

Research Abstracts

DON H. COOMBS, *Editor*

Abstracts from ERIC¹

Individualized Instruction: *Preparing Behavioral Measures* *Developing the Instructional Specification. Monograph Number 12.* Vernon S. Gerlach and others, College of Education, Arizona State University, Tempe, 55 pp., 1968.

Analysis of a film script that makes the learner distinguish between statements of observation and statements of inference leads an instructor step by step through preparing an instructional specification—a blueprint for preparing powerful self-instructional materials. There are four parts to an instructional specification: the terminal behavior (the behavior that the self-instructional material should develop in the learner); the instructional cue (a stimulus that spurs the learner on to a specific terminal behavior); the elicitor (a statement or question that elicits from the learner either a terminal behavior or a response which he must make before the instructional cue will mediate the terminal behavior); and last, a specification of the limits of the stimulus class that controls the desired responses. By means of self-correcting questions, the instructor learns the component parts and rationale of the instructional specification.—*Microfiche 25c, hardcopy \$2.85, document ED 030 323.*

Visual Illustrations in Elementary Instructional Materials

A Study of the Advantages and Disadvantages of Using Simplified Visual Presentations in Instructional Materials. Robert M. W. Travers, Office of Education (DHEW), Washington, D.C., Bureau of Research, 70 pp., 1969.

¹ Documents listed are available from the ERIC Document Reproduction Service, unless otherwise noted, and can be purchased for the stated price, plus a 50-cent service charge. The address is EDRS, 4936 Fairmont Ave., Bethesda, Md. 20014. *It is vital that the document be identified by its ED number.*

Beginning with a survey of work previously done on the subject, this study attempts to learn more about how, and to what extent, children benefit from pictorial illustrations. Three areas were investigated in experiments with children from nursery school and kindergarten to sixth grade. The first experiment probed the effect redundant clues have on the recognizability of an illustration, the second the relative values of realistic and abstract illustrations in the teaching of a concept, and the third the effect of age differences on the perception of pictures. The first experiment, in which the pictures were presented by means of a tachistoscope, led to the conclusion that a picture becomes more recognizable as more clues are furnished. In the second experiment, children instructed in the concept "one-half" by means of abstract materials did as well as those taught with illustrations of real objects. The best learning was achieved when children were taught and tested with realistic materials. Children learned best when the illustrations suggested a kinetic situation, and perception increased with age.—*Microfiche 50c, hardcopy \$3.60, document ED 031 951.*

ITV: *The Inquiry
Method and
Creativity*

Instructional Television: Inquiry Method of Instruction in Fifth and Sixth Grade Science. Mary M. Beets, Ph.D. dissertation, United States International University, 140 pp., 1968.

The primary purpose of this study was to ascertain whether television can effectively serve as an instructional medium for teaching creative thinking to fifth- and sixth-grade students by using the "inquiry" method of instruction in the area of science. This method produced significant difference in the students' creative thinking ability over a nine-week period. Student involvement in the live telecasts—through telephone connection with the television teacher—also was positively related to creative thinking ability.—*Available from University Microfilms, 300 North Zeeb Rd., Ann Arbor, Michigan 48103 (Order No. 68-14,754, microfilm (not fiche) \$3.00, Xerography \$6.60).*

Television:
*Classroom
Utilization
Procedures*

The Effect of Different Television Utilization Procedures on Student Learning. Final Report. Serena E. Wade, Santa Clara County Office of Education, San Jose, California, 42 pp., 1968.

In a study designed to investigate the relative effectiveness of three methods of television utilization, 817 fifth grade students were exposed to 12 telelessons on a science unit about insects. With one group of students, the classroom teachers were instructed to use a Socratic approach, asking questions and giving immediate knowledge of correct responses. In another group the teachers gave the students no opportunity for a question-answer session. With the third group the teachers were provided with a program guide and

left to their own devices. Data collected included standardized pretest scores of science knowledge, intelligence scores, posttest scores of learning from the television lessons, and certain background information for each child. The data suggest that classroom teachers should be taught to use the Socratic method of instructional television utilization.—*Microfiche 25c, hardcopy \$2.20, document ED 031 958.*

Television and
the Deaf

A Study of the Feasibility of Using Television to Teach Child Psychology to the Acoustically Handicapped. Final Report. Richard R. Shurtz, Arkansas University, Fayetteville, 73 pp., 1968.

