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This study investigates the improvement in research and development skills which resulted from the 1968 AERA Presession. Instructional materials were administered to 47 participants who were pretested and posttested to assess their improvement. The results of the presession are considered favorable. (HW)

SOUTHWEST REGIONAL
LABORATORY FOR
EDUCATIONAL RESEARCH
AND DEVELOPMENT

1968 AERA PRESESSION: INSTRUCTIONAL PRODUCT DEVELOPMENT

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1968 AERA PRESESSION: INSTRUCTIONAL PRODUCT DEVELOPMENT

Howard J. Sullivan and W. James Popham

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The 1968 American Educational Research Association (AERA) Presession, Instructional Product Research, was held at the Chicago Sheraton Hotel from February 3-7, 1968. The presession provided an opportunity for the tryout and evaluation of product-development training materials produced under the Staff Training project at the Southwest Regional Laboratory for Educational Research and Development.

The 1968 AERA Presessions were supported by a grant from the United States Office of Education.

INTRODUCTION AND OBJECTIVES

The past two years have brought a sharp upsurge of educator interest in the procedures associated with the systematic development of educational products that achieve pre-specified instructional objectives. A concomitant of the recent support for the development and evaluation of new instructional programs has been an increased demand for skilled product developers. Yet, due in part to the recency of the product development movement, individuals with special competence in this area are in short supply.

The overall goal of the 1968 AERA Presession, Instructional Product Research, was to develop the participants' skills in product development and research. The procedures used in planning, conducting and evaluating the presession parallel those employed in programmatic product development efforts. Initially, the specific competencies required for the conduct of successful product development and research operations were carefully analyzed by the presession staff. The instructional objectives and evaluation procedures for the presession were derived from this analysis. Instructional materials and activities designed to implement the pre-specified objectives were then either prepared by the presession staff or selected from among product-developer training materials produced at the Southwest Regional Laboratory for Educational Research and Development.

The analysis of important product development skills yielded a list of 12 instructional objectives. Participants who mastered these objectives were able to perform the following tasks at the conclusion of the five-day presession:

1. Identify and specify the objectives for instructional products in terms of observable learner behavior.

2. Classify instructional objectives according to a modified, four-category version of the Taxonomies of Educational Objectives.

3. Discriminate among instructional objectives which contain (a) no minimal levels of learner behavior, (b) minimal levels of behavior only for an individual learner, and (c) minimal levels of behavior for a group of learners.

4. Select and/or write suitable test items, given precise instructional objectives.

5. Correctly classify (according to a four-category scheme) different types of criterion measures which may be used to evaluate educational products.

6. Correctly classify different components of sample instructional specifications.

7. Sequence enroute behaviors according to prescribed criteria.

8. Correctly identify instances in which product development rules have been (a) followed or (b) violated when presented with a series of fictitious vignettes describing product development activities.

9. Identify in given instructional products examples of selected development principles.

10. List and briefly describe appropriate procedures in product tryout and revision.

11. Specify criteria useful in evaluating the effectiveness of product development operations.

12. Recommend appropriate research designs for hypothetical situations requiring the experimental evaluation of instructional products.

INSTRUCTIONAL PROGRAM AND MATERIALS

The instructional program and materials were organized to provide direct instruction and practice on the presession objectives. Instructional sessions were scheduled daily from 9:00 a.m. until 4:30 p.m., and evening meetings with optional attendance were held from 7:00 until 9:00 p.m. on the first three nights of the presession.

The complete schedule for the presession is presented in Table 1.

Table 1

PRESESSION SCHEDULE

	SATURDAY	SUNDAY	MONDAY	TUESDAY	WEDNESDAY
SESSION I 9:00-10:30	Organization and Pretest	Measuring Objectives (4) Criterion Measures Program (5)	Rules for Developing Instructional Products: Discussion (8)	Simplified Designs Program (12)	Posttest
SESSION II 10:45-12:00	Product Development Overview Educational Objectives Program (1)*	Instructional Specifications (6) Sequencing Enroute Behaviors (7)	Development Principles (9)	Designing Evaluative Experiments	Product Development Prospects
SESSION III 11:30- 2:45	Quality of Objectives (2) Performance Standards (3) Developing Instructional Products	Rules for Developing Instructional Products (8)	Development Principles (9) Tryout and Revision (10)	Evaluating Development Operations (11)	Posttest Results and Presession Summary
SESSION IV 3:00- 4:30	Lab: Participants work on product development project, complete instructional materials and/or consult with staff	Lab: Participants word on product development project, complete instructional materials, and/or consult with staff	Lab: Participants work on product development project, complete instructional materials, and/or consult with staff	Lab: Participants work on product development project, complete instructional materials, and/or consult with staff	
EVENING MEETINGS (optional) 7:00- 9:00	Group Discussion Filmstrip-tape program: (Improved Educational Programs)	Group Discussion Filmstrip-tape program: (Research in the Schools, Part I: Classifying Educational Research Studies)	Group Discussion		

*Numbers in parentheses show the objective for which instruction was provided during the session designated.

The daytime program was divided into four sessions daily. Typically, direct instruction and practice were provided on the presession objectives during the first three sessions each day. During the final daytime session each participant worked individually on instructional handouts given that day, prepared his own small-scale instructional product. or consulted with presession staff members on his ongoing or planned product development and research activities.

The optional evening meetings were scheduled to provide participants with an opportunity to interact with each other and the presession staff in group discussions. Tape-filmstrip instructional programs were shown at the beginning of the first two evening meetings to stimulate the discussions. Attendance at the optional evening meetings ranged from a low of 25 individuals (53% of the 47 presession participants) at the initial session to a high of 40 participants (85%) at the final meeting.

A total of 38 separate handouts, ranging in length from one to 60 pages, comprised the materials used for instructional and evaluation purposes. A complete listing of the materials provided for all presession participants is presented in Table 2.

EVALUATION RESULTS

The primary evaluation source was the post-instructional performance of the participants on the instructional objectives of the presession. Two parallel test forms containing 190 items each were employed as direct measures of the 12 objectives. Each test form measured all 12 objectives, and each form contained the same number and type of items for any single objective from among the twelve. The pretest, Form X and Form X - Part II, was administered at the opening session on the first day of the presession. The post-test, Form Z and

