(15) Contract Number N61339-73-C-0150

(6) INTERSERVICE PROCEDURES FOR INSTRUCTIONAL SYSTEMS DEVELOPMENT: WORKSHOP DIRECTOR'S GUIDE (Technical Level Workshop)

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(9) Final Rept. 25 Jun 73 - 31 Dec 75

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(11) (12) 190 p.

(Revised December 1975)

Prepared for:

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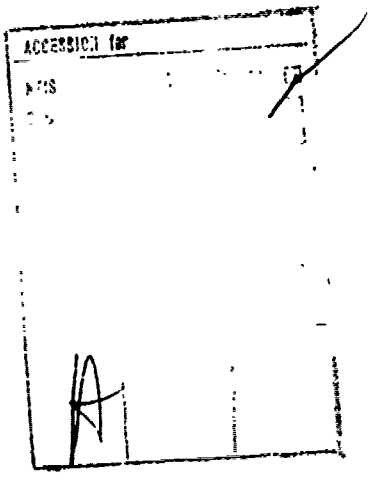

INTRODUCTION

INTRODUCTION

IPISD TECHNICAL LEVEL WORKSHOP

This document, the Workshop Director's Guide, is a fundamental part of the management system for the Interservice Procedures for Instructional Systems Development (IPISD), Technical Level Workshop. The Technical Level Workshop is one part of a complete package of materials which make up the entire Interservice Procedures program. In the program, there are three levels of workshops:

1. The Technical Level Workshop which is intended for those individuals who will actually be performing the tasks associated with instructional systems development (ISD) within the military.
2. The Managers Workshop which is intended for those who will be managing the efforts of technical level personnel in the performance of ISD duties.
3. The Senior Managers Workshop which is intended for senior level personnel including School Commandants and top echelon managers who are concerned with the higher level management questions arising from the use of ISD procedures.

The following basic components are included in the Technical Level Workshop package:

1. Interservice Procedures for Instructional Systems Development Manuals: The Executive Summary and Model Manual provides an overview of the inputs, procedures, and outputs of all phases of IPISD.

The detailed procedures and reference information for IPISD Phases I-V are given in four other manuals.

2. Student Workbook: The Workbook contains general instructions to the student and 12 practical exercise modules. Each module consists of a series of exercises covering a particular aspect of IPISD. The initial exercises have sample school solutions which are given to the student following the completion of each exercise. Student progress is evaluated on the last few exercises which require the student to prepare a product.
3. IPISD Slide/Tape Presentation: These materials which may be used in group presentations provide introductory and general information concerning IPISD.
4. Workshop Director's Guide: This guide includes organizational and administrative information for personnel who will be directing the Technical Level Workshop. It also contains the multiple-choice pre/posttests and answer keys (Appendix A), school solutions and feedback for all exercises (Exercises and Feedback), and forms and sample questionnaires for use in the workshop (Appendices B and C). The exercises (modules) contained in the Student Workbook are not included in the Guide, but the Workshop Director should insert copies in the Exercise and Feedback Section for convenience in use.

Role of the Workshop Director

Normally, individuals selected to become Workshop Directors will have completed training in IPISD under the auspices of the Senior Training Officer within his service. These workshops may be held at local schools, installations, or they may be conducted at remote sites which are accessible to a sufficient number of future Workshop Directors.

The IPISD Workshop Director has a key role in the implementation of ISD procedures in any command or institution. The role of the Workshop Director is probably best described as being the manager of certain instructional resources with a goal of increasing knowledges and skills in IPISD. While fundamental technical knowledge of the contents of the IPISD Manuals is a critical first step in becoming a Workshop Director, equally important is learning the approaches and procedures which have been worked out through a number of tryouts, evaluations and revisions in a variety of military settings.

The Workshop Director's function is that of arranging for workshops to be conducted, providing the necessary facilities and equipment, scheduling the workshop to meet the needs of the local commands, and conducting evaluation and follow-up studies in order to improve the results of the workshop in the local situation. The materials have been designed and organized so that the principal effort is on the part of the student rather than a platform presentation by the Workshop Director.

Role of the Enablers

The Workshop Enablers are assistants to the Workshop Director and serve as facilitators of student learning. The majority of their time is spent evaluating and providing feedback on the progress of students as they move

from point to point in the workshop. The Enablers evaluate student products, answer student questions, and are available at all times while the students are working with the manuals or the practical exercises so that a smooth flow of activity can be maintained.

The Workshop Director should be able to perform any of the Enabler activities when required. If the number of students taking the instruction is quite small (1-5), then it may be more efficient for the Workshop Director to serve as the Enabler. In cases where there are larger numbers of students, however, the role of the Workshop Director becomes more administrative in nature.

Functions and Local Organizations

The IPISD Manuals have been divided into a number of separate functions or "Phases" and the procedures required to carry out these functions have been specified. However, these functions are required as a part of the ISD effort and are not intended to be suggested organizational charts for local commands. While there may be organizational structures which would facilitate conducting the various functions, this structure is best left to local organizations who are familiar with their own problems and resources. The view taken here is that the various functions can be carried out in a wide variety of organizational settings, and until more experience is gained in the application of IPISD, no suggestions should be made about the required organizational structure.

Expected Outcomes

The Technical Level Workshop is intended to accomplish the objectives that are set forth in the Student Workbook. The level of skill that

individuals going through the workshop will gain should enable them to perform at an entry level job in a supervised organization charged with carrying out the functions described in the manuals. That is, individuals who go through Blocks I.1 and I.2 should be able to work in a task analysis branch under the supervision of individuals who have appropriate supervisory skills to be managing such efforts. It is not expected that the Technical Level Workshop would produce "experts" in the ISD procedures. In order to achieve expert status, individuals who have completed the workshop should work in a supervised, on-the-job setting for a suitable time following the workshop before they are required to perform independently any of the tasks taught in the workshop. By the time individuals become Workshop Directors, they will be much more familiar with the level of knowledge and skill attainable in the period available for training in IPISD. The Workshop Director should communicate this level of skill to the managers of the various functions so that they will not have unrealistically high expectations of in individuals who have been sent to the workshop.

SUGGESTED APPROACH

The materials have been designed so that the Student Workbook can be adapted to a completely self-paced basis. Depending on the needs of a local command, individuals sent to a workshop can go through the entire Workbook and perform according to standards established locally. While it is possible to send all individuals through all phases of the material and have them achieve high standards on all of the materials, it is more likely that local requirements will be best served by sending individuals through those blocks most directly related to their personal assignments. It may

be that a local command would prefer to send people only through Phase I of the workshop and then present them with an overview of the other phases. On the other hand, individuals who are going to work on the evaluation function will have to have thorough and first hand knowledge about all of the procedures contained in the manuals.

Because of the modular nature of the IPISD materials and the various needs and structures of different commands, six options for modifying the content of the workshop have been outlined in Table 1. These are the only options that are recommended, however, since any other combination would reduce the effectiveness of the implementation of the IPISD Model. For example, if an individual responsible for developing instructional materials attempted to take on the Phase III materials, it is not likely that he would have complete and effective communication with personnel in the task analysis group or have the necessary understanding of their products

The Workshop Director should carefully lay out individual requirements and provide adequate time and support to insure that the individuals going through the workshop are properly trained for their own organizational requirements.

In addition to the workshop content options, the Workshop Director may also select different options for administration. Depending on the needs and priorities of the local command, the Workshop Director may train students in relatively large groups or in smaller numbers on a continuous basis. For example, the Workshop Director could conduct a formal workshop after 50 students have been designated, or he could conduct the workshop continuously over several months with only a few students participating at any one time. For planning the administration of a workshop, the average full-time student

TABLE 1

WORKSHOP CONTENT OPTIONS

CONTENT OPTIONS	STUDENT ACTIVITIES			
	Complete Study of the follwing ISD Manuals	Complete Pretests, Posttests, and Practical Exercise Modules for the following Phases	Read Executive Summary for the following Phases	Read Pretests and Practical Exercise Modules for the following Phases
1	I	I	II, III, IV. V	II, III, IV, V
2	I, II	I, II	III, IV, V	III, IV, V
3	I, II, III	I, II, III	IV, V	IV, V
4	I, II, III, IV	I, II, III, IV	V	V
5	I, II, III, IV, V	I, II, III, IV, V		
6	IV, V	IV, V	I, II, III	I, II, III

with proper Enabler support (1:5) can complete the 12 module workshop in 10 working days. Depending on the number of Enablers and the students' backgrounds, this time may be a few days longer or shorter.

Where possible, the Workshop Director should be thoroughly familiar with the various departments or organizations from which the students will come. In addition, he should have a good understanding of the department's expectations for the student when he returns to duty. It has been found that one of the more confusing and unsettling parts of the Workshop Director's job is that of trying to explain to the students how they will use what they have learned when they return to regular duty. In many cases, of course, their future assignments will not be completely known at the time they attend the workshop. Wherever possible, though, the Workshop Director should initiate questions in order to be able to explain clearly to the student what he will be expected to do when he returns to duty.

By interviewing the managers of departments and organizations that will be sending students to the workshop, the Workshop Director will be able to make a preliminary determination of the workshop options most appropriate for various students. This initial selection of options should be confirmed through interviews with the students and evaluations of their backgrounds and experience. (See sample forms, Appendix B.)

The Workshop Director will normally be a subject matter expert on some aspect of the training establishment in which he works. But as Workshop Director, that will not be his most important role. He will be the subject matter expert in the ISD procedures which are the content of the workshop. However, the <u>students coming to the workshop should be subject matter specialists in a field where they will be expected to work when they return</u>.

One of the purposes of the workshop is to teach individuals who are specialists in an occupation to apply IPISD to that occupation. It is not expected that they would be able to teach others how to do ISD.

Prior to a workshop, the students who will be attending should be sent a memorandum which explains the purposes and procedures of the workshop and describes the materials that they should bring with them. In addition, the students should also be provided with the IPISD Manuals to permit advance preparation.

When the student comes to the workshop he should bring with him the necessary occupational data, task analysis data, technical manuals and reference materials which will be used throughout the workshop as the student generates the required workshop products. While some occupational specialties will be somewhat more directly translatable into ISD procedures because of their job structures, it is critical that students bring with them materials on which to work. Within a given job structure, the materials selected should be as simple as possible. It is more difficult and time consuming to illustrate ISD concepts and provide feedback for extremely technical or complex tasks or duties.

