

PSYCHOLOGY

Chairman: DOUGLAS G. ELLISON, Indiana University

E. J. Asher, Purdue University, was elected chairman for 1949.

ABSTRACTS

Application of Servo Theory to Human Motor Behavior. D. G. ELLISON, Indiana University.—Servo theory was developed by engineers and mathematicians to aid in the design of mechanical and electrical transmission systems and amplifiers. With the aid of this theory the performance of a complex transmission system can be improved by designing one component so that its performance characteristics match certain characteristics of other components. "Noise" or errors introduced by one component can be eliminated or filtered out by suitable design of other components.

A man operating certain types of machines such as an automobile, an airplane, or a gunsight may be considered as one component of a complex system which includes both the man and the machine. If the man's response in operating the machine has the necessary characteristics for the application of servo theory, then it may be possible to eliminate the errors which the man makes by proper design of the machine he operates. The psychological problem on which research is being done at present is the investigation of the response characteristics necessary for this application.

A Re-Test of Adolescents' Interpretations of Emotionally-toned Situations After Two Years. ALMA LONG, Purdue University.—Comparison of responses of 76 youths whose records were part of the large number studied for development of measuring devices, after a period of two years. Original classification in grades 7-10. Identical materials and methods for test-retesting.

Studied for indications of consistency in individual response, extent and nature of change, implications for school and counselling needs. About one third of group (1) Maintained same relative rank in group, (2) Progressed farther than average for age-grade group, (3) Lost ground in social position, respectively.

Change in relative position showed little relationship to differences in intelligence ranking or to measures of home quality. Nature of responses, where serious loss in relative position occurred, indicates need for much greater knowledge about and attention to the social needs and personal satisfactions of high school pupils, and to those of the younger pupils in particular.

Prediction of the Relationship Between Test Score and Inconsistency of Response, ROBERT GLASER, Indiana University.—In psychophysical measurement as the discrimination of a stimulus becomes more difficult,

i. e. as an individual's threshold is approached from either direction on the scale of measurement, his responses become less consistent. The threshold (50%) is defined as the point of greatest inconsistency of response. Test items considered as stimuli similar to the stimuli employed in psychophysical measurement may also evoke an increased inconsistency of response as the individual approaches the point where his response changes from "yes" to "no" or from "right" to "wrong."

If test items are considered in this manner certain hypotheses can be developed concerning the relationship between inconsistency of response to test items (as measured by test-retest) and test score. It can be shown that under certain conditions a spurious correlation may result between inconsistency and test score even when it is assumed that no true relationship exists between the two. The analysis throws doubt upon the results of previous studies which report inconsistency as a trait of behavior correlation with intelligence and personality factors.

Validation of Personality Test Results Against Laboratory Behavior.

LAWRENCE M. BAKER and JANE S. HARRIS, Purdue University.—The purpose of the experiment was to compare results obtained by the use of the Rorschach Test and the Minnesota Multiphasic Personality Inventory with certain changes in speech performance under normal and stressful conditions. Fourteen subjects were used and several correlations were run. The most significant were the comparisons of form quality and form-color integration with speech intelligibility and variations of voice intensity. Those individuals whose Rorschach record would indicate greatest emotional instability were most disturbed under stress as indicated by a decrement in speech performance. Those subjects having the high Psychosis score on the MMPI test were found to reflect the least indication of disturbance under stress.

Operant Conditioning of a Vegetative Human Organism. PAUL R. FULLER, Indiana University.—In this study a response was conditioned and subsequently extinguished in a so-called "vegetative" human subject. The methods employed were similar to those used by Skinner and others in experiments with rats and pigeons. The subject was the inmate of a feeble-minded institution who had spent his entire nineteen years in a near-vegetative state. His behavior consisted of limited arm movements, opening his mouth, swallowing, blinking, making some vocal noises, and moving his head.

The response conditioned was the elevation of the right arm to a vertical or near-vertical position. The right arm was selected because in a preliminary count it was ascertained that the right arm was elevated only half as frequently as the left. The subject was deprived of food for fourteen hours. The rate of elevation of his right arm was ascertained and considered the base line on which subsequent rates of responding were compared. Thereafter every elevation of the right arm was followed immediately by the injection of several cc. of a sugar and milk solution into the mouth of the subject. With repeated occurrence of the response followed by the presentation of the reinforcing

stimulus, the rate of response increased until it was more than four times the original rate. When the reinforcing stimulus was no longer presented, the rate of response remained high for a period, then decreased, forming a pattern typical of the extinction curves obtained from infra-human organisms under similar conditions.

A Test for an Assumed Property of the Hypothetical Construct of "Fear": An Attempt to Obtain Conditioned Inhibition of the GSR. H. COPPOCK, Indiana University.—Many experiments in animal learning which have involved electric shock have been interrelated by assuming a motivational factor of fear or tension. This factor is aroused by shock or by stimuli paired therewith, and is reduced by shock termination or by stimuli paired therewith. The reduction of this fear drive is said to constitute reward, which is the strengthening of any preceding skeletal response.

Stimuli paired with shock termination have been found to become secondary rewards for rats. Presumably such stimuli have become (conditioned) fear reducers. Insofar as fear may be indicated by measurements of the activity of the sympathetic nervous system, as some have asserted that it may be, then these stimuli should have become conditioned inhibitors of sympathetic activity. This was tested with human subjects, using the level of palmar skin resistance as an index of sympathetic activity.

A stimulus (CS) was presented one-half second before the terminations of ten mild shocks of variable duration. Subsequent tests showed that the GSR elicited by this CS was not smaller after than before these trials. The same number of trials was sufficient, however, to condition the CS to the GSR when CS had preceded the shocks by one-half second.

It is concluded that "fear" is readily conditioned, although fear reduction or tension reduction is not readily, if at all conditionable.

Report of the Remedial Reading Clinic, BLAIR WILSON SPARKS, Butler University.—Students for remedial reading instruction were selected on the basis of their performance on the reading section of the Cooperative English Test which was given to all entering freshman September 16, 1947. All students whose reading scores on this test fell at or below the tenth percentile according to the test norms, were assigned to the reading clinic.

Upon entering the clinic, the students were immediately given the Iowa Silent Reading Test, form DM. This test was administered for diagnostic purposes and was used later in conjunction with form CM of the same test which was given at the end of the instructional period as a means for determining student progress.

Reading instruction consisted, in part, of the use of the Harvard Developmental Reading Program. The program includes fifteen reading films and fifteen equated reading selections. Rate and comprehension scores were selected for each film and reading selection and each student

kept a complete record of his achievement on the films and reading selection tests.

The median score attained on the final test was 176.47 whereas the median score on the entering test was 164.56. This shows a gain of 11.80. Furthermore 86.5 percent of the cases exceeded the median on the first test and 68.0 percent of the students on the final test exceeded Q3 of the first test.

The median score attained in the reading rate in September was 260.14 and rose to 497.08 in January. This shows a gain of 239.64. The gain in comprehension accompanying the rise in rate was .55. There were 51.20 percent of the cases which exceeded the September median on comprehension.

Psychology as a Normative Science, CHARLES C. JOSEY, Butler University.—Psychologists have shown considerable interest in what men desire, but have neglected to make serious inquiry into what men should desire. Many confused persons are asking, "What should I do?" Granted that psychologists have no method of discovering the good beyond those available to the thoughtful and observant person, yet it does not seem unreasonable to expect those who specialized in the study of human nature to gain some insight into what constitutes man's highest good. An explanation of why psychologists have neglected this aspect of human nature, and some suggestions for making the needed inquiry are offered.