Table 2

PRESESSION MATERIALS

1. Pre Tests: Form X, Parts I and II (20 pages & 5 pages)
2. Pre Test Correct Answer Key (1 page)
3. Profile Sheets (1 page)
4. Instructional Product Research: Introductory Hand-outs (8 pages)
5. Educational Objectives Program Answer Sheets (1 page)
6. Objective 3 Practice Sheets (1 page)
7. Product Documentation and Review Guidelines (10 pages)
8. Instructional Objectives (17 pages)
9. SWRL Technical Glossary (8 pages)
10. Establishing Performance Standards (17 pages)
11. Selecting Appropriate Educational Objectives (19 pages)
12. Product Research: A New Curriculum Specialty (5 pages)
13. Improved Educational Program Answer Sheets (1 page)
14. Improved Educational Program Criterion Tests (1 page)
15. Criterion Measures Examples (1 page)
16. Educational Criterion Measures Answer Sheets (1 page)
17. Objective 6 Practice Sheets (1 page)
18. Rules for the Development of Instructional Products (60 pages)
19. Design Specifications: Objectives and Prototype Items (21 pages)
20. Writing Instructional Specifications (15 pages)
21. Educational Criterion Measures (24 pages)
22. Write is Right (5 pages)
23. Sequencing Enroute Behaviors (25 pages)
24. Exams: Research in the Schools - Part I (4 pages)
25. Answer Sheets: Classifying Educational Research Studies (1 page)
26. Criterion Test Items: Objective 12 (1 page)
27. Appropriate Practice (17 pages)
28. Providing Knowledge of Results (17 pages)
29. Make it Interesting (14 pages)
30. Avoid Irrelevancies (13 pages)
31. Exams: Research in the Schools - Part II (6 pages)
32. Answer Sheets: Interpreting Research Results (1 page)
33. Simplified Designs for School Research (26 pages)
34. Developing the "D" in Educational Research and Development (11 pages)
35. Research, Development, and Improvement in Education (16 pages)
36. Post Tests: Form Z: Parts I and II (22 pages & 5 pages)
37. Post Test Correct Answer Keys (1 page)
38. AERA Evaluation Forms (1 page)

and Form Z - Part II, was administered during the first period on the final day. A copy of Form X is included as Appendix B of this report. Form Z is available from the authors upon request.

Table 3 shows the pretest and post-test mean scores by objective and presents a group profile for each test. The table reveals that the mean pretest score for all participants on the 190-item test was 112.6 (59%) and the mean post-test score was 155.7 (82%). Performance gains by objective from pretest to post-test ranged from 8% (objective 2) to 73% (objective 12). As indicated in the table, the participants attained a group post-instructional performance level of above 80% on 9 of the 12 objectives.

The presession critique forms prepared for use at all 1968 AERA presessions and completed by the participants and staff at the conclusion of the presession served as additional sources of evaluation. A list of the 47 participants and certain descriptive data about them are presented in Appendix A, and the responses of all participants who completed the Participant Evaluation Form are summarized in Appendix C. Staff responses are shown in Appendix D on the form entitled Presession Critique for Staff Members.

The summarized responses of both participants and staff members show consistently favorable evaluation of all aspects of the presession. Tabulation of positive and negative responses and comments on the Participant Evaluation Form, with items related to the hotel facility omitted, reveal a ratio of 10 positive responses from participants to each negative response.

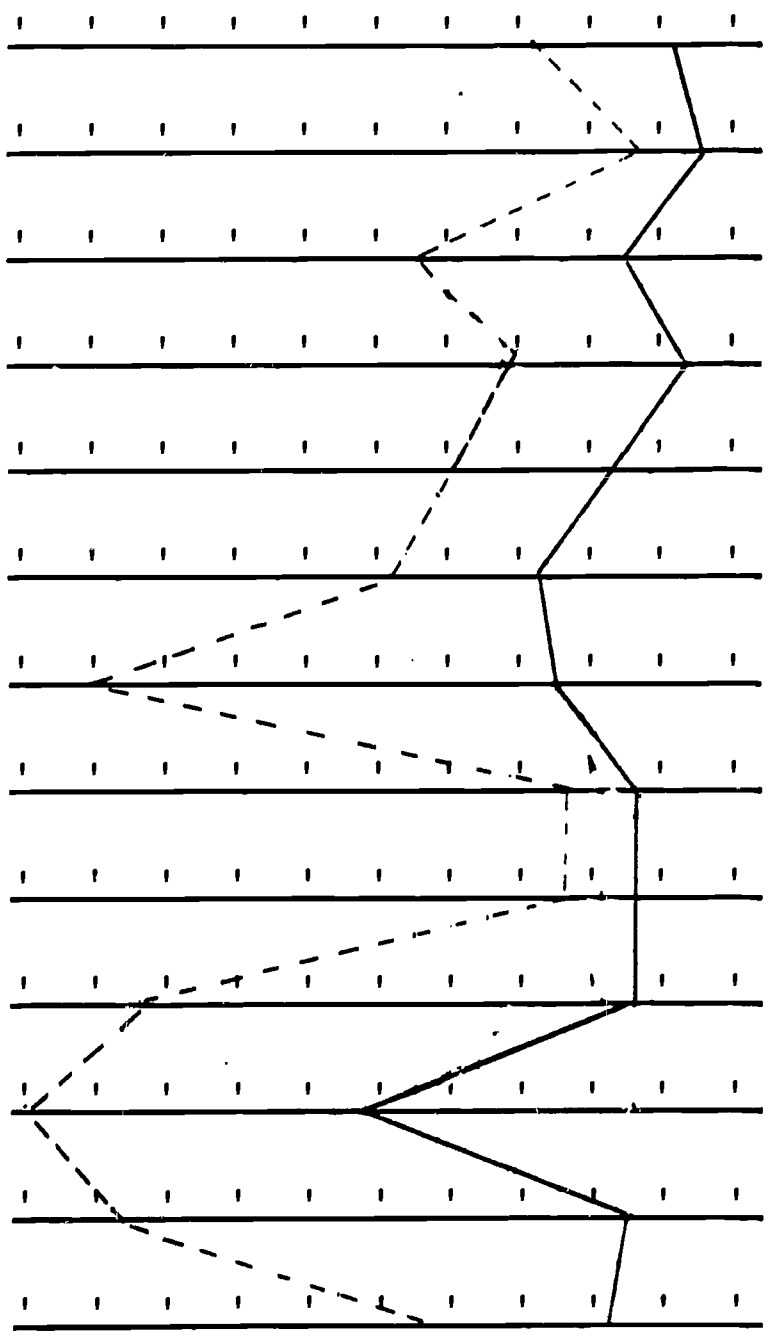
Based upon the post-instructional achievement of the participants and the written evaluations from both participants and staff members, it appears reasonable to conclude that the presession was a success.

Table 3

*GROUP PROFILE: MEAN PRETEST AND POST-TEST SCORES BY OBJECTIVE

Pretest (Form X)
Post-test (Form Z)

Obj. No.	Content	Exam Section	No. Items	No. Right Pre	No. Right Post	Percent Correct 0 10 20 30 40 50 60 70 80 90 100
1	Instructional Objectives	II	10	7.2	9.1	
2	Objective Domains	III	10	8.9	9.7	
3	Performance Standards	IV	10	5.9	8.6	
4	Prototype Test Items	VI	10	7.0	9.1	
5	Criterion Measures	V	10	6.1	8.4	
6	Instructional Specs	VII	10	5.3	7.1	
7	Sequence Behaviors	XV	10	1.0	7.6	
8	Development Process	I	50	38.6	43.0	
9	Development Principles	VIII-XI	40	30.5	34.3	
10	Tryout and Revision	XIII	7	1.3	6.0	
11	Development Operations	XIV	18	.2	8.5	
12	Research Designs	XII	5	.6	4.3	
	TOTALS	all	190	112.6	155.7	



*The table shows the mean number of correct answers by objective for all participants who completed each test. The broken (left-hand) profile line in the 'percent correct' column indicates pretest performance: the solid (right-hand) line shows post-test performance.

APPENDIX A

PARTICIPANTS

PARTICIPANTS

An approximate total of 75 completed applications were received for the Instructional Product Research Presession. Letters of acceptance were mailed to the first 56 applicants. All subsequent applications were rejected because the only available meeting room at the presession hotel could reasonably accommodate a maximum of 50 people. Withdrawal by some accepted applicants prior to the presession and the failure of others to appear at the meetings reduced the number of actual participants to 47. A list showing the name, address, institutional affiliation and job description for each participant is presented in the remaining pages in this appendix.

