDS TASK, CONTINUE PROCEDURE. IF NOT, OR IF HE COMPLETES DESIGN INCORRECTLY, REPEAT DEMONSTRATION AND EXPLANATION OF THE TASK AND ALLOW SUBJECT TO TRY AGAIN. IF SUBJECT FAILS FOR 3 TRIALS, HE MAY BE REGARDED AS INCAPABLE OF COMPLETING THE TEST AND TESTING IS DISCONTINUED.)

Have you completed the design? That's fine, you have the idea.

(IF INCORRECT, SAY:) **I want you to compare the design you just made with the one that's on the card. Do you see that they are not quite alike?** (NOTE: THIS INSTRUCTION IS TO BE USED WHENEVER SUBJECT COMPLETES A DESIGN INCORRECTLY.)

(WHEN SUBJECT HAS WORKED BEYOND THE ALLOWABLE TIME LIMIT, EXAMINER SHOULD SAY:)

All right, let's go to another design.

Now we can go on to some other designs. This time you will be given a new design and you must copy it with the four blocks I have given you. Please feel free to ask for a rest period during the test if you should want to relax for a few minutes. You will be allowed a certain amount of time for each item but it should be enough for most designs. Work quickly, but as accurately as you can.

(Design 1A:) (EXAMINER CHECKS THAT FOUR BLOCKS ARE BESIDE SUBJECT.)

Place the four blocks to your right (OR ABOVE, OR LEFT—DEPENDING ON SUBJECT'S PREFERENCE). **When I place the design in front of you, please examine it thoroughly until you feel familiar enough with it. After you have examined it, please arrange the blocks next to each other in such a way that they make up the same design as the one on the card. Here is the card. Please tell me when you have finished.**

(EXAMINER PLACES CARD BEFORE SUBJECT AND BEGINS TIMING IMMEDIATELY AFTER SUBJECT FIRST BEGINS EXPLORING CARD.) (IF SUBJECT COMPLETES DESIGN INCORRECTLY, FOLLOW APPROPRIATE DIRECTION ON PAGE 13 AND ALLOW ONE CHANCE FOR CORRECTION. IF SUBJECT EXCEEDS TIME LIMIT, FOLLOW APPROPRIATE DIRECTIONS ON PAGE 13. IF SUBJECT FAILS TWO ITEMS IN A ROW, TEST ENDS.)

(Design 1B, 2, 3, 4, 5, 6:)

Here is another new design. Use the same four blocks and copy the design that is on the card.

(Design 7, 8, 9:)

This time the form of the design is a little different. It is a square standing on its point instead of on its side. Use the same four blocks to copy this design now.

(IF THE SUBJECT FAILS TO ORIENT THE BLOCKS TO COINCIDE WITH THE DESIGN ORIENTATION THE DESIGN IS SCORED AS WRONG. HOWEVER, A 45 DEGREE DEVIATION IN ORIENTATION IS ACCEPTABLE AND SCORED AS CORRECT.)

(For #8 and #9 Say:)

Here is another design which is a square standing on its point. Use the same four blocks and copy this design now.

(BREAK)

(Design 10, 11:)

This time you are going to need nine blocks to duplicate the design you find on this card. Use all nine blocks and make a square design which has three blocks on a side.

(Design 12)

For the rest of the test you will need 16 blocks to complete the design. Use all 16 blocks and make a square design which has four blocks on a side.

(Design 13-17)

Here is another new design. Use all sixteen blocks and make a square design which has four blocks on each side.

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STANFORD-OHWAKI-KOHS BLOCK DESIGN INTELLIGENCE TEST FOR THE BLIND

RECORD FORM

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FULL NAME:	DATE:
ADDRESS:	AGE: BIRTHDATE:
SENSE MODALITY USED: ☐ TOUCH ALONE (Functionally Blind) ☐ VISION ALONE or VISION & TOUCH (Partially Sighted)	ONSET OF BLINDNESS ☐ Congenital ☐ Adventitious

Design Number	Time Limit: Functionally Blind	Time Limit: Partially Sighted	First Trial: Right (R)	First Trial: Wrong (W)	Time	Correction Attempt		SCORE
Sample			R	W	_____	R	W	
1A	65 secs	65 secs	R	W	_____	R	W	0 1
1B	65 secs	65 secs	R	W	_____	R	W	0 1
2	90 secs	60 secs	R	W	_____	R	W	0 1
3	90 secs	60 secs	R	W	_____	R	W	0 1
4	90 secs	60 secs	R	W	_____	R	W	0 1
5	2 mins 40 secs	90 secs	R	W	_____	R	W	0 1
6	90 secs	90 secs	R	W	_____	R	W	0 1
7	4 mins 15 secs	3 mins	R	W	_____	R	W	0 1
8	1 min 40 secs	1 min 40 secs	R	W	_____	R	W	0 1
9	1 min 40 secs	1 min 40 secs	R	W	_____	R	W	0 1
10	6 mins	4 mins 30 secs	R	W	_____	R	W	0 1
11	4 mins 30 secs	4 mins	R	W	_____	R	W	0 1
12	7 mins 45 secs	5 mins 45 secs	R	W	_____	R	W	0 1
13	7 mins 45 secs	7 mins	R	W	_____	R	W	0 1
14	7 mins 45 secs	7 mins	R	W	_____	R	W	0 1
15	12 mins	7 mins	R	W	_____	R	W	0 1
16	12 mins	7 mins	R	W	_____	R	W	0 1
17	12 mins	7 mins	R	W	_____	R	W	0 1

CLINICAL IMPRESSIONS:

TOTAL SCORE:_____

EXAMINER_____