It is intended that the ultimate configuration of the IPISD Technical Level Workshop will not be achieved until local commands have had experience in using it with a variety of trainees. After experience has been gained, much more attention can be paid to adapting the procedures to meet local needs and conditions. It is suggested that the outlined procedures contained in this guide be followed as closely as possible until sufficient experience has been gained to make each local adaptation an improvement rather than an unnecessary change. As an aid in organizing and conducting the workshop,

an IPISD Workshop Director's Checklist has been provided in Appendix D.

During Phase III of the workshop, students are asked to generate some sample learning materials. It is usually advantageous to have available appropriate trainees for the workshop participants to use in trying out their test materials. In some instances, these materials can be tried out on other students in the workshop, but this is not necessarily the best use of their time. Where possible, the Workshop Director should arrange for appropriate members of the target population to be available for materials tryout during that period. This should not be difficult when the workshop is conducted at schools for their own personnel.

FACILITIES, EQUIPMENT, AND PERSONNEL

Facilities

Through time, it has been learned that adequate facilities are very important for the smooth flow and function of the IPISD Technical Level Workshop. And, while the nature of the work does not require any dedicated or peculiarly adapted workspace, the following recommendations should be quite helpful.

Each participant should have enough desk space so that he can lay out his IPISD Manuals, Student Workbook, and working materials in such a way as to have reasonable access to them at all times. In some instances, carrels can be used when available. In other instances, regular work tables can be used provided that there is enough space for each student to spread his materials out and work comfortably.

A second requirement is that there should be a specific place, reasonably isolated from the rest of the workshop, for the conduct of testing.

There are two kinds of tests administered to the student during the workshop. One of these is a multiple-choice test which serves as a management tool to guide the students through the manuals, and the other is a performance test in the form of practical exercises contained in the Workbook which the Enabler will need to evaluate and discuss with the student.

It has also been found helpful for the students have a separate area nearby where they can discuss the materials being learned. Typically, small groups of people working on the same modules will normally find that they have common problems and that they can learn many things from other students. The best arrangement is to have this discussion area far enough away from the work area so that lively discussions will not disturb those who are concentrating on specific problems at the moment. The workshop area should be kept as quite and orderly as possible since a large amount of time must be devoted to reading and studying the manuals and the preparation of materials as a part of the exercises. The workrooms should be conducive to work.

It is also very helpful to have a separate space easily accessible to the students where they can go to find the Workshop Enablers. The Workshop Enablers spend a great deal of time evaluating products and providing individual feedback to the student. In each phase of the workshop, there are frequent checkpoints for Enabler and student discussions.

Equipment

The only equipment required by the IPISD program is some device capable of playing slide/tape presentations. A part of the Technical Level Workshop package is a pulsed Slide/Tape Presentation which provides a brief overview of the IPISD Model and examples of high pay-off ISD.

Other than the slide/tape device, the only requirements would be naturally satisfied by supplying normal coursework materials including paper, pencils, and other necessary and associated items.

Personnel

Several weeks in advance of the first workshop, the Workshop Director must select the personnel who will be serving as the Enablers throughout the workshop. If these individuals have not had prior training in IPISD, the Workshop Director should conduct the complete Technical Level Workshop for them and insure that they are thoroughly knowledgeable not only concerning the workshop content, but also all administrative procedures. In order to be an effective Enabler, the individual must be an honor graduate of the workshop and a subject matter expert in the military specialties that will be using IPISD.

The number of Enablers required will depend on the number of students in the workshop. Previous experience in administering the workshop indicated that a ratio of Enablers to students of 1:5 would be a minimum number of Enablers. Considering the time required to evaluate products and provide feedback, a ratio less than 1:5 would seriously reduce the effectiveness of the Enablers or cause the students to waste working time in queues.

USES OF WORKSHOP MATERIALS

The workshop materials are built around the IPISD Manuals. The manuals are divided into five separate Phases and there is an Executive Summary volume which presents an overview of the entire set of procedures. The manuals are intended primarily to be for reference and guidance purposes.

Individuals who will perform the various tasks associated with IPISD on the job must have access to the manuals on a continuing basis. It is the responsibility of the Workshop Director to become thoroughly familiar with all of the content and procedures in the manuals prior to the workshop.

In addition to the reference manuals, there is a Student Workbook which is the principal organizing document for instruction in the use of the manuals. the Workbook contains a number of questions to be answered, exercises to be worked with school solutions, and exercises to be worked which the Enabler must judge. In combination with the student supplied data manuals and information that he brings from his job, the Workbook provides training in the knowledges and skills necessary to perform IPISD tasks.

Prior to the workshop, the Workshop Director should determine the most appropriate workshop content option for each student. Based on a student's assignment and the anticipated requirement for skills that may be acquired in the workshop, the Workshop Director should identify those IPISD phases which the student should master and those phases which he should become familiar with in order to understand the entire model. (See sample questionnaire, Job Profile Form, Appendix B.) For the IPISD phases considered essential for subsequent job performance and selected for mastery, the student should obtain a score of 100% on all the tests for those phases. Past experience has indicated that for those people who are going to work on the activities of a given phase, a score of 100% on the posttest is a reasonable expectation. For the IPISD phases designated for familiarity, the student is required only to read the tests, practical exercises, and the Executive Summary sections on those phases.

The multiple-choice tests which are used as the pre/posttests are provided in Appendix A. These tests have a very specific purpose: To insure that each trainee has read and studied the content of the manuals prior to the time that he attempts to do the exercises. In the front of the Workbook there is a description and flowchart which indicates to the student how he is to proceed through the workshop. This flowchart is reproduced on the following page.

The recommended procedure is that the student, upon beginning the workshop, take all of the Phase I pretest, Modules 1 through 4, (providing that the student is going to do all of the work in Phase I), and have those pretests scored by the Enabler. This is block 1 of the flowchart, Take Phase Pretest, and is where the student will begin work on each phase he is to master. The prestests cover an entire phase of the IPISD Manuals and are divided into units covering each workshop module for that particular phase.

After the Enabler has scored the pretest, in this case for Phase I, he informs the student of his score on the section that covers the first module of that phase (Module 1). As described in the instructions in the Workbook, a student who reaches his criterion on the pretest is assumed to have mastered the contents of that section of the manuals. He is not required to do the readings and is given the module exercises immediately after receiving his pretest score (block 2 of the flowchart).

If the student has not reached his criterion for that module on the pretest, the Enabler gives him the reading assignment in the manuals. (block 3 of the flowchart). For Module 1 the reading assignment is Blocks I.1 and I.2. of the manuals. After the student has completed the reading and has studied

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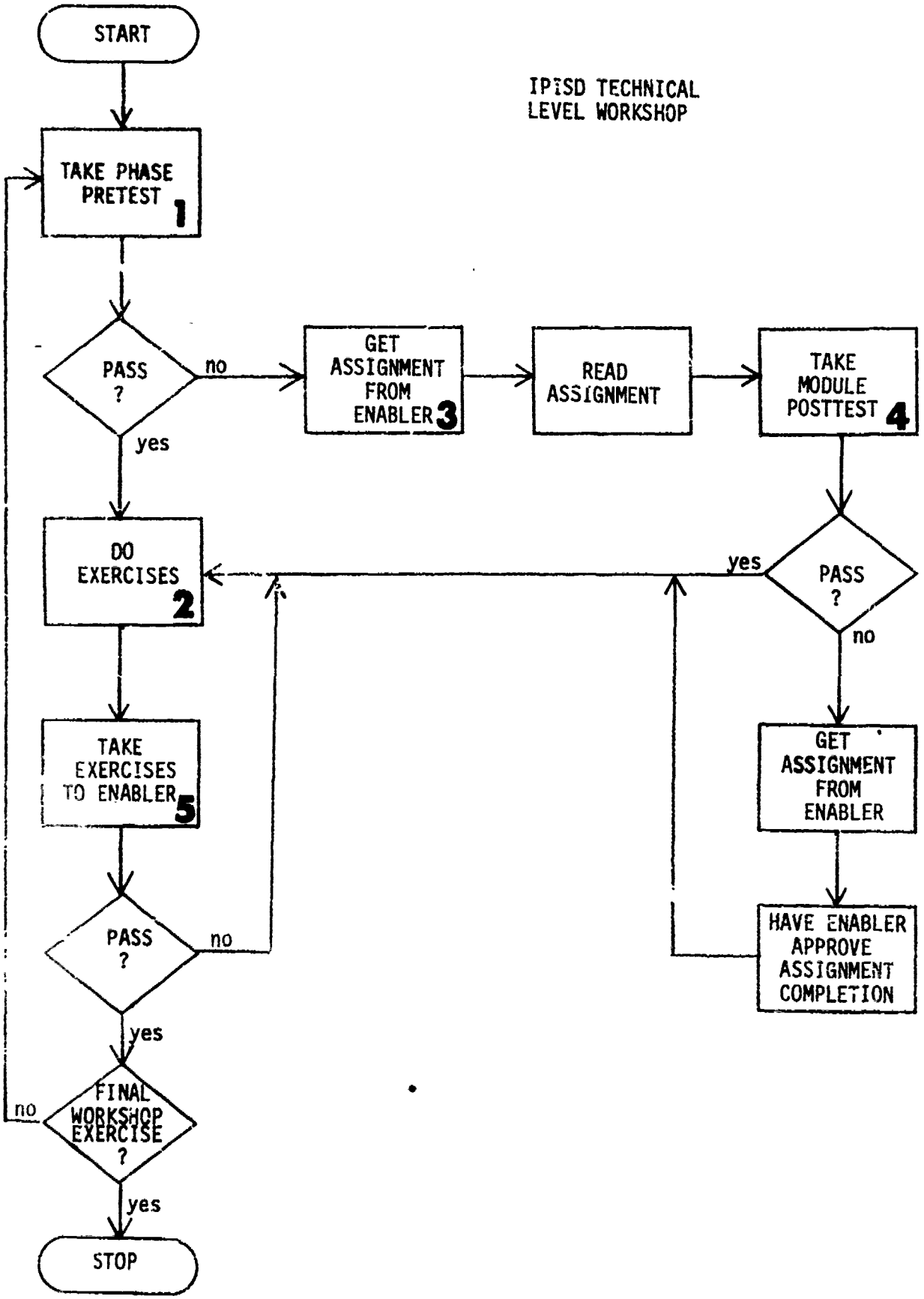
LEVEL WORKSHOP

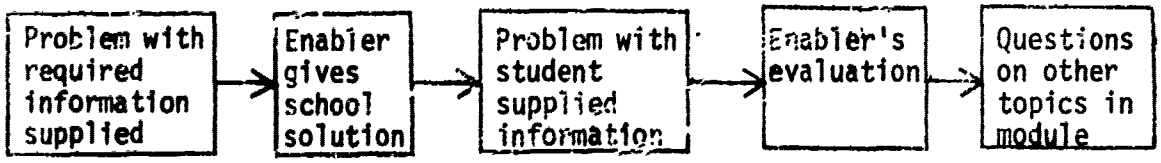


the terms and concepts, he then requests the posttest for Module 1 (block 4 of the flowchart). The posttest is that unit's pretest covering the module that the student will be working on. If he meets his criterion he is then given the Module 1 exercises. It is important that the student not be given the exercises prior to the time that he has read completely through his reading assignment. Past experience has indicated that some students will take the exercises and try to look up the answers in the text without understanding the total context.