To supplement the list of participants, additional descriptive data were tabulated from the applications. These data are presented in the 8 numbered topics immediately below.

1. Average age of the 47 participants: 41

2. Sex: 35 males, 12 females

3. Number holding doctorate: 36

4. Number who have had one or more funded projects: 22

5. Average number of funded projects for all participants: 1.1

6. Number who have had one or more publications (as determined by item 14 on application form): 37

7. Average number of publications for all participants: 8.3

8. Institutional affiliation

    a. Colleges and Universities: 31
    b. Regional Laboratories: 6
    c. Public Schools: 6
    d. Business and Industry: 3
    e. National Educational Research Bureau
       (Director of Educational Research, Sweden): 1

LIST OF PARTICIPANTS

AERA PRESESSION NO. 8
Instructional Product Research
February 3-7, 1968

Name	Address	Affiliation	Title or Position Description
Allen, William H.	Dept. of Instructional Technolgy School of Education University of South. California Los Angeles, 90007	University of Southern California	Professor of Education
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Bernazza, Ann Marie	U-93 University of Connecticut Department of Ed. Psychology Storrs, Connecticut	University of Connecticut	Research Associate
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Zion, Carol L.	Dallas County Junior College Dis. Main & Lamar Dallas, Texas	Dallas County Junior College District	Curriculum planning

APPENDIX B

CRITERION TESTS

EXAMINATION: THE DEVELOPMENT OF INSTRUCTIONAL PRODUCTS

FORM X

Form X and Form X - Part II, presented in this appendix, served as the pretest. The posttest, Form Z and Form Z - Part II, are available from the authors upon request.
The first section of both the pretest and posttest were originally prepared for staff-training purposes at the Southwest Regional Laboratory for Educational Research and Development.

Examination: The Development of Instructional Products

Form X

W. James Popham*

General Directions: Complete only the sub-tests below which are checked, as directed in the examination booklet. You may write on the examination booklet itself, but please make all of your responses on the answer sheet which has been provided. Be sure to write your name on the answer sheet.

___ I. THE DEVELOPMENT PROCESS
___ II. INSTRUCTIONAL OBJECTIVES
___ III. OBJECTIVE DOMAINS
___ IV. PERFORMANCE STANDARDS
___ V. CRITERION MEASURES
___ VI. PROTOTYPE TEST ITEMS
___ VII. INSTRUCTIONAL SPECIFICATIONS
___ VIII. APPROPRIATE PRACTICE
___ IX. KNOWLEDGE OF RESULTS
___ X. PROMOTING LEARNER INTEREST
___ XI. AVOIDING IRRELEVANCIES

PART I. THE DEVELOPMENT PROCESS

Part I. Directions: This part of the examination consists of five brief descriptions of segments in the product development process. Each description is followed by ten statements, some of which are correct. You are to read each description, then on the answer sheet which has been provided, mark an A for each statement which is correct. Nothing needs to be marked for a statement which is incorrect. If insufficient information has been presented for you to judge the correctness of a statement, leave the item blank.

Generally speaking, certain incidents in the development of instructional products are recounted in the fictitious descriptions. Your task is to identify correct procedures which were employed or errors which were made by the product developers. No attempt has been made to be devious in the examination. You need not "read between the lines" in order to judge the correctness of the 50 statements. The answers should be apparent to you if you are familiar with appropriate steps in the product development process. Be sure to use the answer sheet for your responses. Now commence with the first description and its accompanying ten statements.

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*Parts IV and VI were prepared by Eva L. Baker. Part VII was prepared by Robert J. Berger

Exercise One

It is mid-December and Frieda, a regional laboratory employee, has been given the responsibility of developing a short self-instruction program to teach sixth grade pupils how to use commas. She has received a set of five explicit instructional objectives from the individuals who originally formulated the project. Along with these objectives there are samples of a single prototype test items for each objective. Frieda has been told that the instructional product is to take no more than four hours of the average learner's time.

The first thing she does is to develop a 40-item criterion test to be used at the close of the program. She has each of the five objectives represented by at least five test items, although two objectives which she feels to be more important are represented by 10 items.

Frieda carefully considers the enroute (intermediate) behaviors which the learner must master on his way to the criterion behaviors and then sequences these from least to most difficult, ending with behaviors equivalent to those called for in the instructional objectives. She then prepares practice sequences for each of the enroute and terminal behaviors so that the learner will be able to practice using commas in a variety of situations. After having three colleagues react to her first version of the instructional product, she makes a number of revisions.

Frieda then arranges to field test the program in the public schools and secures the cooperation of a nearby elementary school. She arranges to use three classes for approximately one week and administers the program in early February. At its conclusion the 40-item criterion test is given to each of the 86 children who completed the program.

Frieda is pleased that all youngsters were able to finish the instructional product in three hours or less. She is somewhat concerned, however, that the average score on her 40-item test is only 21.2 correct. She resolves to study the post-test results as well as the responses made by pupils during the program and to make the revisions which seem dictated by the data.

* * * * * * * * * * *

Which, if any, of the following statements are correct? (Mark on the answer sheet an A for any which are correct.)

1. Frieda was probably correct in providing practice behaviors for the learner which were equivelent to those called for in the instructional objectives.

2. She should have required at least two prototype test items along with the instructional objectives.

3. Each objective should have been represented equally on the criterion test.

4. Frieda field-tested her first version of the product on too many learners.

5. She should have pre-tested the subjects.

6. Her program was dull.

7. Too much time was taken to complete the first version of the product.

8. Five objectives are too many for such a program.

9. The enroute behaviors should not have been sequenced from least to most difficult.

10. More than three colleagues should have reacted to the first version of the program.

Exercise Two

A group of three beginning product developers has been assigned the general task of preparing a 50-minute self-instruction sequence for learners in the field of English. The resulting product will be used by junior high school instructors, more specifically, ninth grade English teachers, as a remedial program for students who are having difficulty with one or more topics in the subject.

After some discussion (approximately three days) among themselves and a few experienced instructional programmers, the three decide to develop a remedial program which will increase the student's ability to diagram standard sentences so that each of the eight parts of speech are clearly identified.

They then turn to the task of deciding on an appropriate criterion test, spending the next month in a series of carefully organized discussions regarding the possible methods of assessing a learner's ability to manifest mastery of the diagramming process. For example, during one meeting the three individuals develop sample items and take turns answering them, then analyzing the adequacy of each other's responses. The following objective is agreed upon for the program:

When presented with 10 previously unseen sentences, five simple (that is, one clause) and five complex (that is, two or more clauses), the learner will be able to diagram at least eight without any errors according to the procedure specified in the 50-minute instructional program. Ninety per cent (or more) of the learners who complete the program must satisfactorily achieve this level of proficiency.

The terminal behavior having been selected, the three product developers then prepare 25 test items based on the above objective and arrange to administer the 25-item test to a group of 30 ninth grade English students. Gratifyingly, the students are not able to perform well on the test, so the three developers next address themselves to a careful task analysis in order to identify necessary types of entry behaviors (the skills the pupil possesses before starting the program) and enroute behaviors (the intermediate skills the learner must achieve in order to attain the terminal behavior). Having done this, approximately four days being expended on the task, an appropriate pre-test is prepared including items which reflect desired (1) entry behaviors, (2) enroute behaviors, and (3) criterion behaviors. This test is then administered to ten pupils and, having carefully analyzed their responses, the product developers begin to prepare the first draft of their instructional product . . .