Conventional methods are inadequate for teaching deaf people, especially at the college level. In order to determine whether television would be more effective, several factors needed to be investigated. Tests showed that the program should have a determined pace rather than an individualized one. Sixteen-millimeter film was used, because videotape recorders were not standardized. Special standards were evolved for selecting the television instructor and interpreter. Tests were made to determine what kind of visual and tape formats to use. Regular film proved more effective in teaching than slow-motion film. The finished product, a 16mm television film on child psychology, was found to be useful for instructing deaf people, although several modifications were suggested. Recommendations for future research are included in the report.—*Microfiche 50c, hardcopy \$3.75, document ED 030 312.*

Audiotapes:
Length and
Student
Attitudes

An Analysis of Certain Elements of an Audio-Tape Approach to Instruction. Ronald Ernest Bell, Ph.D. dissertation, 88 pp., 1969.

This study was designed to determine the association between selected variables and an audiotape approach to instruction. Fifty sophomores in a physical anthropology course at Shoreline Community College (Washington) participated in an experimental instructional program that consisted of 32 audiotapes and three optional seminars per week. Results indicated a negative relationship between the length of tapes and their respective student evaluation. The need for autonomy was positively related to performance on examinations based on the tapes, and attitude toward the tapes followed an "s"-curve with a low period near the middle of the quarter.—*Available from University Microfilms, 300 North Zeeb Rd., Ann Arbor, Michigan 48103.*

Listening
Training

The Influence of Tape-Recorded Listening Lessons and "Listening-Motivation" Bulletins upon the Listening Ability of High School Students. John Stephens Bowdidge, Ph.D. dissertation, University of Missouri at Kansas City, 336 pp., 1967.

This study tested which, if any, of three listening training methods would make a significant difference in the listening ability of high school students. From 17 public and parochial schools in the greater Kansas City, Missouri, area, 615 students were selected and pre- and posttested with alternate forms of a "cloze" listening test devised by the experimenter. The 316 control subjects received no training, and approximately 100 students were enrolled for a six-week period in each of three experimental training methods: 1) 16 tape-recorded listening lessons utilizing the same voice as that on the tape-recorded pre- and posttests; 2) 16 tape-recorded listening lessons utilizing a variety of voices, none of which were on the pre- or posttests; and 3) 16 1-minute tape-recorded "listening motivation" bulletins. Conclusions were that: training can significantly increase the listening ability of high school students; all listening training methods are not equally effective; a variety of voices increases listening training effectiveness; mere admonitions ("listening motivation" bulletins) are ineffective; and socioeconomic status and grade level appear to affect listening ability.—*Available from University Microfilms, 300 N. Zeeb Rd., Ann Arbor, Michigan 48103 (Order No. 68-3569, microfilm (not fiche) \$4.30, Xerography \$15.30).*

EDITOR'S NOTE: *Four classic studies from the Penn State film research series have just been processed for availability from the ERIC Document Reproduction Service. They are presented here as a group.*

Film: *Leading
Commentary vs.
Lagging
Commentary*

Commentary Variations: Level of Verbalization, Personal Reference, and Phase Relations in Instructional Films on Perceptual-Motor Tasks. Technical Report. John V. Zukerman, College of Education, Pennsylvania State University, University Park, 69 pp., 1949.

This 20-year-old report, just made available through the ERIC system, is still of interest. In determining the most efficient design for the commentary of an instructional film, consideration was given to the level of verbalization (the amount of talk), the personal reference of the narrator, and the phase relationship between the commentary and the film (sound leading the picture, or sound lagging behind the picture). Naval trainees viewed several different motion pictures, each teaching basic information about knot-tying, but each varying from others on one of the three variables. After the instruction the trainees were tested on the perceptual-motor tasks, namely the tying of three difficult knots. A moderate amount of verbal description of the task aided learning while too much talk hindered it. Statements using the imperative mood or the second person active were more effective than those using the third person passive. Finally, a "leading" commentary helped trainees more than a "lagging" commentary.—*Microfiche 50c, hardcopy \$3.55, document ED 031 084.*

Film: *Exact Representation of the Learner* *Effects of Learner Representation in Film-Mediated Perceptual-Motor Learning; Rapid Mass Learning. Technical Report.* Sol M. Roshal, College of Education, Pennsylvania State University, University Park, 44 pp., 1949.