When students do not meet the criteria on the posttest, the Workshop Director or Enabler must decide whether to discuss the erroneous answers with him or have him read the assignment again and retake the test prior to giving him the exercises. The former approach worked very satisfactorily for most students.

Since the tests are used for management purposes, it is extremely important to maintain security of all tests in the workshop.

The exercises in each module are usually sequenced as follows:



After the student has completed the initial exercise in Module 1, he brings his work to the Enabler who checks it off as acceptable or unacceptable (block 5 of the flowchart). If it is unacceptable, the student is given guidance and asked to correct it. For all guidance and feedback given by the Enabler, the emphasis should be on providing positive reinforcement as a technique for directing student activities and developing areas of performance when proficiency is low.

Suggested guidance and feedback for the Enabler to give the student is provided in the Exercises and Feedback section of this volume (page 23). School solutions or sample answers are provided for each of the questions and exercises in each of the modules. The Workshop Director, of course, will have gone through a workshop himself prior to the time that he is conducting one and will have a much better understanding of the requirements and standards that the student is expected to meet.

After the student has performed all of the exercises in Module 1, he is then ready to proceed to the next step. He is given his pretest score for the next module and is given the exercises if he has reached criterion. If he has not reached criterion, he begins reading the material for the next module and ther takes the posttest for that module. As soon as he meets the standards on the posttest he will be ready to begin the exercises. This procedure is repeated until the student has completed his final module in the workshop.

Appendix C contains copies of sample forms that have been found useful to the students in the conduct of the workshop. These forms can be used as masters; the Workshop Director should insure that there are ample copies available so that the students will have them when they are called for in the workshop exercises. Whenever possible, exact copies of these forms should be used in the workshop to insure uniformity of products and adherence to ISD principles and procedures and to facilitate the enabling process. These forms, however, were designed specifically for use in the workshop and they may be used as considered appropriate during normal activities and operations.

The student should retain the exercises that he works and the forms that he fills out during the workshop for use as reference material when he returns to his job. On the job, he should have access to a complete set of IPISD Manuals or those manuals related to that part of the process for which he is responsible. He should retain possession of his Workbook so that any questions that come up about procedure will be more readily answered through the availability of convenient references.

One of the more difficult jobs the Enabler will have is scoring performance tests in those areas where he is not a subject matter expert. As indicated earlier, the performance tests are the final exercises of a module. Many times, the Enabler, being unfamiliar with the field in which the student is working, will have to interview the student to make certain that the layout and organization of the work is conceptually consistent with the procedures outlined in the manuals. Judgment will be required in determining exactly how much detail and precision a student must present in order to receive a pass on the performance test. Previous experience in IPISD workshops will be of great value to the Enabler in deciding whether or not student performance meets acceptable standards.

LOCAL ADAPTATIONS

During the development of the IPISD project it was found that one of the problems of greatest concern to the student is what he is going to be expected to do when he returns to his job. Often, the Workshop Director will be able to provide this information since he will have discussed the workshop with the trainee's supervisor. Supervisors will be very much concerned about the

amount of time required for the student to complete the training. The amount of time devoted to the workshop can be adjusted somewhat by the Workshop Director depending on the needs of the command and the expected performance of the student when he returns to work. As indicated earlier, it is expected that the student would return to a job where he can receive supervision and assistance in the performance of ISD procedures.

Through time, the Workshop Director should collect an impressive array of student products which can then be used as examples of the kind of work expected at the local command. Since these products will all deal with DOSs of concern to the local command, they will be relevant and more readily understood by the student than the examples provided in the IPISD packages. It will probably be useful to the student if the Workshop Director and the Enablers go through those exercises, have them typed up and organized, and then highlight or emphasize significant features which make them superior products. These kinds of examples can have a beneficial effect on the student as he progresses through the workshop.

It is also useful if the Workshop Director can have follow-up data collected on performance of students once they have returned to their jobs. In this way, the Workshop Director can determine, over a relatively short period of time, the additional emphasis or de-emphasis needed on any given topic within the current organization of the workshop. When it becomes apparent that materials or exercises should be added, the Workshop Director can do this and improve the effectiveness of the workshop for the local command.

Another important job that the Workshop Director and Enablers have is collecting reference materials and providing them in the workshop area. At

the end of each phase in the manuals there are suggested references which go into more detail and provide additional approaches to the solution of various problems encountered in the workshop. As these references are accumulated, they can be used and woven into the workshop so that those areas requiring additional emphasis or more clarification, or those in which the student has a more intense interest or need, can be explored and better products and instruction will result.

Each service or branch of a service has existing materials which can be useful when added to the regular workshop materials. These would include such things as films, slide/tape presentations, video tapes, audio tapes, and other mediated materials which highlight, emphasize, provide examples, or simply provide an overview of given approaches and procedures. These existing mediated materials can add a dimension to the workshop and can probably have an important positive effect on how students feel about doing the work.

After the workshop has been conducted a number of times in a local situation, the Workshop Director may wish to change the schedule. There are many options available and each of these must be considered when trying to meet the needs of local commands. In some instances, it may be desirable to use half-day sessions while the individual does his regular job in the other half-day. There are both advantages and disadvantages to this technique but, given proper management, options can certainly serve to improve the usefulness of the workshop to the local command. It may be that the demands on the time of the individual and his performance are so high that the Workshop Director will wish to extend the length of time these particular individuals spend in the workshop in order to provide training to a higher standard.

This would occur in those instances where trainees are expected to perform more or less independently when they return to their jobs or when they will not have supervisors available who are knowledgeable in ISD. The Workshop Director should carefully examine each of the options as the local requirements change.

FOLLOW-UP PROCEDURES

One of the more important purposes that the Workshop Director can serve is that of providing a link between the training experience that individuals in the workshop have and the kinds of problems that they must deal with when they return to the job. By talking to trainees after they have returned to their jobs, and their supervisors, the Workshop Director will be able to identify local problems and problems within the workshop or materials and make suitable adaptations. Student feedback is a valuable source of information in deciding on what kinds of changes and emphasis are required in order to meet the needs of local commands.

An important obligation of the Workshop Director is that of transmitting critiques and suggestions for changes in the manuals, exercises, or materials, to the command responsible for ISD in your service. These critiques and suggestions are probably the greatest single source of evaluation and revision data that can be provided. No matter how many times the materials have been tried out in various environments, they will still not have been subjected to the day-to-day, week-to-week, month-to-month use possible in local situations. Therefore, experience with local use is of the utmost importance in getting improved materials transmitted to the interservice community. It is hoped

that Workshop Directors will be personally responsible for providing these reviews and critiques on a periodic basis so that future editions of these manuals can be improved.

Finally, the Workshop Director should give careful consideration to the issue of the materials. How many sets of IPISD Manuals are required to serve the needs of the command, how many Workbooks are needed for each set of manuals, how many Workshop Director's Guides, and so on, are required in order to be sure that there are adequate materials to do the job in question. While initial estimates have been made, and issues provided on those estimates, only practical field experience can provide the kind of information necessary to insure the most effective and economical package for future needs.

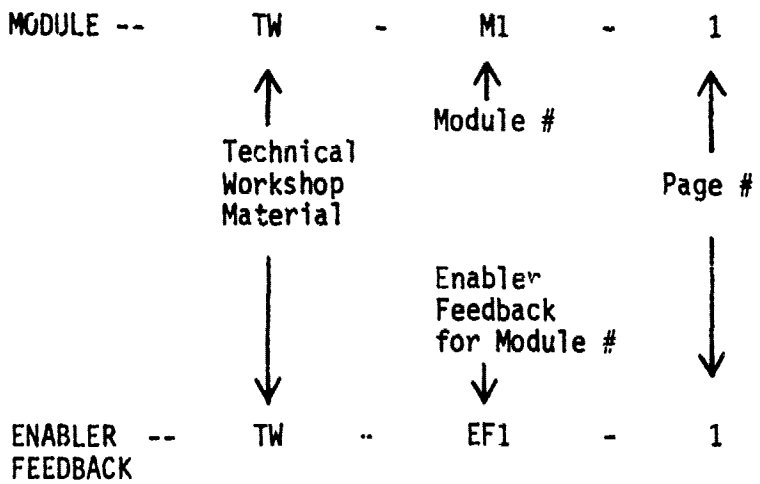
Please feel free to make any comments concerning the procedures, materials, or anything you see which might have an impact on the materials. Suggestions for revisions or changes should be sent to:

ISD Project
Center for Educational Technology
1A Tully Building
Florida State University
Tallahassee, FL 32306

EXERCISES AND FEEDBACK

The exercises from the Student Workbook have been omitted here. It is suggested that the Workshop Director insert copies of the exercises at the appropriate places in this section for his convenience.

You will note a coded page number in the upper left-hand corner of the Enabler Feedback, Modules, and Pre/Posttests. These are designed as an aid in organizing the materials for printing, collating, and grouping the materials for use by students and Enablers. An explanation of this code is as follows:



For example, TW-M3-4, is Technical Workshop Module 3, page 4. The Enabler Feedback for Module 3 is coded TW-EF3 with the appropriate page number.

ENABLER FEEDBACK

MODULE 1

1. All items must be correct as follows:
   Correctly written tasks: items 2, 3, 5, 6, 9, and 10;
   Incorrectly written tasks: items 1, 4, 7, 8 and 11.