* * * * * * * * * * *

Which, if any, of the following statements are correct?

11. The preparation of the criterion test quite properly preceded the development of the instructional product.

12. It was unnecessary to assess learners' ability to perform entry and enroute behaviors.

13. Too much time was spent in the determination of a suitable instructional objective.

14. The instructional objective decided on was not sufficiently precise.

15. The minimum level of proficiency expected of learners was not well specified.

16. The adequacy of the original formulation (i.e., the selection of the particular topic) was not well justified.

17. Too much time was spent by the product developers on the original selection of a topic.

18. The expanded pre-test, the one with the addition of items based on entry and enroute behaviors, should have been given to at least 30 learners.

19. The first version of the instructional sequence should have been prepared and tried out prior to the administration of the pre-test.

20. It was quite appropriate for the product developers to undertake the task analysis of entry and enroute behaviors.

Exercise Three

Fred Peabody, an experienced instructional programmer, has been assigned the responsibility of developing a self-instruction program to teach third grade youngsters how to add and subtract fractions. One of the first things he does is to go to a third grade classroom and ask permission to talk with six of the youngsters. Individually he discusses the topic of fractions with each of them and attempts to find out what the students already know that will be relevant to his task. Having completed his assessment of the data secured from these interviews, he devises the following objective for his program: "At the conclusion of the program the learner will manifest a sophisticated ability to handle addition and subtraction problems involving fractions."

After consultation with the teachers and the administrators he prepares a formulation paper in which he identifies the above objective and attempts to support the value of the proposed program. He cites the opinions of teachers who indicate that a short-term program such as that which he proposes will have considerable utility in their classes and cites evidence from published bibliographies of program material that there is currently no such short-term program available to teachers in a form which does not require the use of teaching machines. Accordingly, he proposes that his program will take approximately one and a half or two hours to complete and will be presented by printed-paper

booklets. This formulation paper is presented to a number of colleagues with whom Peabody works and, having read it, they agree that his selections of topic and presentation medium are sound.

He develops a criterion test in which the learners must add and subtract pairs of fractions. He also prepares other items which assess the learners' ability to add and subtract whole numbers. He combines these to form a pre-test which he administers to a sample of 25 third graders drawn from a nearby elementary school.

Having determined that the youngsters cannot perform the terminal behavior, but do possess the desired prerequisite skills, Mr. Peabody then prepares an early version of his program.

Since he employs a variety of approaches in his programming efforts, Mr. Peabody attempts to select a tactic for this particular product. After introductory remarks and a certain amount of exposition (approximately three pages' worth) he gives the student a series of ten sets of simple fractions to add. After they have concluded adding this set, he provides them with the correct answers which they can see by turning a page and comparing the proper answers with the answer sheet on which they have been instructed to make their responses. Several more sets of these addition exercises are provided in order that the learner may practice the operation of fraction addition. After each ten problems Mr. Peabody provides knowledge of results in a manner similar to that described above.

For variety's sake, however, when it comes to subtraction of fractions, he approaches it in an entirely different fashion. He presents a series of short story (word) problems to the learner which involve the subtraction of fractional quantities. The learner is obliged to "think through" what fractional quantities are required and then form a mental subtractional operation regarding each of these particular problems. After each set of three word problems, once more knowledge of results is provided whereby the learner can check the accuracy of his responses. In all, five sets of these subtraction word problems are presented.

Mr. Peabody has multiple copies of his program prepared on a mimeograph machine and takes it to the same elementary school where he earlier secured such excellent cooperation. He administers the program at the school where he had his original interviews, using again the same students that were so helpful two weeks earlier and two other classes as well. At the conclusion of the program which, as he predicted, took approximately an hour and 45 minutes for most students to complete, he administers the series of 20 simple addition problems and 20 simple subtraction problems, each involving two fractions. On the 40-item test he is disappointed when the mean performance of the 28 pupils who complete the program pre-test is only 26.3. Mr. Peabody decides to revise his program consistent with these data. He is particularly anxious to check the responses which learners made during the program since he believes these will provide him with clues as to what sections are most in need of alteration.

* * * * * * * * * * * * *

Which, if any, of the following statements are correct?

21. Mr. Peabody wisely planned to use learner responses during the instructional program as a guide for improving his program.

22. The performance of Mr. Peabody's students on his program was acceptable and he ought to be satisfied.

23. Mr. Peabody did not define the terminal behavior adequately in his objective.

24. Too much delay may have been involved in the knowledge of results provided for the majority of the learners' responses.

25. The programmer should not be concerned with "variety" in developing his instructional materials.

26. Mr. Peabody should have involved more learners during his initial exploratory interviews.

27. He probably field tested his first version of the program with too many learners.

28. He should have field tested his program with a group of students other than those involved in his initial exploratory interviews.

29. The operations associated with his formulation procedure were inadequate.

30. Peabody had too few items on his criterion test.

Exercise Four

Mrs. Shear has acquired a reputation in the past several years of being a remarkably skilled product developer. She believes that much of her reputation is due to the fact that she has developed a workable procedure for accomplishing instructional objectives. She has discovered that the preparation of audiotape narration, coupled with the use of visual transparencies placed on an overhead projector by the teacher, efficiently accomplishes the behavior changes she desires. Furthermore, she always tests her program through the use of five alternative multiple choice examinations which she has become most adept at constructing. No matter what the objective, whether cognitive, affective, or psychomotor in nature, and no matter how complex, Mrs. Shear analyzes it in such a way that it can be handled through the use of this audio tape-transparency approach.

The first thing she always does is construct a relevant multiple choice test. She uses five choice items because of their greater efficiency in discriminating between the more and less knowledgeable learners. She is careful to try out her tests with an appropriate group of learners so that she can tell which items properly discriminate between the more and less knowledgeable learners in the group. Although sometimes her methods fall short of expectations, Mrs. Shear's reputation as a productive programmer is widely held among her colleagues.

* * * * * * * * * * * * *

Which, if any, of the following statements are correct?

31. Mrs. Shear quite appropriately prepares her criterion test before developing the instructional materials.

32. Mrs. Shear is too inflexible regarding her selection of programming strategies.

33. Her approach is bound to fail with highly creative youngsters.

34. Few teachers would be willing to place transparencies on an overhead projector as instructed in the program.

35. There are some criterion behaviors for which multiple choice tests are inappropriate, hence, Mrs. Shear ought not to use them in all situations.

36. Mrs. Shear's tests are inappropriate because they are built on a norm referenced (comparing student to student) rather than a criterion referenced basis (comparing student performance to goals).

37. Mrs. Shear's programs are probably uninteresting.

38. She ought to achieve her objectives in every situation she attempts, probably on the first or second draft of her program, or she does not deserve the reputation she has as a skilled programmer.

