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CENTER FOR EDUCATIONAL TECHNOLOGY

TRAINING PROGRAM

"Educational Technology Workshop for U.S. Army Personnel"

College of Education/Florida State University

1973

EDUCATIONAL TECHNOLOGY WORKSHOP
FOR PARTICIPANTS FROM THE
UNITED STATES ARMY

Introduction

The purpose of this four week workshop is to provide the participants with both a general overview of instructional technology and an in-depth examination of several specific topic areas. The workshop is necessarily global in its coverage because we must accommodate students with diverse backgrounds, interests and needs. Thus, although the participants may disagree with what we call "instructional technology," we are certain they will find aspects of this workshop relevant to their particular needs.

The Center for Educational Technology has chosen to define educational technology as "the utilization of knowledge, research and invention in the facilitation of the human learning process." For the purposes of this workshop, however, we must be much more specific and detail the exact components of the area. For example, an initial, or first order, delineation of educational technology could include the following components: (1) a systems approach to instructional design and development; (2) instructional systems delivery; and (3) ins-

tructional systems theory. Furthermore, within each of these major components are a variety of subcomponents, for example, task analysis, audiovisual production techniques, contingency management, computer assited instruction and the learning of intellectual and motor skills which, when integrated, comprise an instructional system.

The personnel at the Center for Educational Technology utilized these major components of instructional technology as an organizing theme, and all instruction which takes place during this workshop will fall into one of these components. Each major component is quite complex and a participant could spend the entire duration of the workshop on only one of them. However, since it is necessary to provide the participants with an overview as well as coverage of specific topics, they will be encouraged to learn something about each of the components.

The discussion to follow will describe in more detail the workshop and will present some of the major objectives.

A SYSTEMS APPROACH TO INSTRUCTIONAL DESIGN AND DEVELOPMENT

This workshop is intended to help the participants learn the techniques involved in the use of a systems approach to instructional design and development. With a few exceptions, each unit in this workshop contains a cognitive section and a productive section. The cognitive sections are designed to help the students attain the objectives related to the concepts, terminology, and techniques associated with the development of programmed instructional materials. The productive sections, on the other hand, are designed to help the participants apply these concepts and techniques in the actual development of a short sequence of instruction.

The workshop is managed in a way which may be alien to many of the participants. That is, it is individualized, i.e., self paced, and managed by an IBM 1500 Instructional System. Students are provided with objectives, both terminal and enabling, reference materials selected to help them attain the objectives, criterion referenced evaluations to help them determine whether they have attained the objectives or not, and opportunities for individual critique and tutoring sessions with the course monitors. Thus, this workshop is an attempt to utilize the concepts and techniques of instructional technology advocated by the Center for Educational Technology.

In addition to individual tutoring with the course monitors, a series of seminars will be provided on topics directly related to instructional design. These seminars will

allow for group interaction which will help the participant integrate and put in perspective the concepts and terminology of instructional technology.

In order to acquaint the reader with the requirements and scope of this workshop, the long term or terminal objectives for each unit are presented in Table 1.

In addition to the content just described, the coordinated Instructional System (CISTRAIN) of Deterline and Lenn will be presented and evaluated. This is of particular importance because the Army has adopted the CISTRAIN method and most of the participants will be utilizing it in the future.

TABLE 1

Long Term Objectives for the Systems Approach to Instructional Design and Development Workshop.

Unit #	Topic	Long Term Cognitive Objectives	Long Term Productive Objectives
1	Systems Approach	The student will be able to explain the major use for the systems approach in education and list the three elements basic to all systems approach models.	None
2	Documentation	The student will be able to write the rationale for documenting the development and evaluation of a sequence of instruction.	None
3	Problem Identification	The student will be able to list the basic requirements necessary for choosing a subject matter area to be programmed.	The student will document his rationale for the use of selection criteria in choosing his area of instruction.
4	Task Analysis	The student will be able to describe the purpose for conducting a "task analysis" and will be able to describe the relationship between task analysis and other elements of instructional design.	The student will conduct an analysis of the task he has chosen to develop using an appropriate methodology.
5	Entry Behavior	The student will be able to define the term "entry behavior" and give specific examples.	The student will be able to identify the entry behavior required of the students taking the instructional sequence which he has developed.
6	Behavioral Objectives	The student will be able to list the three elements identified by Mager as being required for behavioral objectives.	The student will write behavior objectives consistent with each task in his task analysis, each of which contains the three elements necessary for behavioral objectives.