   If the student misses any of the items, ask him to explain his reason for classifying each wrong response. (pp. 12-17)

2. The student should select tasks 1 through 6 and tasks 8 and 9. He might choose 10 and 11, however, only 31% and 23% of first year patrolmen perform 10 and 11 respectively. Those tasks, therefore, are probably lower priority when only 7 tasks can be selected.

   If the student's responses indicate a lack of understanding of the principles involved, refer him to pages 136-148.

3. a. The job definition must match the definition given on pages 8-10 of the Phase I manual.

      (1) If the job is inadequately defined, tell the student what is wrong and tell him how to fix it.

      (2) Repeat (1) above until the item is correct.

   b. The duty statements must be written according to the guidelines given on pages 9-12 of the Phase I manual. The Enabler must be satisfied, based on his knowledge of the job, that substantially all the duties have been listed. The Enabler may question the student about what the enabler suspects are inappropriate or missing duties. Indicate what is wrong with the duty statements and have student make corrections. Repeat until list is acceptable.

   Sample Answer

   Flight Operations Coordinator:

   Major Duties--

   1. Processing flight plans
   2. Interpreting weather information
   3. Disseminating weather information
   4. Selecting aircraft for missions
   5. Maintaining Notice-to-Airmen (NOTAM) files
   6. Disseminating NOTAMs
   7. Operating communications equipment

8. Maintaining flight records files
9. Managing airfield operations activities
10. Maintaining functional files
11. Preparing correspondence
12. Handling classified materials

(Ed. Note: While some of the duties appear to be more like tasks -- e.g., 4, 5, 6, 12, one would have to be familiar with the job to be sure. It is important that 2 or more duties have been identified so that the enabler can verify that the student can write lists of jobs, duties, and tasks.)

***

4. All items in the plan must be complete and consistent with the assumptions on the particular job and command, as stated by the student. Any reasonable assumptions are acceptable if they are clearly stated. Indicate inappropriate items or incomplete items, and have the student make corrections until they conform to the general format of the plan(s) which are discussed on pages 34-83 and 118-136 of your ISD Manual (Phase I manual). Have the student study these sections if his initial product does not conform to the general format outlined in the manuals. Be sure all required data are accounted for. This includes an original task list, task list verification, evaluation criteria for selecting tasks for training, and documentation of conditions, cues, and standards. There is no need for more than 8 tasks.

Sample Answer

Data Collection Plan for Flight Operations Coordinator

The plan is based on two assumptions:

1. Current task list is not available
2. There are no constraints on travel funds

a. Data needed--

1. Task list: Preliminary task list will be developed through a committee of analysts from my office and subject matter experts (SME) from the resident school department providing the MOS training. This task list will include only a listing of duties and tasks.

Form of the questionnaire will be as in Appendix D (Phase I Manual, p. 102). Questionnaire will be used to validate task lists and assist in selecting tasks for training. Forms for obtaining biographical data and administrative instructions will accompany each questionnaire.

Job incumbents will be provided two copies of the questionnaire--one to be completed by the incumbent and one by his supervisor for verifying and validating tasks.

2. Assuming an acceptable level of return of questionnaires, data will be analyzed and task lists revised as necessary to finalize a validated task inventory.

3. Details of tasks: Conditions, cues, standards and task elements only for those tasks selected for training.

b. Order for collecting data--

1. Initial task list containing duties and tasks
2. Use questionnaire for incumbent and supervisor to verify and validate task lists and obtain some data to use as a basis for selecting tasks for training
3. Details of tasks selected for training--cues, conditions, standards, and elements
4. Summary of questionnaire results

c. Evaluation criteria for selecting tasks for training--

1. Frequency of performance
2. Time between job entry and task performance
3. Probable consequences of inadequate performance
4. Percent performing

d. Sources of data--

Appropriate TMs, FMs and SMEs for detail of tasks. Job incumbent and supervisor. Subject matter experts.

Since there are only 550 incumbents in this job, each incumbent and his supervisor would be surveyed. Questionnaires would be administered by mail since incumbents are widely dispersed in small groups.

e. Data collection forms--

Questionnaire - Appendix D (Phase I Manual, p. 102)

Job Data Worksheet - Block I.3, page 87, modified to include blocks for recording information from survey for ease of reference in selecting tasks and selecting instructional setting (e.g., selection criteria ratings, frequency, % performing, consequences, etc.)

***

5. The task statements must be written according to the guidelines given on pages 12-17 of the Phase I manual, and be sufficiently clear that the Enabler understands the task well enough to judge the adequacy of the documentation. If the initial product does not follow the guidelines given in the manuals, show the student pages 12-17 of the Phase I manual

and help him rewrite one of the inadequate task statements. Let him correct the rest and then check again. If the product still is unacceptable, point out the deficiency and have the student make corrections.

Sample Answer

Processing flight plans--

1. Inspect DD Form 175 for completion of required entries.
2. Verify accuracy of fuel on board entries.
3. Determine need for DD Form 175-1.
4. Transcribe flight plan information onto flight data strips.
5. Disseminate flight plan information.

Interpreting weather information--

6. Decode hourly sequence report.
7. Record pilot weather reports (PIREPs)
8. Disseminate weather information.

***

6. The summarized data should be complete and in accordance with the student's data collection plan from Exercise 4. The Enabler may change some of the data. Some guidelines are:

   (1) Changing data in Exercise 6 so that the student must select the desired tasks.

   (2) Reduce the number of tasks that can be trained.

   (3) Increase the number of tasks that can be trained.

   (4) Make an arbitrary selection. If this is done, the student should be told why.

(See Sample Answer, page 5.)

Sample Answer (6)

	RESPONSES FROM INCUMBENTS				RESPONSES FROM SUPERVISORS			
TASK	CRITERION A	CRITERION B	CRITERION C	CRITERION D	CRITERION A	CRITERION B	CRITERION C	CRITERION D
1	3.78	3.65	3.14	76.2	3.25	3.15	3.5	72.3
2	3.63	3.59	1.91	69.3	3.21	3.12	3.19	68.0
3	3.66	3.63	2.21	69.7	3.22	3.13	1.37	65.0
4	3.82	3.75	3.45	74.5	3.31	3.21	3.49	75.0
5	3.85	3.81	2.95	75.3	3.19	3.22	2.87	73.3
6	3.72	3.03	3.31	74.3	3.34	3.18	2.95	72.3
7	2.64	3.11	1.99	61.0	2.35	3.09	2.03	59.0
8	3.41	3.34	2.95	73.2	3.26	3.17	3.11	69.5

KEY: Criterion A = Frequency of task performance
Criterion B = Time between job entry and task performance
Criterion C = Probable consequences of inadequate performance
Criterion D = Percent performing task (derived by analyst from response to criterion B)

***

7. The student should be given a "go" if and when his product follows the guidelines given in the manuals. However, the Enabler should look ahead to future exercises, particularly Exercise 8 of this block, and the exercises in Blocks II.1 and III.4. The Enabler can guide the selection of tasks of the appropriate degree of complexity by following the guidelines in Exercise 6. Keep the tasks limited.

   Sample Answer

   Tasks 1, 4, 6, and 8 from exercise 6 were selected for training.

   Rationale--

   Based on evaluation of data:

   High percentages who perform these tasks
   Consequences of inadequate performance
   The tasks selected are performed soon after entry into duty position

   Based on subject matter experts opinion these tasks are fairly difficult to learn, indicating that FOJT may be difficult.

   Proficiency in these tasks is essential to the safe operation and orderly flow of air traffic.

***

8. The conditions, cues, standards, and elements of a task are adequately documented if an individual with no prior knowledge of the task can gain, from reading the task documentation, a visual image of how the task should be performed. If some tasks prove to be too complex to be documented in the intended time, the Enabler may reconsider some of the decisions he made in Exercise 7 above, and further modify or reduce the tasks selected for training. Conditions, cues, standards, and elements are discussed on pages 17-33 and 76-77 of the Phase I manual.

   (See the sample answer on the following pages.)

JOB DAT. /ORKSHEET

Sample Answer

JOB TITLE Flight Operations Coordinator DOS 71P PAGE NO.

DUTY/CODE Processing Fli Plans (A) LEVEL 1-2 DATE

ITEM CODE	TASK, ELEMENTS, J.P.M.	CONDITIONS	INITIATING CUES	STANDARDS	NOTES
001	Task: Evaluate DD Form 175 for completeness and accuracy	Performed at flight operations desk of airfield facility or aviation unit operations room during day or night	Given DD Form 175 by pilot	All entries required by Section II, FLIP are completed as prescribed	FLIP Manual Section II General Planning
	ELEMENTS				
001-1	Verify entry in Block 1	Same as A-001	DD Form 175 filed by pilot	Block 1 contains current date	
001-2	Verify aircraft unit of assignment and home station Block 2		Same as A-001-1	Pilot's entry is consistent with aircraft allocation chart	
001-3	Verify accuracy of aircraft serial number Block 3			Same as A-001-1 Serial number contains last 5 digits of A/C SN preceeded by Prefix R	
001-4	Verify radio call/TD Block 4	Same as A-001	Same as A-001	Entry contains A/C Category followed by (/) and transponder code	
001-5	Verify accuracy of cruising altitude Block 5	Same as A-001	Same as A-001	Appropriate Flight Level is entered in thousands of feet (e.g. altitude 30,000 feet entered as FL 30)	

Sample Answer

JOB DATA WORKSHEET

JOB TITLE Flight Operations Coordinator DOS 71P PAGE NO. ___

DUTY/CODE Processing Flight Plans (A) LEVEL 1-2 DATE ___

ITEM CODE	TASK, ELEMENTS, J.P.M.	CONDITIONS	INITIATING CUES	STANDARDS	NOTES
-001-6	Verify if pilot entry is instrument flight visual flight, or composite Block 6 (A-001-7 is omitted here)	Same as A-001	Same as A-001	Appropriate block is checked (for composite flight plan both IFR and VFR block checked)	
001-8	Verify airspeed entry Block 10	Same as A-001	Same as A-001	Airspeed is stated in knots and is within capabilities of category of aircraft	
001-9	Verify accuracy of distance to destination--Block 11	Using Low Altitude chart and DD Form 175	Route of flight specified in Block 8	Distances from take off point to destination accurately reflect sum of legs of flight	
001-10	Verify accuracy of estimated time enroute;entry -- Block 12 (remainder omitted in this example)	Using info from Block 10 (airspeed) Block 11-- (distance) and CPU-26 Computer		Entry stated in hours and minutes to nearest one minute (e.g. 2 hrs. and 45 minutes--2 + 45)	

9. Tasks are selected for training based on need after evaluation using selected criteria. Since in most cases all tasks cannot be trained, based on resource constraints and other considerations, tasks are selected that are most in need of training. Management inputs will assist you in determining how to optimize the training dollars and achieve maximum effect out of training.