39. Mrs. Shear should realize that group-paced programs have little place in the public schools.

40. Her programming approach will prove effective only in the cognitive domain.

Exercise Five

Mr. Smith has been assigned the task of developing a one-week (approximately five 50-minute periods) group-paced instructional program designed to teach high school chemistry students to treat correctly certain analytic equations and problems involving unknown chemical elements. Mr. Smith does not attend to the formulation process because this has been done by others. His responsibility is to develop the actual instructional material. The instructional objective which has been given to him by members of the formulation team is the following:

> At the conclusion of the instruction at least 80 per cent of the learners will be able to solve seven of ten equation problems involving an unknown compound.

Mr. Smith arranges to talk to several high school chemistry instructors and a half a dozen high school chemistry students to secure some ideas as to the proper tactics to employ in teaching the particular subject. The students are asked how much they already know of the topic so that Mr. Smith can identify the competencies he can build upon when preparing the instructional sequence.

He develops four programs, each lasting approximately 40 minutes, with the expectation that these early versions will be revised and augmented. He adopts a "lean" strategy in programming in which he offers the minimum amount of instructional materials that he believes is requisite, anticipating that if the program fails it will be easier to add to it than to subtract superfluous material from an effective program sequence. All of the programmed material is transferred to an audiotape so that it can be coordinated with visual materials which are presented on 2 x 2 slides. He ultimately plans to transfer the visual sections to a filmstrip, but believes the slide presentation will offer more flexibility for the subsequent addition or deletion of modified visuals.

He next develops a criterion test consisting of thirty items in which the student is presented with verbal descriptions of chemical interactions and asked to describe with chemical equations the nature of the quantitative equations which have been verbally described.

He tries the program with four learners who answer, respectively, 21, 25, 26, and 27 items correctly on the 30-item test.

* * * * * * * * * * * * * * * * *

Which, if any, of the following statements are correct?

41. Mr. Smith's expectation that the early version of the program will be revised is realistic.

42. His students did not perform as well as they should have on his first draft materials.

43. A "lean" programming strategy has been demonstrated to be ineffectual in this type of task.

44. Mr. Smith should have prepared his criterion test prior to the development of his first version instructional product.

45. Mr. Smith's instructional materials were probably dull.

46. The use of audiotape and filmstrip is inconsistent with the notion of group-paced program.

47. Mr. Smith's criterion test was not appropriate for the instructional objectives he had been given.

48. Mr. Smith, or any programmer, has the clear responsibility for evaluating the adequacy of the formulation operation no matter at what point he is introduced to the development process.

49. Mr. Smith should not have consulted teachers and pupils prior to the development of his first draft of instructional materials.

50. Mr. Smith should have developed first draft materials which were exactly as long as those meant for the program.

PART II. INSTRUCTIONAL OBJECTIVES

Part II Directions: In the following list identify any properly stated instructional objectives by marking an A on the answer sheet. Nothing need be marked for improperly stated objectives.

51. The student will grasp the significance of the Treaty of Versailles.
52. The student will have an attitude favorable to English grammar indicated by his response to a questionnaire.
53. The student will know six verbs.
54. The student will learn the names of the common tools in wood shop.
55. The teacher will list three major causes of the Civil War on the chalkboard.
56. The student will know the important battles in World War I.
57. The student will prefer cooking to sewing.
58. The student will be able to correctly thread a sewing machine.
59. The student will pay attention as the teacher demonstrates the use of the lathe.
60. The student will be able to develop a sense of the cultural unity of man.

PART III. OBJECTIVE DOMAINS

Part III Directions: Classify each objective below by marking the correct letter according to the following scheme:

A. psychomotor
B. affective
C. cognitive--higher than lowest level
D. cognitive--lowest level

The learner:

61. is able to choose the best of two solutions to a geometry problem using standards given by the teacher.
62. exhibits tolerance for others by displaying good manners toward those of minority groups.
63. lists the names and contributions of five key curriculum workers.
64. properly knits a baby blanket.
65. scores well on the Minnesota Teacher Attitude Inventory.
66. uses instructional principles properly in planning daily lessons.
67. plays table tennis according to rules well enough to beat three inexperience girls 100% of the time.
68. correctly recites Gettysburg Address from memory.
69. scores 80% or better on a spelling quiz.
70. displays interest in higher mathematics by volitionally attending lectures on this topic

PART IV. PERFORMANCE STANDARDS

Part IV Directions: For the following objectives, mark A if the objective has only a student minimal level of learner behavior; B if the objective has a class minimal level of behavior; and C if the objective has no minimal level of learner behavior.

71. The class will answer correctly 10 out of 12 multiple choice questions on the Roman Empire.
72. The students will compose an essay on the topic of their summer vacation.
73. At least 10 students in the class will sign up for a senior life saving course at the conclusion of a unit on water safety.
74. Seventy-five percent of the students will understand differential equations.
75. Students will recite with no more than one error Milton's sonnet "On His Blindness".
76. 60% of the students will prepare 500 work book reports on famous social scientists.
77. The students will thoroughly comprehend at least 80% of the scientific theories treated in class.
78. The students will paint a still-life study employing two point perspective and at least three colors.
79. Everyone in class will orally recite a given Spanish dialog with no errors in pronunciation.
80. Students will be able to match chemical compounds with their valences on a written test.

PART V. CRITERION MEASURES

Part V (a) Directions: For the following list of five items distinguish between those which could be employed as educational criterion measures and those which could not be marking an A on your answer sheet for each item which could be used as a criterion to evaluate educational programs. Be careful to match the item numbers with the appropriate item on the answer sheet.

81. Standardized achievement tests
82. Locally constructed tests of pupils' progress in spelling
83. The age of learners
84. An anonymous self-report questionnaire which, among other more obvious purposes, contains a question soliciting the respondent's values regarding labor unions
85. The number of serious pencil marks, carvings, etc., on pupil desks which must be removed by maintenance personnel each summer

Part V (b) Directions: Using the four category scheme presented below, classify each of the following five lettered items by selecting the appropriate letter in the space for each item on the answer sheet.

Classes of Criterion Measures

A. Learner-behavior--natural conditions
B. Learner-behavior--manipulated conditions
C. Behavior-product--natural conditions
D. Behavior-product--manipulated conditions

86. Scores on the Kuder test of vocational interest
87. Instances of pupil misbehavior during recess periods
88. Surreptitious observations of learner behavior in nationally distributed "situational stress" tests involving accomplices
89. "Courtesy" as reflected by adolescent boys giving their seats on the bus to women who might otherwise be obliged to stand
90. Final extemporaneous speeches in senior English class

PART VI. PROTOTYPE TEST ITEMS

Part VI (a) Directions: Mark an A on the answer sheet by the number of any objective which includes a statement of presentation conditions.

91. The learner will compose in writing a four line verse.
92. The student will compare Romanticism and Victorianism literary movements.
93. The teacher will list five elements necessary in a particular geometry proof.
94. Given pictures of four colored objects, the child will circle the object which is red.

Part VI (b) Directions: For the following pair of objectives and items, mark A if the item corresponds to the objective in terms of response called for, directions, and presentation conditions. If the item does not correspond with the objective, mark B. For each objective and item you should make three responses on the answer sheet.

* * * * *

Objective: The student will write the course of action most consistent with the tenets of good citizenship outlined in class when given a social problem not previously encountered.

Item: Choose a social problem you are familiar with and in less than 300 written words describe how you would deal with it in terms of the citizenship concepts described in class.

* * * * *

Student Response (95) Directions (96) Presentation Conditions (97)

* * * * *

Objective: The student will be able to select all written notations which describe permissible moves in a chess game when presented with four choices.

