

## PSYCHOLOGY

Chairman: ALMA LONG, Purdue University

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Dr. Douglas G. Ellson, Indiana University, was elected chairman of the section for 1948.

### ABSTRACTS

**Pseudo-psychological beliefs of high school pupils.** T. L. ENGLE, Indiana University.—A true-false test of 32 items was administered at the beginning and again at the end of the spring 1947 semester to a group of high school students attending four Indiana high schools. The pupils were enrolled in courses in psychology or in courses containing a large amount of psychological material. Analysis of the responses to each question at the beginning and end of the semester revealed statistically significant improvement. However, there was still a discouragingly high percentage of pupils unwilling to give up beliefs in women's intuition, instinctive love, etc.

**Scaling and factorial design in opinion poll analysis.** N. L. GAGE, Purdue University.—Most previous attempts to ascertain whether significant differences in attitudes or opinions exist, among groups of individuals classified according to various personal data, have been inconclusive because of their failure to control concomitant variables. Previous attempts at solution of this problem have been made by Crespi and Rugg, Williams and Mosteller, Samelson, Greenwood, and others. The present approach has two components: first, the scaling or quantification of opinion poll responses by means of factor analysis, or its variant, scale analysis; second, the application of factorially designed analysis of variance. The application of this approach to actual data obtained with the Purdue Opinion Poll for Young People was described. Six dichotomous personal data factors were used: grade in school, religion, urban-rural residence, political party preference, economic status, and sex. The superior interpretability of the results of the analysis of variance by factorial design was pointed out. The entire report will be published as No. 61, Studies in Higher Education, Purdue University.

**Comparison of paper-and-pencil method and the radio method of polling public opinion.** MARJORIE WILLIAMSON, Purdue University.—The objective of the study was to determine whether or not the methods of polling public opinion by the paper-and-pencil anonymous classroom technique or by the radio method differ in a statistically significant fashion. High correlations between opinions indicate that the opinions of students polled by one method can very well be predicted by the second method. Differences between the two techniques lie in the amount of

uncertainty elicited. The paper-and-pencil method elicits a significantly greater amount of uncertainty than does the radio technique.

**Relation of benefits of distribution of effort to learning difficulty of a task.** R. W. BRUCE, Wabash College.—This study represents an effort to observe the relation of benefits of distributed effort to difficulty of the material to be learned. Fifty-four subjects were divided into two groups. The first group was given 30 seconds in which to study a list of ten words. The same group was then given 3 intervals of 10 seconds separated by rest intervals of 10 seconds. This whole procedure was then repeated with lists of 20 words. Group two was given the same series of tasks, except that the sequence was exactly reversed. The amount learned by each group on each test was immediately measured by the method of retained members. In every case the subjects benefited by the distribution of effort. The greatest gain was shown on the more difficult task.

**Observations on human behavior in experimental semistarvation.** JOSEPH C. FRANKLIN, Purdue University, BURTRUM C. SCHIELE, JOSEF BROZEK, and ANCEL KEYS, University of Minnesota.—Observations were reported on behavioral changes which occurred in 36 volunteer subjects during a semistarvation-rehabilitation experiment. Six months of semistarvation produced marked deterioration and adaptive changes in all subjects. The physiological responses to undernutrition included such changes as decrease in the pulse and basal metabolic rate. The personality changes were "psychoneurotic" in type and although not grossly pathological, rendered the subjects increasingly ineffective in their daily living. Marked individual differences were present in both the degree of overall deterioration shown in starvation and in the rate of recovery during the period of rehabilitation. Return to normal was unexpectedly slow and in general paralleled the levels of caloric intake.

