Proceedings of the Iowa Academy of Science

Volume 43 | Annual Issue Article 126

1936

The Specificity of Response Obtained on the Association Motor Test

Newell C. Kephart
State University of Iowa

H. Max Houtchens
State University of Iowa

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

this hypothesis is correct any list of words of the same length, chosen at random, should give the same results.

The subjects were fifty boys from the State Juvenile Home at Toledo, Iowa. The subjects ranged in chronological age from 12 to 18 years, in mental age from 12 to 18 years, and in IQ from 82 to 118. The mean chronological age was 15.2 years; mean mental age 14.2 years; and mean IQ, 96. This represents an unselected group with the exception that a subject was required to have an MA of 12 years or more.

The measurement of response used by the investigators was by way of a modified form of the Luria technique. Four components of the association were thus recorded; reaction time, verbal response, voluntary motor response, and involuntary motor response.

Each subject was tested twice, once with the Kent-Rosanoff list of words and once with the Jung list. The tests were given on two successive days. Since it was desired to separate the influence of practice effects from the influence of the list used, the group was divided into two parts, the order of the lists being alternated between the two. That is, one-half of the group was tested with the Kent-Rosanoff list first followed by the Jung, and the other half was tested with the Jung list first followed by the Kent-Rosanoff. The tests were scored and the means and standard deviations for each of four conmponents computed in terms of frequency of disturbance and the mean and standard deviation of the weighted total computed in terms of score units.

Three comparisons are possible. Those between the Jung list given first and the Kent-Rosanoff list given first, the Jung given second and the Kent-Rosanoff given second, all of the Jung scores combined and all of the Kent-Rosanoff scores combined. Ten of these differences are positive and five negative. The critical ratios vary from 0.00 to 2.23. Thus none of the differences are statistically significant. We, therefore, conclude that there is no difference between mean scores on the two lists.

Further, nineteen words were found which were identical in both lists. Disturbances on these nineteen words were plotted separately for the administrations in the Jung and the Kent-Rosanoff list. Each word was then scored as a reversal or a non reversal. Regardless of the type of disturbance if the item showed a disturbance in one administration and not in the other, it was scored as a reversal; if no disturbances were marked for the item or if disturbances were marked in both administrations, it was scored

as a non-reversal. If the first hypothesis here presented were true, and a specific word called up a specific conflict situation, thus leading to a disturbance, the percentage of reversal would approximate zero. Chance would be approximately 50 per cent. The average percentage of reversal found in this study was 43 per cent. This approximates chance much more closely than the value expected if this hypothesis were true.

From these data we conclude that the process of association represents a sample of the amount of mental disturbance rather than a specific conflict situation suggested by a specific stimulus word, and that the subject within the reliability of the technique and regardless of the word list used will show a given number of disturbances per 100 words. Thus the word list may be better thought of as a random sample of a process which is easily disorganized rather than a list containing a given number of words "critical" to a given subject.

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

THE ADAPTATION AND VARIABILITY OF RESPONSE OF THE HUMAN BRAIN

B. K. BAGCHI

Electrical potentials have been recorded from the brain of five normal human subjects by means of needle electrodes inserted about half a centimeter through the scalp, one near the external occipital protuberance and another about three inches forward and an inch to the side from the median line. The high time-constant of the amplifier, which was about a second, made it possible to obtain an almost distortionless recording of the low frequency waves. The amplifier was connected to the oscillograph element. The oscillation of the light beam projected from the element was photographed on sensitized paper.

The subjects lay on a cot in a dark, semi-sound-proof room, about three feet from a loud speaker into which sound stimuli from two oscillators and a phonograph record were presented from the outside of the room. A microphone placed within a foot of the loud speaker activated the signal. The subjects were instructed