This 20-year-old study has just become available in the ERIC system. Its major hypothesis (based on the psychology of Clark Hull) was that the learning of a perceptual-motor act from films will be more effective as the film presentation approaches an exact representation of the learner himself performing the act to be learned. The problem was to discover the most effective way to represent the learner in such a film. In films used to teach 3,500 Navy recruits, the camera angle was either facing someone performing the act or "over the shoulder" of the learner. Other variables tested included motion pictures versus static sequential presentation, inclusion of the learner's hands versus their exclusion, and practice. It was found that the more realistic presentations—motion pictures from the learner's perspective—were more effective. Excluding the learner's hands was superior to including them in static presentations. Results from participating (or practicing) during the learning were not conclusive.—*Microfiche 50c, hardcopy \$2.30, document ED 030 304.*

Film: *Insertion of Questions and Statements* *The Effects of Inserted Questions and Statements on Film Learning; Rapid Mass Learning. Technical Report.* Albert K. Kurtz and others, College of Education, Pennsylvania State University, University Park, 18 pp., 1950.

Tenth-grade students in seven Pennsylvania high schools participated in an experiment to assess: 1) films of participation (by immediate audience response to inserted questions on salient facts); 2) films of reinforcement (by immediate repetition in titles of salient points of fact); and 3) films shown twice. Both inserted questions and statements, and repetition of the film without inserted material were effective in facilitating learning. Showing the film twice—a relatively simple and inexpensive procedure—seemed to be as effective as the more elaborate methods.—*Microfiche 25c, hardcopy \$1.00, document ED 031 921.*

Film: *Content and Tempo Variables* *Effects on Training of Experimental Film Variables, Study I: Verbalization, Rate of Development, Nomenclature, Errors, "How-it-Works," Repetition; Rapid Mass Learning. Technical Report.* Nathan Jaspen, College of Education, Pennsylvania State University, University Park, 27 pp., 1950.

Seventeen different versions of a film designed to teach how to assemble the breech block of the 40mm antiaircraft gun were tested on 2377 apprentice seamen in an effort to evaluate the relative effects of certain content and tempo characteristics, verbalization,

rate of development, nomenclature, errors, "how it works," and repetition. None of the men had ever assembled the breech block or similar mechanisms. They were grouped according to age, length of education, General Classification and Mechanical Aptitude Test Scores. Immediately after the film showing, each man was required to attempt to assemble the parts of the dismantled breech block. Ten trials were given, and a time score obtained for each man. A slow rate of development, the pointing out of errors to be avoided, and repetition markedly contributed to effectiveness of the film.—*Microfiche 25c, hardcopy \$1.45, document ED 031 922.*

Programed
Instruction:
Statement vs.
Question-Answer
Format

"Overt Responses, Knowledge of Results and Learning," M. Sime and G. Boyce, University of Sheffield. *Programmed Learning and Educational Technology*, 1969, 6, 1, 12-19.

Asking a question and providing the correct answer must necessarily provide the same information as would a direct statement about the point being questioned. This experiment attempted to determine why a "Question, Student Response, Provided Answer" technique is superior to giving a student the same information in statement form. Alternate hypotheses were proposed, 1) that responses which are reinforced by immediate confirmation will be better learned, or 2) the constant expectation of a question will heighten attention to the teaching materials and thus facilitate learning. The authors conclude that the second hypothesis—the "attention" one—received qualified support.

Programed
Instruction:
Dimensions
of Intellect

An Application of Guilford's Structure of Intellect to Programmed Instruction. Final Report. Robert L. Baker. Arizona State University, Tempe, 59 pp., 1968.

Single-score measures of intelligence are inadequate to predict performance on a programed instruction format. Guilford's model of the intellect accounts for three dimensions relevant to learner abilities. The content dimension refers to the kind of material involved, the product dimension to the kind of output required, and the process dimension to the operation involved in learning. Four studies were conducted to investigate the usefulness of Guilford's model in predicting types of stimulus-materials most consistent with learner characteristics. Eighth graders worked with two versions of a self-instructional program for teaching logic, and results indicated that Guilford's content dimension may not be critical from an instructional point of view. This probably is related to the fact that an analysis of almost any instructional objective yields a considerable number of verbal aspects. For example, the terminal objectives of both variations of the logic program suggested a set of verbal skills. Since the symbols in the symbolic variation of the program were still related to specified verbal manipulations, a great deal of verbal

mediation was necessary to handle efficiently the symbols in the logic program. The data suggest that further efforts at determining the instructional utility of Guilford's model might better be aimed at analyses of objectives and learning tasks in terms of the *products* demanded and the *operations* involved. Use of Guilford's model to aid in the prediction of differential performance on instructional tasks has considerable potential. That is, given certain specified instructional alternatives, the model should have utility in helping to make decisions as to which alternative is the most effective.—*Available from ERIC Document Reproduction Service, microfiche 50c, hard-copy \$3.05, as document ED 022 363.*

Videotape: *Pre- and Posttest Reactions to Self-Viewing One's Performance on Reactions to Viewing Oneself* Videotape. Gavriel Salomon and Frederick J. McDonald. Presented as a paper at the 76th annual convention of the American Psychological Association, San Francisco, Calif., 19 pp., August 30-September 3, 1968.