   (The answer should include the idea of optimizing training resources and training those tasks that are most needed.)

ENABLER FEEDBACK

MODULE 2

1. The trainee-prepared JPMs may not be identical to the school solutions which are given on pages 2-4. These are possible outcomes, which are discussed below.

   a. The illustrator JPM should vary little from the job except for the problem presented.

   b. Two good alternatives are presented for the survival task. JPM 1a is the more performance-oriented JPM and is the better, but time constraints may dictate the increased simulation such as in JPM 1b. The information JPM, 1c, is not acceptable.

   c. The wheel vehicle mechanic's JPM should have different initiating cues from the task. The directions to the administrator will vary, but must be consistent with the JPM (see attached example, pages 5 and 6).

2. The student's answer should include the following:

   Instruction is based on JPMs for the same reason that testing is conducted by administering JPMs. If testing the actual task is too dangerous or expensive to be considered, it is likely that training that same task is also too dangerous or expensive to be considered.

   A second consideration concerns the evaluation of student performance. If instruction is based on the JPM, the effectiveness of that instruction can be evaluated by administering the JPM. However, if instruction is based on the task, but the task cannot be tested because of constraints, there is no way to evaluate theiinstruction or the students and you will have no way of knowing whether you succeeded in training the task. You have to train what you test; that is, the JPM.

   For students who are unable to give this rationale, explain this answer and discuss it with them.

   Sample Answer

   Because of constraints of time, money, personnel, facilities and other resources, JPMs are used to develop and control training and measure the success of your training program. Since many tasks cannot be measured directly, the JPM strikes a compromise between resource constraints and actual job performance.

   ***

JOB DAT WORKSHEET

JOB TITLE Illustrator DOS 00A PAGE NO. 1

DUTY/CODE LEVEL E1-E3 DATE

ITEM CODE	TASK, ELEMENTS, J.P.M.	CONDITIONS	INITIATING CUES	STANDARDS	NOTES
	TASK: Dimension drawings of mechanical objects.	Standard issue drafting equipment; T-square	Your supervisor has requested that you dimension orthographic views that you completed earlier.	The dimensions must completely describe the object dimensioned. The dimensions and note must be one hundred percent accurate.	JPM 10
	1. For the orthographic views given, select the measurements to be shown, provide sufficient dimensions to construct the object, and properly place the dimensions.				

JOB DATA WORKSHEET

JOB TITLE All Combat Soldiers DOS PAGE NO. 1

DUTY/CODE LEVEL E1-E8 DATE

ITEM CODE	TASK, ELEMENTS, J.P.M.	CONDITIONS	INITIATING CUES	STANDARDS	NOTES
	JPM 1a: Real world performance, controlled conditions				
	TASK: Survive	Jungle or other survival course conditions, no manuals or JPAs.	Separated from unit in an uninhabited area	Avoid poisoning and serious weight loss or dehydration.	
	1. Select and eat edible plants.				
	2. Locate and drink water.				
	JPM 1b: Partially simulated performance				
	TASK:				
	1. Identify non-edible plants and edible plants based on the characteristics in the task statement.	In woods or forest in daylight; any weather; no manuals		No misclassifications (trainee does not have to eat the plants or drink the water).	
	2. Find sources of water.				
	JPM 1c: Information only--poor substitute				
	TASK:				
	1. List the characteristics of non-edible plant life common to all climatic areas of the world.				
	2. List six sources of water that are common to most of the climatic regions of the world.				

JPMs 1a, 1b, 1c

JOB DAT WORKSHEET

JPM 2

JOB TITLE Wheel Vehicle Mechanic DOS XXA PAGE NO. 1

MITY/CODE LEVEL E1-E3 DATE

ITEM CODE	TASK, ELEMENTS, J.P.M.	CONDITIONS	INITIATING CUES	STANDARDS	NOTES
	TASK: Adjust malfunctioning wheelbearing on a ¼ ton truck.	One-ton hydraulic jack; general mechanic's tool box; ½" square drive torque wrench; TM 9-2320-218-20. Indoors or outdoors in daylight and dry weather.	The following statement from the test administrator: During a road test the left front wheel of this vehicle wobbled and shook. It's caused by a loose wheelbearing. Your task is to repair it. Here are tools & reference materials if you wish to use them. You have 25 minutes to finish the job.	All steps must be completed in 25 minutes.	JPM 2
	1. Obtain jack and position it properly. 2. Raise vehicle. 3. Loosen locknut on lifting eye. 4. Remove lifting eye from wheel. 5. Remove cotter pin. 6. Select torque wrench. 7. Tighten flange nut to 30 lb-ft torque. 8. Release torque by loosening the flange nut. 9. Tighten flange nut finger tight 10. Replace cotter pin. 11. Replace lifting eye. 12. Tighten locknut on lifting eye. 13. Lower vehicle to ground.				

DIRECTIONS TO TEST ADMINISTRATOR FOR THE WHEEL VEHICLE MECHANICS TASK:

a. Test Objective: The purpose of this JPM is to measure the examinee's ability to adjust a malfunctioning wheelbearing on a ¼ ton truck.

b. Equipment Required: ¼ ton truck; one-ton hydraulic jack; general mechanics tool box; ½" square drive torque wrench; TM 9-2320-218-20.

c. Environment: Indoors or outdoors in daylight and dry weather.

d. Layout of Test Area:

1) Vehicle will be parked (level ground) with both rear wheels blocked front and rear and with the left front wheelbearing out of adjustment (loose).

2) Prepare the wheelbearing as follows: Remove lifting eye and cotter pin and loosen flange nut approximately one-half turn. Then replace the cotter pin and lifting eye.

e. Test Administration Procedures:

1) Before any testing is done, the test administrator must insure that all pre-test preparation has been done, and that all equipment and special tools are readily available and in good working condition.

2) The test consists of a number of performance measures. To score, the test administrator will check (✓) each performance measure as it is done. A zero (0) will be entered for performance measures that are not done. The examinee is not to be informed about his scores or how well he is doing during the test. No prompting is permitted. The maximum time for this test is 25 minutes.

3) When the test has been completed, the test administrator will return the equipment to its originally prepared condition for the testing of other examinees.

4) The test administrator will read the instructions to the examinee.

TEST SITUATION (INSTRUCTIONS TO EXAMINEE):

During a road test the left front wheel of this vehicle wobbled and shook. We already know it's caused by a loose wheelbearing. Your task is to repair it. Here are tools and reference materials if you wish to use them. You have 25 minutes to finish this job.

PERFORMANCE MEASURES (BEHAVIORS) AND SCORE SHEET:

1. ( ) Obtains jack and positions it properly.
2. ( ) Raises vehicle.
3. ( ) Loosens locknut on lifting eye.
4. ( ) Removes lifting eye from wheel.
5. ( ) Removes cotter pin.
6. ( ) Selects torque wrench.
7. ( ) Tightens flange nut to 30 lb-ft torque.
8. ( ) Releases torque by loosening the flange nut.
9. ( ) Tightens flange nut finger tight.
10. ( ) Replaces cotter pin.
11. ( ) Replaces lifting eye.
12. ( ) Tightens locknut on lifting eye.
13. ( ) Lowers vehicle to the ground.

___ Number of Check Marks

TEST STANDARDS:

To pass this test, the examinee must have check marks in all 13 boxes. The job must be finished within a 25-minute time limit.

3. The student must develop a JPM for his selected task. This JPM should include:

   a. The required test performance--a description of the action or behavior that a learner exhibits during the test situation. The action must be realistic in terms of cost, safety, time, observability, and scorability.

   b. Test conditions--a description of what the learner is or is not given during the test situation. This may include tools, facilities, environmental conditions, degree of supervision, etc.

   c. Test cues--the events that signal the initiation or ending of the task or some part of the task.

   d. Test standards--a description of the index of acceptability used to judge the adequacy of learner performance. This may include the quality, quantity, or speed of performance.

   e. Equipment and facility requirements--any special equipment or facilities the learner will require to exhibit adequate performance during the test.

   f. Administration instructions--step-by-step directions for administering the test.

   For students who are unable to develop a complete and practical JPM, show them where they are inadequate and help them rewrite the JPM.

(See sample answers on the following pages. Sample answer for the OH-58 Helicopter Repairman includes Job Data Worksheets, JPM and a performance test.)

JOB DATA WORKSHEET

Sample Answer

JOB TITLE OH-58 Helicopter Repairman DOS 67V PAGE NO.

UTY/CODE Performing Inspection LEVEL DATE

ITEM CODE	TASK, ELEMENTS, J.P.M	CONDITIONS	INITIATINC CUES	STANDARDS	NOTES
A-001	Inspect landing gear Crosstubes	In maintenance work area, using OH-58 helicopter, TM-1520-228-10 general mechanic's tool kit, and DA Form 2408-13 plumb bob, chalk Depth gage, Hydraulic jacks	Pilot entry or DA Form 2408-12 "Hard Landing-Date" Maintenance Supervisor directs mechanic to perform inspection	Permanent set at excessive spread is reported to maintenance Supervisor. Results of inspection appropriately recorded on DA Form 2408-13 Elements must be performed in sequence.	OH-58 helicopter airframe training aid or actual OH-58 helicopter may be use TM will be used as an aid to performance.
	ELEMENTS				
A-001-1	Raise helicopter on jacks	Same as A-001 Assistance provided in raising all jacks simultaneously	Same as A-001	Helicopter is level Landing Gear removed of weight	Safety: "Aircraft on Jacks" signs posted around helicopter
A-001-2	Determine center of Crosstube	Same as A-001	Same as A-001	Center located within ±1/32 inch-Marked with chalk	See RG 4-10 TM SS-1520-228-20 Page 4-23
A-001-3	Drop plumb line from center of crosstube to ground	Same as A-001	Same as A-001	Line attached at center chalk mark	
A-001-4	Measure distance from plumb bob to center of each skid	Same as A-001	Same as A-001	Distance accurately measured to nearest 1/32 inch.	Normal distance is 37-25" Must not exceed 38-25"
A-001-5	Inspect Crosstubes for scratches, dents, nicks	Same as A-001	Distance measured in A-001-4 does not exceed 38-25"	Distance recorded and reported to Supervisor Dents, scratches, and nicks are located and depth measured	
A-001-6	Inspect skid shoes for wear, damage, and security	Same as A-001	Same as A-001	Skid shoes inspected for signs of wear. Nuts on crosstube Attaching bolts are checked for security.	