TABLE 1 (Page 2)

Unit #	Topic	Long Term Cognitive Objectives	Long Term Productive Objectives
7	Test Items	The student will be able to describe differences between norm-referenced and criterion-referenced tests, and describe the relationship which should exist between behavioral objectives and test items written for the same instructional sequence.	The student will write test items based on the behavioral objectives he wrote, and organize them into a pre- and posttest for evaluation of the criteria specified by the terminal objectives for his materials.
8	Media Selection	The student will be able to describe how the Systems Approach should be used in the development of learning materials in a medium other than PI.	The student will select a medium of instruction appropriate for the topic he has chosen and document the rationale for his selection.
9	PI vs. Non-PI Materials	The student will be able to list the characteristics of PI which distinguish it from Non-PI materials, and define various PI terms.	None
10	Types of PI Frames	The student will be able to describe the various types of frames which are used in PI materials.	None
11	Strategies Within PI	The student will be able to define the various strategies available within PI and state the reason for using them.	The student will document his rationale for selecting the instructional strategy he will use in writing his PI material.
12	Instructional Product Development	None	The student will develop a sequence of instruction following a systems approach which will take approximately 30-60 minutes learner time to complete.

TABLE 1 (Page 3)

Unit #	Topic	Long Term Cognitive Objectives	Long Term Productive Objectives
13	Formative and Summative Evaluation	The student will be able to differentiate between formative and summative methods of evaluation.	1. The student will develop, in writing, his formative evaluation plan which includes a one-on-one testing and a small group testing. 2. The student will conduct the formative evaluation plan he developed, in a one-on-one situation and, if possible, a small group testing situation. 3. The student will develop, in writing, his summative evaluation plan which includes a field test on the target population for his program.
14	Document Course of Instruction	None	Based on the formative and summative evaluation, the student will document his course of instruction according to the NSPI Recommendations (Recommendations for Reporting The Effectiveness of Programmed Instruction Materials).

Instructional Systems Theory

As an adjunct to the workshop just described, a series of seminars will be presented on the theoretical aspect of instructional systems. This series will begin with an introduction to the five major domains of learning, i.e. intellectual skills, verbal information, motor skills, cognitive strategies and attitudes. The remaining seminars will be devoted to an examination of each of the domains and a discussion of the application and incorporation of theory and research into instructional system development.

OPTIONAL ACTIVITIES

Computers in Education

For those participants with an interest in computer applications in education a course of instruction is available which presents an overview of the major applications.

It consists of objectives, selected readings, computer administered criterion referenced tests, actual demonstrations of computer applications and individual discussions as needed and requested. The following topics are dealt with in this course: (1) Computer Assisted Instruction, (2) Computer-Managed Instruction, (3) Games and Simulations, (4) Guidance and Counseling, (5) Computerized Testing, (6) Information Retrieval, (7) Administrative Applications and (9) Social Factors.

Directed Individual Study

The course monitor will be pleased to provide information on topics of particular interest to individual participants. In order to facilitate the distribution of information the following list of topics for which information is readily available has been prepared:

1) Learning Outcomes: Planned, Possible, Unplanned
2) Functions of Taxonomies in Instruction
3) Formative Evaluation: Redirecting Learners
4) Principles of Formative Evaluation (introduction)
5) Varieties of Individualized Instruction
6) Information: In the head or in the book?
7) Formative Evaluation Applied to Instruction
8) Instructional Taxonomy: Gagne/Briggs
9) Communication Media: A Taxonomy
10) Instructional Management
11) Simulation Design
12) Media Selection
13) Achievement Motivation
14) Programmed Evaluation and Review Technique
15) Accountability
16) Performance Contracting
17) Contingency Management
18) Dial Access Systems

19) Multimedia Centers

20) Project Plato

This listing is not intended to be exhaustive, but it should indicate the variety of topics available for study.

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