Thirty-eight teaching interns at a California State College viewed videotapes of their practice teaching without the presence of a supervisor or guidelines. Pre- and post-viewing questionnaires and interviews were administered to assess self-attitudes and attitudes toward teaching performance. The results indicated that in the absence of standards or models, satisfaction with one's teaching performance was determined by initial self-attitudes. When low satisfaction with general performance was reported in the first interview, defensive reactions to self-viewing appeared to predominate, with slight improvement in attitude occurring and few specific teaching cues recalled in the second interview. The findings are taken to suggest a differential use of self-viewing procedures in professional training, with presentation methods determined by personality variables of the viewer.—*Available from ERIC Document Reproduction Service, microfiche 25¢, hardcopy \$1.05, as document ED 027 733.*

Television Violence and Bad Driving "Television Violence and Driving Behavior." James R. Smith. *Educational Broadcasting Review*, August 1969, 3, 4, 23-28.

This study tested the hypothesis that bad drivers prefer the more violent television programs. The design involved locating a sample of bad drivers, matching them with good drivers, determining the programming preferences of each group, and assigning a violence rating to 72 major television programs. A bad driver was defined as one convicted of a moving violation in the last three years. These were easily locatable because of the practice, in Michigan, of assigning such violators to driver safety schools. In obtaining the sample of good drivers, an attempt was made to control for age, occupation, income, race, and marital status. Of the 80 bad drivers asked to participate,

70 agreed, but 57 of the 125 good drivers whose cooperation was sought had to be excluded for one reason or another—because of refusal to participate, admission of a recent moving violation, failure to fit the matching scheme, or inability of the experimenter to contact them. A panel of 39 graduate students rated television programs on violence, producing a listing with "Garrison's Guerrillas" at the top, "Lawrence Welk" at the bottom. The same questionnaire was used with both groups, but it was self-administered by the bad drivers and administered over the phone to the good drivers. Though the method of administration and the refusals to participate threaten the validity of the findings, results supported the relationship between bad driving and preference for violent television programs. The author takes pains to deny suggestions of a causal relationship.

- Computer-based Games Wing, Richard L., and others. *The Production and Evaluation of Three Computer-Based Economics Games for the Sixth Grade. Final Report.* Board of Cooperative Educational Services, Westchester County, N.Y., 183 pp., 1967. Available from ERIC Document Reproduction Service, microfiche 75c, hardcopy \$7.32, as document ED 014 227.

Three computer-based economics games were produced and evaluated as a means of individualizing instruction for sixth grade students. Twenty-six experimental subjects played two economics games, while a control group received conventional instruction on similar material. In the Sumerian game, students seated at the typewriter terminals pretended to be priest-rulers in an ancient country. In the Sierra Leone game, the students played AID officers. The third game, Free Enterprise, was completed but not tested. Results obtained by observation, interview, and pre- and posttesting of students showed that 1) sixth grade students are technically able to play computer-based economics games, 2) the games were at least as effective as conventional instruction, 3) the control group retained an understanding of economic principles longer than the experimentals, 4) the average experimental time was about half the control learning time, 5) students with higher intelligence and reading ability gained more from the games, 6) students spending the least time at the computer made the greatest gains, and 7) student interest was high. An extensive bibliography on computer-aided instruction is appended.

- Programed Instruction: Bibliography Glaser, Robert and Marino, Mary Louise. *A Basic Reference Shelf on Programed Instruction. A Series One Paper from ERIC at Stanford.* Issued by ERIC Clearinghouse on Educational Media and Technology, Institute for Communication Research, Stanford University, Stanford, Calif., 9 pp., 1968.

Annotated references identify recommended reading in four categories: general introductions to programmed instruction, user guides, programmers' manuals, and references for professionals experienced in programmed instruction.—*Available from ERIC Document Reproduction Service, microfiche 25c, hardcopy 44c, as document ED 019 013.*