Item: For the opening move by white, which of the following moves are permissible? (Check your answers.)

___(a) K-KZ ___(b) P-QN3 ___(c) N-QB3 ___(d) QB-R5

* * * * *

Student Response (98) Directions (99) Presentation Conditions (100)

PART VII. INSTRUCTIONAL SPECIFICATIONS

Part VII (a) Directions: Indicate which component of the IS is most nearly described or identified by each of the following items by marking on your answer sheet:

A. for "Terminal Behavior"
B. for "Instructional Cue"
C. for "Elicitor"
D. for "Limits"
E. for "Entering Behavior"

101. Provides rules or procedures designed to improve learner performance.
102. Contains prototype criterion items.
103. Describes the stimulus conditions under which the criterion behavior will be demonstrated.
104. Contains the information the learner requires to perform the criterion behavior.

Part VII (b) Directions: This portion of the examination consists of two terminal behavior is followed by potential components of the instructional specification. For each statement which is appropriate to its terminal behavior, whether it is a complete component or not, mark an "A" on your answer sheet. Nothing need be marked if the statement is not appropriate to the terminal behavior.

No attempt has been made to be devious or to trick you with tests of your knowledge of subject matter pertaining to each objective. You should only concern yourself with the appropriateness of the component to the terminal behavior, not authenticity of the content.

* * * * *

"To construct an equilateral triangle, given the necessary equipment."

105. Instructional Cue: "An equilateral triangle is a triangle in which all sides and angles are equal."
106. Elicitor: "Name an object that has equal sides and equal angles."
107. Limits (negative): "Triangles with less than 3 equal sides and 3 equal angles."

108. Entering Behavior: "To identify triangles, given examples of triangles, squares, and rectangles."

* * * * *

"To write the longitude and latitude of any given position on a map, given a map with longitude and latitude lines."

109. Instructional Cue: "Longitudes and latitudes are essential for locating positions on the open sea."

110. Elicitor: "Degrees latitude on the position indicated are ____, degrees longitude are ____."

PART VIII. APPROPRIATE PRACTICE
IX. KNOWLEDGE OF RESULTS
X. PROMOTING LEARNER INTEREST
XI. AVOIDING IRRELEVANCIES

Parts VIII, IX, X, and XI. Directions: First, read the short self-instruction program dealing with statistics. (You may wish to respond to the program as though you were the intended learner.) Then answer the series of examination questions

MADAM, MAY I PLEASE MEASURE YOUR CENTRAL TENDENCIES?
(A Non-Exemplary Program)

by

W. James Popham

Program Objective: At the conclusion of the program the learner will be able to select the correct numerical values of the mean, median, or mode from multiple choice alternatives when presented with a set of fictitious data.

Enroute Objective: The learner will be able to match the terms mean, median, and mode with definitions of these measures.

Enroute Objective: The learner will be able to compute the numerical value of the mean, median and mode from small sets of fictitious data.

Prerequisite Behaviors: As necessary entry behaviors, the learners should be able to read and perform the following operations with one, two, and three digit numbers: add, subtract, multiply, divide.

A. As an individual concerned with the development of instructional materials, you will encounter situations in which you wish to describe how well a group of learners performed on a criterion test after completing your instructional sequences. Ideally, this description should be supplied as parsimoniously as possible to save your time as well as those with whom you are attempting to communicate. One of the most efficient ways to describe a set of data is through the use of statistical measures of central tendency.

B. Statistical measures of central tendency are numerical indicators of the manner in which the scores of individuals in a group of scores (such as test data) tend to cluster near the center of the scale on which the scores are measured. The three measures to be treated in this program are the mean, the median, and the mode.

C. The mean is calculated by adding together all of the scores in a set of scores (also called a distribution) and then dividing them by the number of scores in the set. For example, consider the following set of seven scores: (8, 7, 5, 4, 3, 1, 0). When these scores are added together, their sum is 28. Dividing 28 by 7, the number of scores, we find that 4 is the mean. For the following set of four scores (10, 8, 8, 2) then, we can see that 7 is:

a. the mean
b. the median
c. the mode
d. none of the above

For these and subsequent items in which you are to make a choice or supply an answer, please make your response directly on the booklet, then read beyond the three asterisks. It may be necessary to mark off the section below the asterisks so that you do not inadvertently see the correct answer. For the question above, circle the letter of the best answer.

Since 7 is derived by adding all scores (28) and then dividing by the number of scores (4), it is the mean.

D. The median is the point which divides a set of scores into two equal halves. For instance, in the following set of scores (9, 9, 6, 5, 2) the number 6 splits the scores into two equal halves, hence it is the median.

E. Sometimes the median is not an actual score. See if you can determine the median for the following set of scores. This is a difficult problem and if you get it right, you will be one of the eleven per cent who answer correctly. See if you can choose the right answer and avoid the 89% stigma!

Scores: 7, 7, 6, 4, 2, 1

Median choices (circle one):

a. 6
b. 5.5
c. 5
d. 4.5

* * *

If you chose answer C you are a member of the "lofty eleven." To calculate the midpoint of this distribution, it would be necessary to interpolate between scores of 6 and 4 to obtain a 5.

F. The mode is the most frequently appearing score in a distribution. Thus, in the following set of scores (9, 8, 4, 2, 2, 1) the score 2 appears most frequently so it is the mode. What would the mode be for this set of scores (8, 8, 7, 7, 7, 2, 1)?

a. 8
b. 7
c. 2

The answer of course, is 7 since it is the most frequently appearing score.

G. It is extremely important for you to be able to distinguish between these three indices of central tendency because sometimes one of the measures is more appropriate than the others when employed to describe data. You do not want to be deluded by incorrectly assuming that the central tendency given with a distribution is always proper.

H. For instance, is a shoe manufacturer interested in making shoes which are near mean, median, or modal value of foot sizes?

a. mean
b. median
c. modal

* * *

Since he wishes to sell more shoes, he would undoubtedly emphasize shoe sizes near the modal value.

I. Much of the early literature of statistics and measurement is laden with articles concerning the efficiency of the various measures of central tendency. At least one duel is actually supposed to have been fought in England as a result of a debate regarding this subject.

J. Compute the mean for the following set of data and write your answer in the space provided.

6, 6, 5, 4, 3, 0

Your answer _____

* * *

Your answer should have been 4. If you answered four, IV, or the square root of 16, you are also correct. The mean, as you recall, is obtained by summing all scores and dividing by the number of scores.

K. Determine the median for the following set of data.

22, 19, 14, 13, 12, 12, 8

Your answer _____

* * *

You should have answered 13, for this is the point which separates the set of scores into two equal halves.

L. What is the mode for this distribution of scores?

48, 44, 43, 18, 12, 12, 3, 2, 2, 2, 1, 0

Your answer _____

* * *

You should have indicated that 2 is the mode for the set of scores since it is the most frequently occurring score.

M. For the following scores determine the mean, median and mode, then circle the answers to the three questions posed below.

