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Projecting Introductory Psychology Examinations at Iowa State College

By ROSS R. THOMAS

INTRODUCTION

During the fall quarter of 1948 examinations in the introductory Psychology course at Iowa State College were first administered by slide projection. Results of this procedure were considered satisfactory and this method of administration has been continued.

The primary reason for utilizing this method was to maintain the security of the examination material. Test slides were prepared in the departmental office, lessening the possibility of students obtaining tests prior to examination date. In addition, all test items were thus subject to independent use, further decreasing opportunities of procuring information as to examination content.

Secondary reasons for the procedure were: (1) the assembling of a library of readily selected items; (2) time economy both as regards selection of test content and the actual time spent in administering the examination; (3) equivalent instructions and uniform conditions for a greater number of students; and (4) economical selection of items of varying levels of total-score contribution as determined by item analysis.

The purpose of this paper is to describe the required equipment, to outline the procedure followed and to present an analysis and criticism of results obtained.

EQUIPMENT

Multiple-choice test items were typed onto cellophane sheets $3\frac{1}{4}$ inches by 4 inches, using red carbon paper. The cellophane sheet was then sealed between $3\frac{1}{4}$ " by 4" Kodak Lantern Slide Cover Glass, using $\frac{1}{2}$ " black binding tape. The slides were numbered in order of appearance by ink lettering on Scotch tape, in order that the number would also be projected.

A Keystone Overhead Projector was used for projecting the items. This projector was selected because of superior clarity of projection and simplicity of adjustment. Assembly halls were already equipped with screens.

A small buzzer was used to signal the change of slides.

Standard I.B.M. answer sheets were used in order that the responses might be machine scored. Electrographic pencils were also supplied to the students.

PROCEDURE

The projector was placed and adjusted prior to admittance of students to the assembly hall. Each student, upon entering, was handed a lap-board, I.B.M. answer sheet, and electrographic pencil.

Standard instructions were given and an instructional slide shown. Students who had difficulty reading this introductory slide were placed in more satisfactory positions.

The slides were then exposed in the desired sequence. Time for each slide exposure varied from 35 to 50 seconds according to length of the item. The warning buzzer was sounded 10 seconds prior to changing each slide.

At the conclusion of the examination the answer sheets, pencils, and lap-boards were collected as the students left.

STATISTICAL ANALYSIS

Analysis of test results and certain aspects of the testing procedure was made after the final examination of the fall quarter.

Flanagan correlations, to determine test-item relationship ranged from a correlation of -0.12 to $+0.62$, for the 135 items used. An arbitrary cutting point of $r=0.25$ revealed that 54 items did not contribute substantially to total scores on the examination.

Responses of 100 out of the population of 580 cases, selected on the basis of final grade stratification, were further analyzed to determine the relationship of length of item and item-test correlation. A biserial correlation of 0.2456 was interpreted as showing slight relationship.

CRITICISM

Theoretical and practical criticism of this method of testing revealed some of the usual failures of test methods priorly used as well as some unique features.

Projected tests probably emphasize speed more than the paper-pencil tests ordinarily used. Individual differences in rate of reading and comprehension are not allowed expression due to the arbitrary limitation of time per item and the preclusion of scanning by the student for items he is more familiar with.

As yet no studies have been made to determine the optimal length of items although the relationship between length of item and item test relationship as determined by biserial correlation was shown to be slight. Similarly, optimal duration of exposure time has as yet to be determined.

Preliminary comparison with results from prior examinations of the paper-pencil type indicates greater dispersion of total scores. This leads to the tentative, though as yet statistically undetermined, conclusion that reliability of test performance is increased by using the projected examination.

SUMMARY AND CONCLUSIONS

Multiple-choice examinations in the introductory psychology course at Iowa State College were administered by means of slide-projection of items throughout the fall and winter quarters of the current college year. Experience has revealed certain inherent weaknesses and further research is required to determine optimal conditions. However, in consideration of the advantages presented in this paper, the psychology department of Iowa State College considers the continuance of this method of examination is warranted.

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