**Action potentials during a tracking response.** DOUGLAS G. ELLISON and HARRIS HALL, Indiana University.—Stetson has identified two types of movement: "moving fixations" in which the movement is relatively slow and produced by a change in the balance of opposed muscle contractions; and "ballistic movements", in which the movement is rapid and the opposed muscles contract successively during acceleration and deceleration phases. Action potentials of biceps and triceps muscles were recorded for six subjects during the performance of a single dimension tracking task controlled primarily with these muscles. The results indicated that the periods of inactivity of either muscle which characterize ballistic movement were not present. The activity levels of the two muscles during tracking were positively correlated in time, but the activity of either muscles separately was not significantly correlated with the movements involved in producing and correcting tracking errors.

**Patient as person: Personality projection in paintings by psychotic patients.** RICHARD LEDGERWOOD, Purdue University.—Work was described which was conducted during the past two years at the Eastern State Hospital, Williamsburg, Virginia, by staff members of the Department of

Psychology, in the College of William and Mary. The research program undertaken related to accreditation of chromo-plastic projection analysis as a psychodiagnostic projective technique of the so-called expressive type. The brush-tempera medium was employed. Methods developed and principal findings were summarily indicated. The present paper was devoted largely to characterization of typical cases selected from the total range of clinical material collected with a view to maximum available diversification of diagnostic types.

**Habituation in the "Startle Response" as measured by the action potential technique.** DONALD W. VAN LIERE, Indiana University.—Photographic studies of reactions to revolver shots show no "habituation" factor. To further test this hypothesis nine relaxed subjects were subjected to five shots from a 32 caliber revolver given at two minute intervals. Action potentials were taken from the upper dorsal surface of both forearms (extensor muscles). Results show that the highest level of activity is reached during the third "tenth" second following the shot. For the five shots there is no significant variation for either right or left hand. A normal resting state is not reached by the end of the seventh second but occurs sometime before two minutes. Previous investigations assumed a normal state was reached in about one and a half seconds.

**An experimental study of avoidance behavior.** S. L. CAMPBELL, Indiana University.—This paper reported an investigation of the independence of "avoidance" behavior from "escape" behavior, and of factors relevant to "avoidance" conditioning. An automatic shocking-grid device for use with rats was developed for the present study. An escape response was reinforced by withdrawing shock for fifteen seconds. A second group of rats was similarly conditioned, but could also delay shock for fifteen seconds by anticipatory responding. Extinction records of the secondary drive, avoidance response, and escape response will be shown. It is concluded that the effectiveness of avoidance conditioning depends upon: (1) intensity of the unconditioned stimulus; (2) presence of external discriminative stimuli; (3) the operation of delaying the unconditioned stimulus.

**A comparison of various manipulative techniques in a tracking test.** D. CRAIG, Indiana University.—This report discussed the results of research carried out at Indiana University for the Aero Medical Laboratory, Engineering Division, Air Materiel Command.

**Experiments on a suggestion-induced movement response.** Z. H. LURIA, Indiana University.—Subjects were seated in total darkness for a 15 minute period during which no experimental stimuli were presented. They were instructed to report anything observed. One group was told to report the extent and direction in which they were moved. In the suggestions to the second group no suggestion of movement was given. Both groups reported movement although no movement occurred. The suggestion group reported the occurrence of movement significantly more frequently than did the other group. This latter group was retested with

instructions incorporating the suggestion of movement and the number of reports of movement increased significantly. It is concluded that when visual cues are eliminated, suggestion readily influences the subjects' report of stimulation, and that postural cues are surprisingly ineffective as checks on body position.

**Arithmetic readiness at the kindergarten level.** ROBERT H. KOENKER, Ball State Teachers College.—The problem of this study was to discover the value, if any, of a rich arithmetic readiness program at the kindergarten level. Four groups of children were used. In the fall of the year the children were administered an intelligence test and an individual arithmetic readiness test. During the school year the control groups were given the regular kindergarten program. The experimental groups were given the regular program plus a rich arithmetic readiness program. In the spring the children were retested in arithmetic readiness and 27 children from the experimental groups were matched with 27 children from the control groups. By statistical analysis it was found that the children in the experimental groups gained significantly more than the children in the control groups.