8, 7, 7, 6, 6, 6, 5, 4, 3, 3, 2, 2, 1, 0, 0

The mean is:	The median is:	The mode is:
a. 4.2	a. 6	a. 3
b. 5	b. 5	b. 7
c. 4	c. 4	c. 4
d. 5.2	d. 3	d. 6

* * *

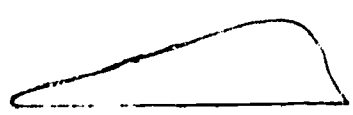
The correct answers are:

Mean = 4
Median = 4
Mode = 6

N. An interesting feature of any symmetrical distribution of scores, such as the normal curve, is that the median and the mean are at precisely the same point.

O. In which of these three distributions would the mean, median, and mode be at the same point. Circle the letter of the correct answer.

a.



b.

c.

* * *

Only in distribution C would all three measures (mean, median, mode) coincide.

P. For the following set of scores select the mean, median, and mode from the multiple choice alternatives presented below.

11, 6, 3, 3, 3, 2, 0

Mean	Median	Mode
a. 4	a. 3	a. 3
b. 3.5	b. 6	b. 3.5
c. 3	c. 3.5	c. 9

* * *

You should, hopefully, have had no trouble with this easy problem. If you are unsure, re-compute your answer.

THE END

PARTS VIII, IX, X, AND XI
EXAMINATION QUESTIONS

The previous program, of course, is not intended to be an exemplar of good programming. Several flaws were deliberately introduced for purposes of the test.

Directions: Please read each question and then on the answer sheet mark with an A the number of any frame which correctly answers the question. There may be no correct answers for each question or there may be one or more correct answers. Therefore, consider each frame carefully. Nothing need be checked on the answer sheet for incorrect frames.

Part VIII. Appropriate Practice

Equivalent appropriate practice (learner practice identical to that called for in the terminal behavior) is supplied in:

111. Frame B
112. Frame C
113. Frame D
114. Frame H
115. Frame P

Analogous appropriate practice (learner behavior comparable, but not identical to that called for in terminal behavior) is provided in:

116. Frame J
117. Frame K
118. Frame M
119. Frame N
120. Frame O

Part IX. Knowledge of Results

Knowledge of results is provided in:

121. Frame A
122. Frame B
123. Frame E
124. Frame H
125. Frame J
126. Frame K
127. Frame L
128. Frame M
129. Frame O
130. Frame P

Part X: Promoting Learner Interest

An attempt to promote interest is found in:

131. The title
132. Frame B
133. Frame C
134. Frame E
135. Frame F
136. Frame J
137. Frame K
138. Frame L
139. Frame M
140. Frame N

Part XI: Avoiding Irrelevancies

Which, if any, of the following frames are essentially irrelevant?

141. Frame C
142. Frame D
143. Frame E
144. Frame F
145. Frame H
146. Frame I
147. Frame J
148. Frame N
149. Frame O
150. Frame P

EXAMINATION: THE DEVELOPMENT OF INSTRUCTIONAL PRODUCTS

Form X (Part II)

Please write your name on this booklet.

Name _____

PART XII RESEARCH DESIGNS

Part XII Directions: Follow the instructions for each of the following five items. Write your answer directly on the answer sheet.

1. Write the name of the research design being used in this situation:

   An English teacher randomly divides his class into two subgroups of 16 pupils each, and provides one group with a newly prepared set of instructional materials on the topic of "sentence structure." The second group does not receive the new materials, but instead reads some additional literature selections. Using two comparable tests on sentence structure provided by the publishers of the instructional material, the teacher tests both groups of pupils before and after the use of the new materials.

   (1.) Name of Design:_____

2. Write the name of the research design being used in this situation:

   Using tardiness records during the previous 18 months, a school research committee plots a graph showing the median monthly tardiness frequency for each of the 18 months. They are particularly interested to see if there are any substantial changes in the tardiness rate during the most recent six months, since a three week anti-tardiness compaign was conducted at this time.

   (2.) Name of Design:_____

3. Write the name of the research design you recommend for this situation:

   A teacher wishes to evaluate the attitude shifts, if any, produced by a series of short stories dealing with minority group problems. He is reluctant, however, to give his class an attitude inventory before they read the stories because it may unnaturally focus their attention on certain aspects of the stories. He can randomly assign the stories to half of his class if he wishes, for there are other unrelated stories which can be used as "filler" material.

   (3.) Recommended Design:_____

4. Write the name of the research design you recommend for this situation:

   Since school has been underway for three weeks, faculty members in a high school English department agree that they cannot reconstitute already formed classes. They are, however, anxious to test the worth of a new series of group

"micro-plays" dealing with punctuation skills in which various members of the class take part in short dramatic vignettes. They administer a 20 item punctuation test to all four of their classes as a preliminary measurement and find that the four classes are remarkably similar with respect to their entry knowledge regarding punctuation. For the sake of administrative convenience the teachers wish to use the micro-plays with their entire classes rather than parts of the classes.

(4.) Recommended Design:_____

5. Write the name of the research design you recommend for this situation:

A school researcher can randomly assign 20 classroom units to experimental and control instructional treatments, but his faculty is particularly interested in contrasting performance of the two groups before and after the treatments. The researcher devises two equivalent forms of a test which he believes will not interact adversely with the treatment.

(5.) Recommended Design:_____

PART XIII

Part XIII Directions: You are developing a one-year course of instruction that is designed to teach certain specified skills to primary-grade children. After the instructional material is developed, you plan to have several teachers try it out in their classrooms. You will revise it following the tryout.

a. Describe (in one sentence each) four procedures that you can use to increase the probability that the instructional techniques employed by the tryout teachers (as distinguished from such pupil materials for the course as the textbook and prepared tests and exercises) will yield useful data for revision purposes.

6._____
_____

7._____
_____

8._____
_____

9._____
_____

b. List three sources of evaluation information that can be used to identify revisions to be made in the course.

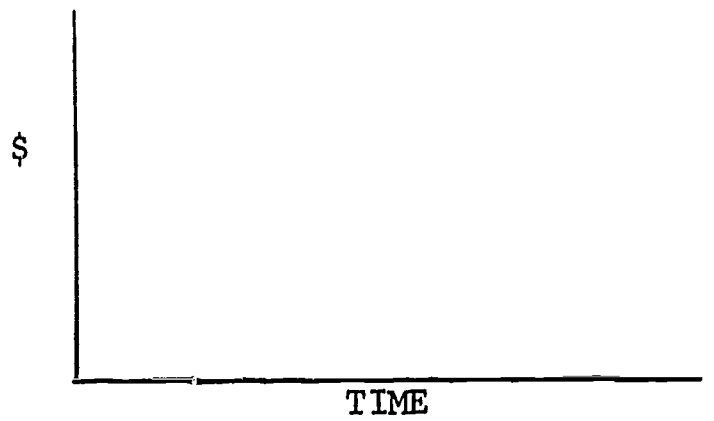
10._____

11._____

12._____

PART XIV

13. Using the ordinate and abscissa below, draw reasonable time-cost curves for the development, installation, and maintenance of a given product.



14. List the components of an instructional product which must be available before it can be considered ready for general use.

15. List the criteria relevant in evaluating an instructional product.

16. List the factors in a :

    a. cost efficiency ratio

b. cost effectiveness ratio

17. Suppose you are developing a new science program. In a phrase or sentence give an <u>illustration</u> to distinguish each of the following:

a. project

b. activity

c. task

d. generation

e. cycle

PART XV

18. Describe the strategy you would employ in deciding on an instruction sequence:

Generate an instructional sequence and classify components for the following objective:

Objective: To be able to write a 500 word essay relating mass media to their impact on politics.