(remainder omitted in this example)

41 Sample Answer 1W-tr2-8

Sample Answer

JOB DATA WORKSHEET

JOB TITLE OH-58 Helicopter Repairman DOS 67V PAGE NO.

DUTY/CODE (A) LEVEL E3-E6 DATE

ITEM CODE	TASK, ELEMENTS, J.P.M.	CONDITIONS	INITIATING CUES	STANDARDS	NOTES
	JPM Inspect landing gear cross tubes 1. Raise helicopter on jacks 2. Determine center of cross tube 3. Drop plumb line from center of cross tube to ground 4. Measure distance from plumb line to center of each skid 5. Inspect cross tubes for scratches, dents, and nicks. 6. Inspect skid shoes for wear damage, security	Compliance with TM55-1520-228-10 Procedures Yes No Explain	Compliance with TM-55-1520-228-10 Procedures Yes No Explain	Entry Required on DA Form 2409-13 Yes No Explain	TM 55-1-1520-228-10 used as a checklist by examinee "aircraft on jacks" signs posted prior to beginning work.

Performance Test - Demonstrate ability to inspect landing gear cross tubes of an OH-58 helicopter safely and accurately.

Test Conditions: Same as JPM

Test Cues: Same as JPM

Test Standards: Same as JPM

Equipment and Facility Requirements

1. Equipment--Oh-58 Helicopter or AirFrame Training Aid
   General Mechanics tool kit
   TM 55-1520-228-20
   Plumb line and bob DA Form 2400-13
   chalk
   Depth gage
   Hydraulic Jacks (4)
   "Aircraft on jacks" signs

2. Facility-- Aircraft maintenance hangar with cement floor, appropriate light sets

Scoring Instructions

Evaluator will check the appropriate block (yes/no) on the attached performance checklist. Each step will be performed in sequence. Failure to perform each step in sequence and/or failure to observe safety precautions will result in NO GO rating on the test.

JOB DATA WORKSHEET

Sample Answer

B TITLE Flight Operations Coordinator DOS 71P PAGE NO. 1

TY/CODE Processing Flight Plans (A) LEVEL 1-2 DATE

ITEM CODE	TASK, ELEMENTS, J.P.M.	CONDITIONS	INITIATING CUES	STANDARDS	NOTES
-001	TASK: Evaluate DD Form 175 for completeness and accuracy.	Performed at flight operations desk of airfield facility or aviation unit operations room during day or night.	Given DD Form 175 by pilot.	All entries required by Section II, FLIP are completed as prescribed.	FLIP Manual Section II, General Planning
	ELEMENTS				
01-1	Verify accuracy and completeness of DD Form 175	Given completed DD Form 175 and all data	Test	As required by Section II, FLIP	
	(A-001-2 through A-001-7 omitted here)				
1-8	Verify airspeed entry-Block 10	Same as A-001-1	Same as A-001-1	Airspeed is stated in knots and is within capabilities of category of aircraft.	
	The JPM for this task is the same as the above.				

4. JPM's are given draft tryouts to check inter-rater reliability and to detect problems with performance, equipment, and scoring.

5. For process scales evaluate or check the steps in the procedure. Product scales rate the quality of the end items.

ENABLER FEEDBACK

MODULE 3

1. Review Sheet for Existing Instruction # 1
For JPM's 4 & 6

Decision: Reconsider at III.3

Reason: No JPMs

Review Sheet for Existing Instruction # 2
For JPMs 4 & 6

Decision: Reconsider at III.3

Reason: No JPMs

Review Sheet for Existing Instruction # 3
For JPM 4

Decision: Accept

Reason: A question should be raised about sources of job data. However, since the lesson posttest matches JPMs, it is not an important question.

Review Sheet for Existing Instruction # 4
For JPM 6

Decision: The Ordinance School lesson, 6051, should be reconsidered in III.3.

Reason: There is more included in the lesson than is called for in the task.

Review Sheet for Existing Instruction # 5
For JPM 6

Decision: It should be reconsidered at III.3

Reason: TB-750-651 was not ISD'd and no job analysis data is available.

The trainee must have a rationale for each decision. If not, have him complete one before discussing the school solution. If the trainee has different decisions but sufficient rationale to defend them, discuss the above decisions and rationales with him.

2. Existing courses should be analyzed first. One of the primary reasons for analyzing existing courses is to determine if an adequate job analysis already exists. If the student misses this, discuss the correct answer with him.

Sample Answer

Analyze documentation first. A review of source data, task selection criteria, resource constraints, source of task lists JPMs and other data about whether the job analysis was developed through an ISD or systems engineering process. If documentation for front end analysis checks out, the instruction may only need update and verification without the expenditure of effort and resources needed to perform a new front end analysis.

***

3. Part of the answer to this question can be found in the student's data collection plan developed in Exercise 4 of Module 1. The sources of data upon which the existing courses are based would have to be reasonably similar to the sources the student would have used. Also, the evaluation criteria used to select tasks trained by the existing course would have to be reasonably similar to the criteria the student would have used. In addition, the student would need the JPMs upon which the existing courses were based and validation data for the existing courses. If the students reasoning does not include these points, discuss them with him.

4. The next action should be to further examine the job analysis to determine how it was conducted and whether the data sources were appropriate for the student's job. (pages 221-222)

1. Currency of data analysis
2. Amount of change in equipment, doctrine, manpower, or personnel system since the job analysis was done
3. Sources of the job data
4. Procedures used in collecting job data
5. Similarity of your situation to the one on which job data was collected.

Sample Answer

Method of selecting tasks for training
Criteria for selection
Data upon which selection based obtained from same geographic locations, skill levels, etc.
Same constraints
Sources of job data
Review JPMs if available

***

The development of new instruction is an expensive and time consuming project. If existing courses are evaluated (according to the five criteria indicated) and found to be acceptable in all or most of these criteria, then considerable time, effort and resources can be saved. Analysis of existing courses also prevents duplication of effort, where new courses are developed when similar or suitable courses already exist.

ENABLER FEEDBACK

MODULE 4

1. The workshop participant's responses must be judged largely on the rationale given for each setting selection. Based primarily on the nature of the activities and the JPM conditions, the following are reasonable selections but not the only good alternatives:

   a. JPM 1a should be assigned to RS or ISS. The consequences of inadequate performance are extremely high, yet very few members of any unit are actually required to perform this task.

   b. JPM's 2, 3, 5, 6 should be assigned to RS or FOJT. Considering the high percentage of members who perform this function RS would be the most cost effective method. ISS would lead to much duplication of effort--if a large number of schools each conducted a course. Portions of 3, 5, and 6 could be provided by JPAs to be used as a guide, while performing the task. If graduates are not required to perform the task soon after training, then FOJT may be more appropriate than RS.

   c. JPMs 7, 8, 9, 10 should be assigned to RS or FOJT, depending upon how soon after assignment the graduate must perform the tasks. Although consequences of inadequate performance are moderate, task difficulty is relatively high on RS or FOJT settings would provide opportunities for students to receive feedback. Portions of 7, 8, 9, 10 could be assigned to STEPs.

2. The student must have data from which can be determined who needs the training and when the training will be required. The data should include much of what is covered in the summary data from exercise one above. It does not have to be identical in format on criteria selected. He also must make assumptions about resource availability.

   Sample Answer

   (See sample answers in Module 2, exercise 3)

   For JPM # 1
   JOB: Helicopter Mechanic
   DUTY: Performing Inspection
   TASK: Inspect landing crosstubes

Additional data needed:

a. Performed at skill level 1-4
b. Medium delay tolerance
c. Follows set procedure
d. Little physical skill required
e. Requires supervision or following inspection
f. Resource constraints--availability of helicopters for training
g. New assignees required to perform task
h. Low decay rate

For JPM # 2
JOB: Flight Operations Coordinator
DUTY: Processing flight plans
TASK: Evaluate DD Form 175 for completeness and accuracy

Additional data needed:

a. Performed at skill level 2 or 3
b. Low delay tolerance
c. Follows set procedure
d. Conditions not a factor
e. Little physical skill required
f. Does not require close supervision
g. No critical resource constraints
h. New assignees not required to perform task
i. High decay rate

***

3. Each instructional setting and rationale must be consistent with the guidelines provided in Block I.5, pages 244-262. If the settings are inconsistent discuss other options with the student.

The Enabler has the final say in selecting settings. If the JPA is the most appropriate setting for all tasks, have the student write another task statement that is appropriate for any other setting in order to do exercises in other modules.

Sample Answer

For JPM # 2
Nominate for STEP and JPA based on rationale in a, c, f, g, h

For JPM # 1
Nominate for RS and JPA based on rationale in a, e, f, g, h

***

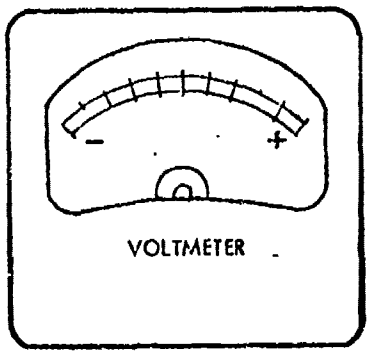
ENABLER FEEDBACK

MODULE 5

1. The test items should adequately measure the capability to be learned. Student test items should follow the guidelines noted in the Phase II Manual on pages 39-46. If student answers do not follow recommended practice refer them to these pages. The importance of high fidelity between TLOs and test items should be noted.

   The test items should be similar to these:

   a. Your starter failed to crank and you have performed a starter voltage test. Use TM 9-2320-218-20. The voltmeter looks like this (or reads 19.0). What should you do next?



   If the voltmeter reads 17.0, what should you do next?

   b. Your starter failed to crank, you performed test 2, and then test 3. The reading is more than 0.1 volts. What should you do next?

   OR

   Analyzing test results. What do the following mean?

