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Ruth Klein Lederer
State University of Iowa

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the scale indicating few contacts whereas the non-delinquent group displayed a concentration at the end indicating more contacts.

The data indicated evidence of disorganization in (1) The smoothness of flow of the processes required in verbal association, (2) the smoothness of flow of the processes required in spontaneous speech, (3) a perceptual process in which synthesis of elements is necessary, (4) the connectedness between past elements and present problems, (5) social relationships.

IOWA CHILD WELFARE RESEARCH STATION,
STATE UNIVERSITY OF IOWA,
IOWA CITY, IOWA.

HANDEDNESS IN THE FIRST TWO YEARS OF LIFE

RUTH KLEIN LEDERER

A study of handedness in the first two years of life should contribute to a systematic description of the development of handedness at this period, factual information concerning which has heretofore been lacking. In this approach handedness has been defined in terms of a psychological concept and is limited to overtly discernible handed behavior.

The part of the study to be reported here has been organized in order to attempt an answer to the following questions. (1) At these age levels what constitutes a response relevant to or indicative of handedness? Until now authors have based their judgment on widely varied criteria, such as motility, reaching, or some other arbitrarily chosen activity. (2) How does handedness develop? (3) How consistent is a child in the use of his hands? (4) Can handedness be tested?

In our as yet unfinished study, we have endeavored to meet these questions by constructing a handedness test based upon specific handed responses, by observations of uncontrolled handed behavior, and by records of handed behavior under controlled conditions.

The handedness test aims to be descriptive as well as diagnostic. Items have been chosen from a variety of behavior categories and have, to a certain extent, been scaled in difficulty. The categories used were: (1) *spontaneous behavior*, such as warding off; (2) *gratification of needs*, such as sucking; (3) *just maturing behavior*; (4) *general activity* (behavior adequate to the ability of the child); (5) *socialized behavior or habits*, such as eating or

waving goodbye, and (6) *miscellaneous behavior items*, such as reaching for symmetrically placed identical objects. These different categories can be set up only as a working aid since there is no strict boundary between the classes and all the categories are not applicable to all of the age levels. The advantages of a test with many items lies in the fact that chance is minimized and that it may be also possible to study the significance of degree as a concept in preferential handedness.

The test has been applied at intervals for more than a year to a group of 25 children distributed over this age range. Single tests are being secured from a large number of other children.

To turn to the question of validity and reliability of the test: The two other methods, observation of uncontrolled and controlled behavior, to be described subsequently, are to be used also for purposes of test validation. Consistency of the same child over an extended period of time will constitute another indication.

Since we are of necessity also interested in the inconsistent items in their relation to certain categories of behavior and in their possible indicative value of the degree of handedness, we have not as yet discarded them in our preliminary computations. Reliability data at the present time are based on 59 cases between the ages of 6 and 23 months. An examination in regard to age differences indicates little variability with age. Without deleting any items, the following reliability is indicated. Of those children, 21 in number, who in their first test exhibited a preferential use of either the right or left hand in at least 80 per cent of the items, 91 per cent remained in the same group on the retest. Absolute identity of response in at least seventy per cent of the items was found in 85 per cent of the entire group.

The second method utilized in this study was observation of uncontrolled behavior: Consecutive twenty-four- and twelve-hour records were taken of the handed responses of nine male infants living under the controlled conditions of a metabolism ward at a children's hospital. These records have rendered a repertoire of the unstimulated handed behavior up to the ninth month.

The third method consists of controlled observations. Fifteen-minute records at weekly intervals during two months were taken of the handed behavior of the above mentioned infants when confronted by a dangling object equally available to both hands.

Although to date some two hundred tests have been given, the tentative results below refer to the 59 cases heretofore reported in this paper.

Stating here only some tentative results as indicated by the testing of the 59 infants to whom previous reference has been made, we find: (1) that preferential handedness as shown by a score of more than 55 per cent in both tests for the same hand is present in 80 per cent of the infants, (2) that the 20 per cent showing no preference are distributed among all age levels, (3) that of the 47 children showing preference, 72 per cent belong to the right-handed and 28 per cent to the left-handed group.

IOWA CHILD WELFARE RESEARCH STATION,
STATE UNIVERSITY OF IOWA,
IOWA CITY, IOWA.

THE SPECIFICITY OF RESPONSE OBTAINED ON THE ASSOCIATION-MOTOR TEST

NEWELL C. KEPHART AND H. MAX HOUTCHENS

As a result of extensive testing of more or less normal individuals, the investigators were led to believe that word association might better be conceived of as a general mental process and that disturbances in association tests might be indicators of the amount of disturbance existing in a given individual's total process rather than rising from a specific situation which is presented to the subject's mind by the specific test word.

The two lists of words most commonly used in association tests are those of Kent and Rosanoff and Jung. Each is composed of 100 words. These lists were standardized in radically different ways. That of Kent and Rosanoff was an attempt to select a list composed as nearly as possible of "neutral" words while that of Jung is composed of a large number of "critical" words and few "neutral" words. If both of these lists are given to the same subjects, one would expect a higher score on the Jung list (provided the hypothesis of a specific word calling up a specific response is correct) since if this list contains more words "critical" to a common complex situation we should expect by chance to hit into a greater number of complexes in a group of subjects. If, however, the hypothesis advanced in this study is correct, we should expect the same average score regardless of the list used, since in this case the words used represent merely a sample of the functioning of the mental process regardless of the nature of the word, provided only it be a common word whose meaning is known to the subject. If