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STANFORD-OHWAKI-KOHS TACTILE BLOCK DESIGN

INTELLIGENCE TEST FOR THE BLIND

FINAL REPORT

Summary

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SUMMARY

From September of 1964 to August of 1966 one or two full time investigators were employed and many part time research assistants gathered data from several regions of the United States. The first year of the study was primarily concerned with reviewing the literature on performance tests for the blind, re-writing the instructions for the administration of the Ohwaki-Kohs Tactile Block Design Intelligence Test for the Blind, administering the Ohwaki test to approximately two hundred legally blind subjects and doing some preliminary analysis of the data.

The second year of the project afforded additional data on the Ohwaki Test and eventually the preparation of the "Manual for the Stanford-Ohwaki-Kohs Block Design Test for the Blind". The major task of the second year, however, was the redesigning of the test apparatus, the collection of data on 425 subjects and the preparation of the "Manual for the Stanford-Kohs Block Design Test for the Blind".

In addition to Dr. Ohwaki's work, that of several other investigators have been published on the use of three dimensional performance tests with blind subjects. Unfortunately, when the present study was proposed Dr. Ohwaki's apparatus and manual, based on blind students in Japanese residential schools, was the only "standardized test" on the market. Since it was obvious that the normative data could not be applied literally to an American population, new standardization studies were indicated. Furthermore, the project director felt a personal concern regarding the adequacy of the Ohwaki apparatus and its tactical characteristics. This concern was supported by the reaction of several other blind persons and led to the decision to improve or replace the apparatus. The Ohwaki blocks and designs which present different textures by using various textiles were pleasant enough to the touch but too ambiguous if tactile discrimination were not to be a factor in the test and if a sharp delineation of the design pattern was to be assumed as possible for blind persons using touch alone. These problems were minimized during the first year study by brushing the textures and stiffening some of the facades with lacquer. Unfortunately, most of the ambiguities remained as did the fragileness. The apparatus was usually worn out after fifty administrations.

A new "look" and new "feel" were developed for the block design apparatus. Wooden blocks were covered on four sides with white plastic tape. The fifth side was covered with heavy textured black rubber matting and the sixth side was divided into two triangles, one of which was the smooth white plastic and the other, the textured black rubber. Thus, a two color and two texture system replaced Ohwaki's four color, four texture system. The designs were reproduced by an offset printing process using black ink on brailon sheets which were then embossed by the thermoform process.

Subsequently the new apparatus was judged to be more satisfactory by those blind subjects who had an opportunity to work with both tests. As to durability, one test set was used to examine 125 subjects. It suffered no damage other than several cigarette burns and was indistinguishable from unused sets after a good washing with soap and water. None of the twenty sets in use in the field were observed or reported to have suffered any damage from normal usage. Statistically, the tests appear to be comparable: The correlation between scores on both tests on the 51 adult subjects who took both tests was .87.

425 subjects were examined with the new instrument. Appropriately modified instructions, both to the subject and to the examiner, as well as several additional designs were used. A simplified "two block" learning phase was provided for those subjects who might have difficulty comprehending the nature

of the task being presented to them when the "four block" pattern was initially used. The upper level was extended by the addition of three "more difficult" designs. Since the simplified learning phase was not "scored", although performance was recorded, the current data does not indicate its actual usefulness in getting "slow subjects" started. However, the availability of this lower level of difficulty design may demonstrate its usefulness in future studies. The data definitely indicates that the three additional high level of difficulty designs are in proper order, and extend the distribution of the scores.

Although not usually a matter of concern to psychologists regarding intelligence tests, "face validity" seems to be important when testing blind subjects. Many subjects seem to experience a great deal of anxiety regarding ambiguous psychological tests. The block design technique seems obviously to be a "puzzle", a "challenge", a "problem" or, as the most sophisticated subjects occasionally observed, a "test of intelligence". Regardless of how it is done, testing does tend to raise anxieties in some individuals while with others it seems to be more comfortable to feel that they understand what abilities are being tested and how it is being done. It is interesting that many subjects actually expressed satisfaction with the test and their performance.

Validity data was based on construct and concurrent validity methods. Regarding the former, results showed the expected increments in test scores up to age 34 followed by a rapid decrement. Regarding the latter, significant correlations were found between the Stanford-Kohs scores and performances on other intelligence tests. Furthermore, significant relationships were also found between the Stanford-Kohs results and educational achievement.

Various tables were prepared displaying the mean and standard deviation of test scores for various sub-groupings of the research population. Interpretive tables were based on sub-groupings divided as to degrees of visual acuity and the sensory modality or modalities used by the subject in the test performance. These tables enable an examiner to determine the educational, occupational or rehabilitation potential of a client.

Reliability was satisfactorily demonstrated on 50 subjects with a mean time lapse of 2½ months between tests: $r = .86$ for all subjects.

A rather straightforward scoring system has been devised in which two points are awarded for a design correctly completed within certain time limits and one point for correct completions beyond these established times. Although the data was analyzed with the view of devising a more discriminative system, none of the elaborate weighting devices utilized made any improvement over the two point system. A "record form" was prepared on which performance can be recorded, scores calculated, and a place for the examiners' "remarks" provided.

The project concluded with the preparation of the "Manual for the Stanford-Ohwaki-Kohs Block Design Test for the Blind", the "Manual for the Stanford-Kohs Block Design Test for the Blind", the Final Report on the project and the fabrication of 100 sets of the apparatus for the Stanford-Kohs Block Design Test for the Blind.

The "Stanford-Ohwaki-Kohs Block Design Test Manual" is designed for use with Ohwaki apparatus which is available directly from Japan or through Western Psychological Corporation, Los Angeles, California, the United States distributor.

The "Stanford-Kohs Block Design Test for the Blind" is self-contained, currently available only to interested investigators from the Vocational Rehabilitation Administration and the authors who share copyright privileges. Both manuals were prepared by the Principal Investigator, Richard M. Suinn, Ph.D., with the help of the Project Director, William L. Dauterman, M.A., and the two Research Assistants, Emily Garfield, B.S. and Bernice Shapiro, M.A.

The complete version of the Final Report contains a review of the literature, the methodology and the findings. It also includes an up-to-date

bibliography on performance tests for use with the blind. Detailed descriptions of several criteria measurement instruments are given. Extensive "recommendations" are included for further work toward the application of the initial findings, the exploration of implications drawn from the data and suggestions for related studies. The reader is oriented to the report by the Foreword by Daniel Sinick and the Preface by Samuel C. Kohs. The "Introduction", "Methodology" and the "Findings" were prepared by the Project Director, William L. Dauterman, M.A., with the help of the Principal Investigator, Richard M. Suinn, Ph.D., and the two Research Assistants, Bernice Shapiro, M.A. and Emily Garfield, B.S.