   1. Starter voltage test: Show readings on LVCT

   2. Starter amperage test: Show readings on LVCT

   3. Battery ground cable test: Show readings on LVCT

4. Battery cable test:

Depending on th tests selected, the test items will vary. The important thin s that they include the use of the TM, and that the items require erpretation of the results of the tests.

2. Each TLO should match its JPM as closely as the learning environment allows. The actions, conditions and standards for each TLO should match the actions, conditions and standards of the JPM as closely as the learning environment allows. Blocks 1-4 of the LOAW should be complete. Look at the JPM from Module 2.

   (See Sample Answer pages 3-7.)

3. Each TLO must be classified into the appropriate learning category: Physical skill, mental skill, information or attitudes. (Pages 6-16 of the Phase II Manual.) Tell the student which TLOs he should use for Exercise 4. Assign one LO (preferably in the mental skill or physical skill category) for Exercise 4. (See block 6 on the LOAW.)

   (See Sample Answer pages 3-7.)

4. The Enabler should have assigned a TLO for the analysis, preferably in the mental skills or physical skills category. The product should be complete in accordance with guidelines given for the particular learning category. LSs should have been listed in block 10 of the LOAW.

   Mental skills: pages 19-23
   Information: pages 23-26
   Physical skills: pages 26-28
   Attitudes: pages 28-30

   (See Sample Answer page 8.)

5. The student entry behavior assumptions should be appropriate to the particular workshop participant's tasks and probable student population. Entry behavior assumptions are discussed on page 18 of the Phase II Manual.

6. Check the test items to be sure all TLOs are tested. Since TLOs include LOs and LSs, a separate test item is not always necessary for the TLO. For LOs that include a number of LSs, LSs may be tested as part of the LO test. Test items that test entry behavior should be included. Translating learning objectives into test items is discussed on pages 39-46.

Course _____

Module _____

Lesson _____

Task I.D No. _____

Learning Objective No A

Page No 1

LEARNING OBJECTIVE ANALYSIS WORKSHEET

Learning Objective Action Statement:

Verify accuracy of estimated time of arrival (ETA) entry on Flight Plan (DD Form 175).

Learning Category:

Mental skill

Sequence Number:

Condition:

Given completed DD Form 175 and all data.

Media Selection:

Existing Materials Selected? Yes _____ No _____

If yes, outline below:

Standard:

As required by Section II, FLIP.

Key Terms:

Comments:

Sample Answer 53 (2 & 3)

TW-EF5-3

Course _____

Module _____

Lesson _____

LO A.1 Verify accuracy of estimated time of arrival (ETA) entry on Flight Plan (DD Form 175)

Task I.D No. _____

Learning Objective No. A.1

Page No. 2

LEARNING OBJECTIVE ANALYSIS WORKSHEET

Learning Objective Action Statement:

A.1 Calculate distance between start point and end point for each leg of flight

A.1.1 Read mileage between selected points from low altitude enroute chart

A.1.2 Use straight edge and map scale to compute distances for direct leg of flight

Learning Category: Mental Skill

Sequence Number:

Media Selection:

Condition: Given a route of flight on DD Form 175 and FLIP low altitude enroute chart.

Existing Materials Selected? Yes _____ No _____

If yes, outline below:

Standard: Accurate to the nearest nautical mile

Test Items:

Sample Answer (2 & 3)

54

Comments: /LSs

1. Accurately performs computations with CPU-26.
2. Correctly interprets low altitude enroute chart
3. Correctly interprets entries on DD Form 175
4. Correctly interpreets FLIP general planning manual.
5. Can identify components of CPU-26 and describe functions of each component

TW-EF5-4

Sa le answer

Course

Module

Lesson

Task I.D No.

Learning Objective No. A.2

Page No. 3

LEARNING OBJECTIVE ANALYSIS WORKSHEET

Learning Objective Action Statement:

.2 Calculate true airspeed
.2.1 Aline free air temperature with specified pressure altitude
.2.2 Read true airspeed in airspeed window of CPU-26

Learning Category Mental Skill

Sequence Number:

Media Selection:

Condition:
iven free air temperature for flight level specified in flight plan, CPU-26 computer, and cruising speed specified on DD Form 175

Existing Materials Selected? Yes ____ No ____
If yes, outline below:

Standard: Accurate to the nearest nautical mile

Test Items:

Comments:

55
Sample Answer (2 & 3)

TM-EF5-5

Sample answer

Course _____ Task I.D No. _____

Module _____ Learning Objective No. A.3

Lesson _____ Page No. 4

LEARNING OBJECTIVE ANALYSIS WORKSHEET

Learning Objective Action Statement:

A.3 Calculate ground speed for each leg of flight
A.3.1 Aline wind direction with true index
A.3.2 Place dot on wind face of computer on scale corresponding to wind speed
A.3.3 Aline magnetic course with true index
A.3.4 Aline wind dot over true airspeed
A.3.5 Read ground speed under grommet on wind face

Learning Category: Mental Skill

Sequence Number:

Media Selection:

Condition: Given a flight route with specified magnetic headings, distance in nautical miles, wind direction and speed, CPU-26 computer and true airspeed.

Existing Materials Selected? Yes _____ No _____
If yes, outline below:

56 Sample Answer (2 & 3)

Standard:

Accurate to the nearest natuical mile

Test Items:

Comments:

TW-EF5-6

Course _____

Module _____

Lesson _____

Task I.D No. _____

Learning Objective No. A.4

Page No 5

LEARNING OBJECTIVE ANALYSIS WORKSHEET

Learning Objective Action Statement:

.4 Calculate estimated time enroute for a leg of flight route
.4.1 Set true index at ground speed
.4.2 Locate distance on outer scale of CPU-26
.4.3 Read estimated time enroute on minutes scale o of CPU-26

Learning Category: Mental Skill

Sequence Number:

Media Selection:

Condition:

iven a leg of flight, CPU-26 computer, distance n nautical miles, and ground speed.

Existing Materials Selected? Yes _____ No _____

If yes, outline below:

57
Sample Answer (2 & 3)

Standard:

ccurate to ± one minute

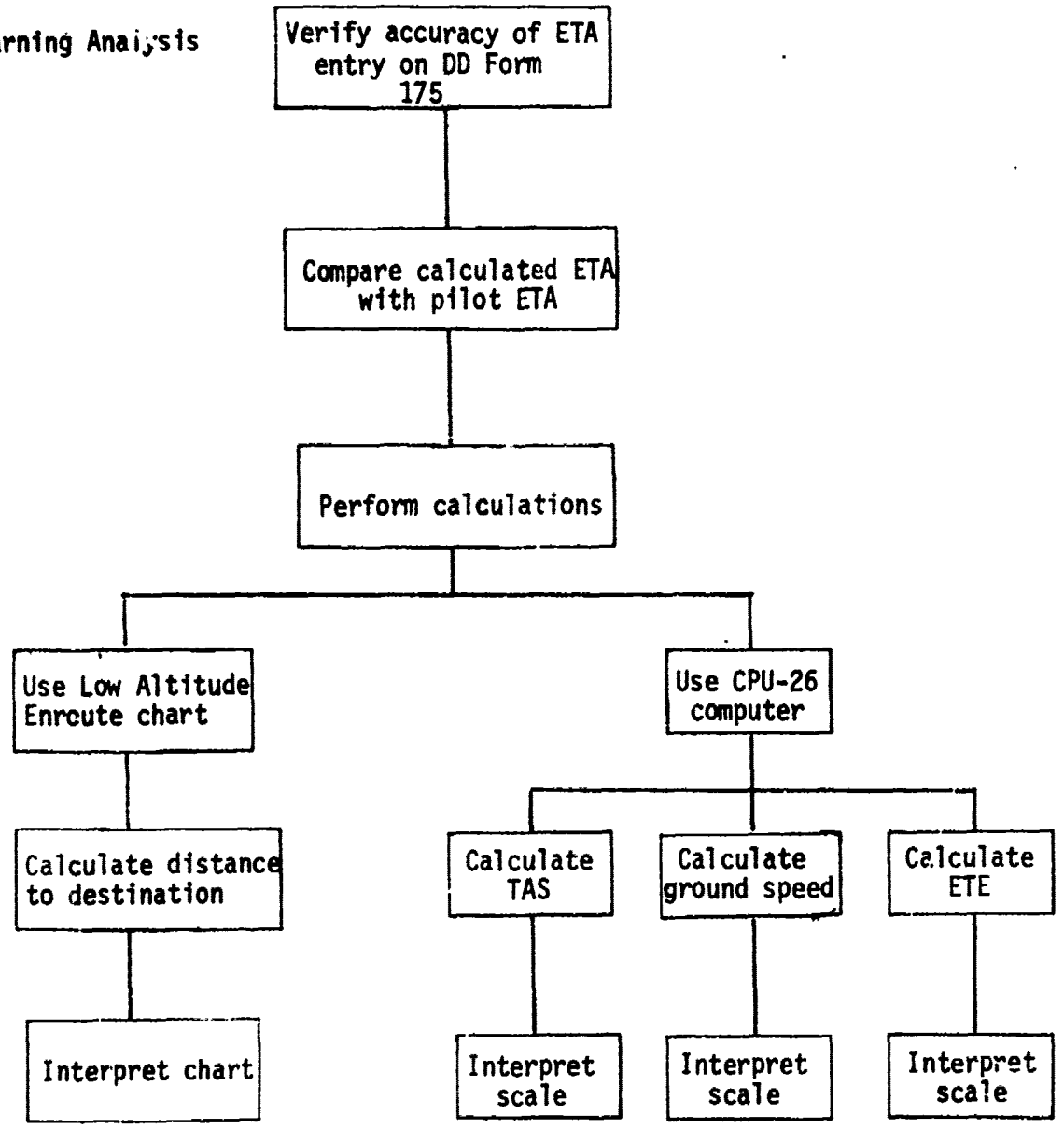
Test Items:

Comments:

TW-EF5-7

Sample Answer (4)

Learning Analysis



***

7. Within-course tests should be used when they are needed to test those steps involved in learning a task, and when standards need to be raised during the learning process. They are also progress checks for the student. If none of the above are useful, then you may not use them.

8. False positives and false negatives misclassify students into the wrong categories. If a person cannot perform the task but he passes the test, he is called a false positive. If he can perform the task but fails the test, he is called a false negative. Tests should be designed so that the fewest possible misclassifications are made. This information is helpful in setting cut-off scores.