		Association	Generalization
19.	Prerequisite	_____	_____
20.	En Route	_____	_____
21.	En Route	_____	_____

Label the following as association or generalization tasks.

22. _____ To spell 10 previously encountered words correctly.

23. _____ To factor previously encountered polynomical expressions.

24. _____ To classify objects on the basis of color.

25. _____ To list ten social factors which might affect the passage of a never-before seen labor bill.

26. What is the major attribute of an association task?

27. What is the major attribute of an generalization task?

APPENDIX C

PARTICIPANT EVALUATION RESPONSES

PARTICIPANT EVALUATION FORM

Directions: Please respond with a word, a phrase, or one or more sentences to as many of the following questions as you can. Your frank and honest evaluation can only benefit everyone concerned. Do not identify yourself by name unless you prefer to do so.

Environment and Facilities

1. a. To what extent did the relative availability or unavailability of books and journals interfere with or promote your attempts to master the content of this session?

   None - 20 None because of availability of handouts - 6

   b. To what extent did reproduced materials given to you by the staff improve matters?

   Very positive - 21 Positive - 7 Neutral - 3

2. a. Did you feel that you lacked a "place to work," either alone or in small groups?

   No - 30 Yes - 4

   b. Was your room satisfactory? Yes - 25 No - 4 Neutral - 5

3. a. Which features of the meeting rooms were inadequate or not conducive to learning?

   Crowded - 23 Too hot - 2 None - 2

   b. Which features were especially facilitative in the same regard?

   None - 5 Tables - 4

Scheduling and Organization

4. a. Was five days too long a period to leave your work at home for the purpose of attending this session?

   No - 19 Yes - 8

   b. Was five days too short a period in which to learn much of the content of this session? No - 28 Yes - 2

5. a. Were you allowed enough time in which to pursue activities of your own choosing?

   Yes - 33 No - 1

   b. Would you have preferred not to meet in the evening after dinner?

   No - 23 Yes - 4 Neutral - 5

   c. Would you have preferred more or fewer meetings per day than there actually were? Or was the number of meetings per day agreeable to you?

   Agreeable - 29 More - 1 Fewer - 1

6. a. Were the individual lectures too long to sit and listen or take notes?

   No - 29 Yes - 2 Sometimes - 2

   b. Were the lectures scheduled in an appropriate sequence?

   Yes - 31 No - 2

7. Did you have sufficient opportunities to interact with other participants?

   Yes - 32 No - 3

8. a. Were the instructors too inaccessible or unapproachable so that you did not get the individual attention that you desired?

   No - 31 Somewhat - 4

   b. Was it helpful to have graduate student assistants present?

   Yes - 24 Neutral - 6

9. Did the attempts to evaluate your progress and reactions during the session (and at this moment) interfere with your work here?

No - 29 Yes - 2

10. In general, was the Presession well organized? Yes - 28 Could be improved - 2

Content and Presentation

11. a. Did the content of the lectures and readings presuppose far more previous training than you had? No - 27 Less - 2 To some extent - 2

b. Should less training in these areas or more have been presupposed?

No - 21 More training - 8

12. To what extent was the content of the lectures and readings relevant to what you hoped to accomplish during the session?

Very relevant - 19 Relevant - 4 Not relevant - 3

13. a. Were the lecturers stimulating and interesting?

Yes - 16 Generally - 6 Varied with individuals - 5 No - 1

b. Were the lecturers competent to speak on the subject assigned them?

Yes - 28 Fair - 3

c. Were the lecturers well prepared?

Yes - 24 No - 5 Varied - 4

14. Were you disappointed in any way with the group of participants?

No - 21 Yes - 6

Answer each of the following only by checking the more appropriate blank:

15. If you had it to do over again would you apply for this Presession which you have just completed? Yes 27 No 7

16. If a presession such as this is held again would you recommend to others like you that they attend? Yes 27 No 5

17. Do you anticipate maintaining some sort of contact with at least one of the Presession staff? Yes 23 No 6

18. Do you feel that AERA is making an important contribution to education by sponsoring presessions such as this one? Yes 31 No 1

19. Do you feel that anything has happened during these five days to make it more likely that you will leave your present position of employment? Yes 4 No 27

20. Is it likely that you will collaborate in research with someone else attending this Presession (other than those you already were likely to collaborate with)? Yes 15 No 15

21. Do you feel that the staff should feel that it has accomplished its objectives during this five-day presession? Yes 29 No 2

APPENDIX D

STAFF EVALUATION RESPONSES

PRESESSION CRITIQUE FOR STAFF MEMBERS

Indicate your observation and judgment by checking each item in one column at the left. Items not applicable or not subject to your observation should be omitted. Be frank.

Commendable	Satisfactory	Unsatisfactory	
			1. Environmental conditions
	5		a. Classroom spaces
	5		b. Work spaces
	5		c. Living quarters
2	3		d. Teaching equipment, aids (chalk boards, public address system, etc.)
1	1	1	(2 none) e. Resource material, library
1	4		f. Eating facilities
			2. Participants
1	4		a. Appropriateness of academic backgrounds
	5		b. Sufficiency of research experience
1	4		c. Willingness to work
1	4		d. Intellectual curiosity
4	1		e. Concern for applicability of techniques
1	4		f. Aspiration
	5		g. Immediate preparation for Presession
			3. Organization
5			a. Adequacy of notice to prospective applicants
5			b. Sufficiency of preplanning
5			c. Smoothness of operation
3	2		d. Adaptability to obstacles and feedback
1	3		(1 none) e. Sensitivity to grievances
2	3		f. Adequacy of financial support
			4. Schedule
3	2		a. Appropriateness of five days for the job
3	2		b. Time spent efficiently
5			c. Events sequenced appropriately
4	1		d. Punctuality
4	1		e. Balance between formal, informal affairs
3	2		f. Quantity of discussions
2	3		g. Quality of discussions
4	1		h. Quality of formal presentations
1	4		i. Unobtrusiveness of evaluation efforts
4	1		j. Methods of evaluation
			5. Outcomes
5			a. Intended content was actually taught
5			b. Increase in participant understanding
2	2		(1 none) c. Improvement in attitude toward research
2	3		d. Personal associations initiated

6. In general was the Presession well organized? yes - 5

7. Were the facilities suitable for the activities which you had planned? If not, specify.

   yes - 4 Adequate - 1

8. Should Presessions be limited to the same hotel, or the same city, in which the annual meetings will be held?

   yes - 4 Depends - 1

9. Were you to do the same assignment over, in what major ways, if any, would you change your contribution?

   None - 2

   More structured handouts - 1
   Be less directive - 1 (1 no answer)

10. Do you wish that the Director had made firmer arrangements to assure participants and you of the staff opportunity to meet in pairs or small groups?

    no - 5

11. Were the objectives you set for yourself during the Presession attained?

    yes - 4 (1 no answer)

12. Are you inclined to urge your colleagues to become staff members for such an institute or Presession?

    yes - 5

13. In what ways, if any, did you as a staff member benefit personally as a result of your participation in this Presession?

    Increased frustration tolerance for colleagues - 1
    Feedback on instruction - 1
    Realize necessity for justifying dogma underlying product research and development - 1
    Became acquainted with several people with similar professional interests - 1
    (1 no answer)