9. High physical fidelity means that the test "looks" very much like the job.

ENABLER FEEDBACK

MODULE 6

1. Entry behavior assumptions and test items:

   Assumption 1 was not tested. The trainees should note the deficiency. The results neither confirm nor deny the assumption. It is possible that an individual's reading level is a part of his records; if not, a short test of reading the specific TM should be included.

   The learning analysis is estended to test assumption 1: Trainees can read well enough to use TMs. Since trainees are required to read TMs as part of the training, assessing their reading on an actual TM has high predictive validity.

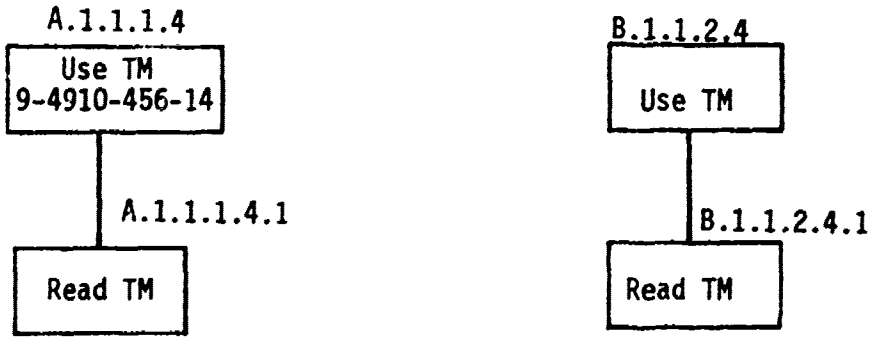
   Assumption 2 was probably insufficiently tested. What trainees say they will do is not necessarily what they do on the job. Either a performance-oriented test that includes some check of the safety rules should be developed, or safety precautions specific to this equipment should be included in the instruction.

   If trainees do not notice the problems with assumptions 1 and 2, point them out.

   Assumption 3 was confirmed. The trainee may delete it from the entry test. If he does not, suggest it.

   Assumption 4 was not confirmed. Correct connections and assembly of support equipment should be included in the instruction.

   Extension of learning analysis:



2. Although the LOs are not dependent, the sequence in which they are learned should follow a logical order. The student should understand this logical relationship; for example, safety rules should be learned before assembling equipment. The sequencing must include simultaneous coverage of the identical LOs first.

   a. A.1.1.1.4.1 and B.1.1.2.4.1 (These LOs were added to test entry behavior assumption one. The LOs are to read the TM.)

      A.1.1.1.1 and B.1.1.2.1 (follow safety rules)
      A.1.1.1.2 and B.1.1.2.2 (identify parts)
      A.1.1.1.3 and B.1.1.2.3 (assemble equipment)

   b. A.1.1.1.4 and B.1.1.2.4 (use TM)

   c. A.1.1.1 and B.1.1.2 (operate equipment)

   d. Either A.1.1, A.1, and A in that order or B.1.1.1.1.1, B.1.1.1.1, B.1.1.1, B.1.1, B.1 and B in that order, followed by the other.

3. The entry test items should match the entry behaviors.

   a. Test development was covered in II.2. The pages by learning category are:

Mental skills	pages 39-42
Information	pages 42-44
Physical skills	pages 44-45
Attitudes	pages 45-46

      (Sample answer is on pages 3 and 4.)

   b. Standards and scoring are also covered in II.2 on pages 47-56.

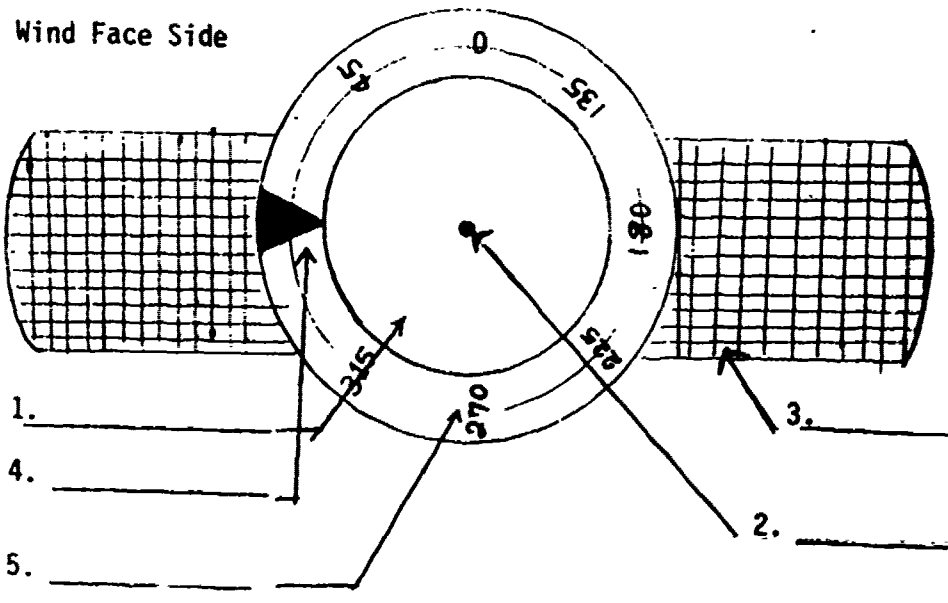
   c. Pretest use is covered in II.3, pages 73-75. The student's response to this question should include the use of the pretest for evaluating the instruction and whether to use it for placement within the course or to exempt the instruction.

Sample Answer (3a)

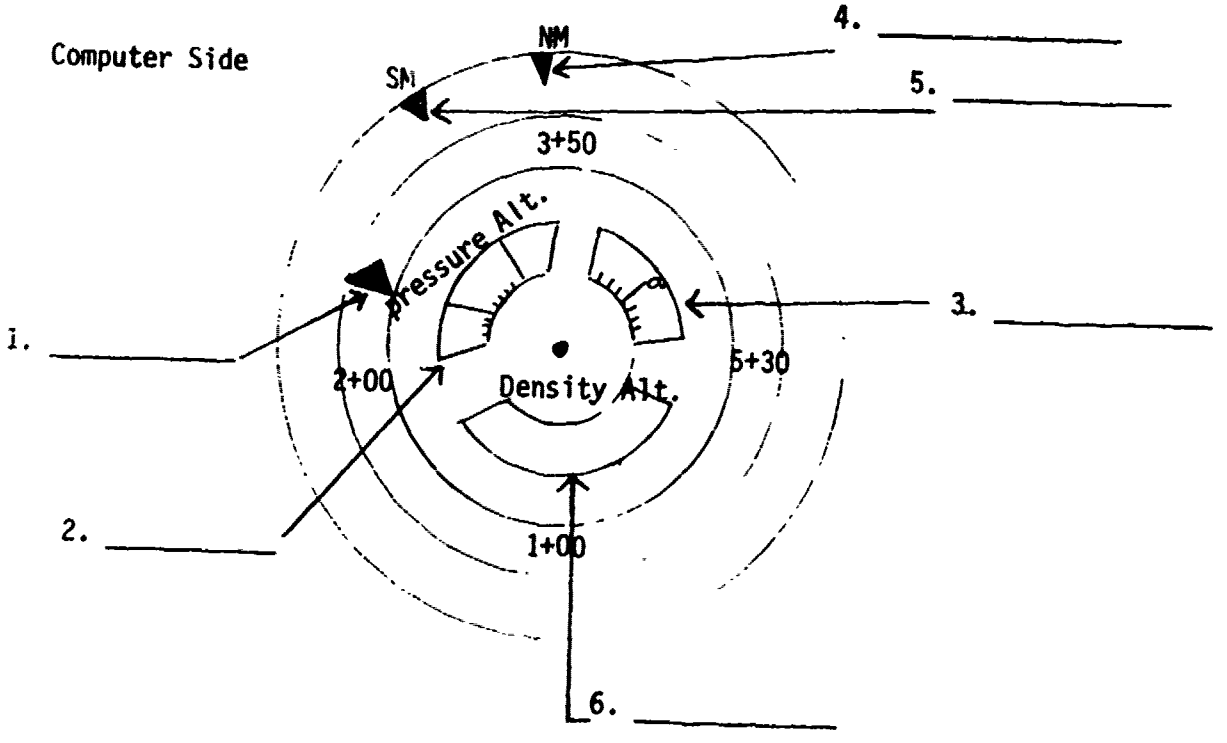
ENTRY TEST

1. Identify numbered parts of CPU-26 computer.

Wind Face Side



Computer Side



Sample Answer (3a) (con't)

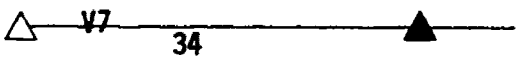
2. What do the following symbols on low altitude chart represent?

a. △ _____

b. ▲ _____

c. ⬡ _____

d.  _____

e. 

_____

_____

3. Using DoD FLIP General Planning Manual ard information provided, complete following entries on DD Form 175:

Complete blocks 1 through 10

(form omitted here to conserve space)

4. Using data provided and the CPU-26 computer, perform the following calculations:

a. Rate 90K
Time 2 + 30 hours

Distance flown _____

b. Time 2 + 10
Distance flown 180 NM

Rate _____

c. Magnetic course 120°
Winds 010/10
True airspeed 100K

Ground speed _____

Wind drift correction _____

***

4. The students should already have at least enough items for either a pretest or a posttest. Where possible they should rewrite alternate forms for the items. The items should be as performance oriented as is reasonable. If the items are not performance oriented, ask for the rationale.

   (Sample Answer is on pages 6-8.)

5. Check the learning analysis for the sequencing. Be sure prerequisite objectives precede the dependent ones. Students should have a rationale for sequencing that is not consistent with accepted methodology.

   (Sample Answer is on page 9.)

6. It is unnecessary to sequence independent objectives at this point, since such objectives can be arranged in any sequence without loss of learning. This is discussed on pages 83 and 90 of the Phase II Manual.

7. A pretest matches the posttest. It can be used to place a student within a course or to exempt a course. An entry test measures what the learner must be able to do before he starts the instruction.

8. Dependent learning objectives must be sequenced based on their relationship. Independent objectives can be sequenced in any logical way.

Sample Answer (4)

Pretest:

1. Using Panel C, Chart L-18 and straight edge, measure distance from Montgomery (MGM) to Fort Campbell (HOP) using V-20 airway.

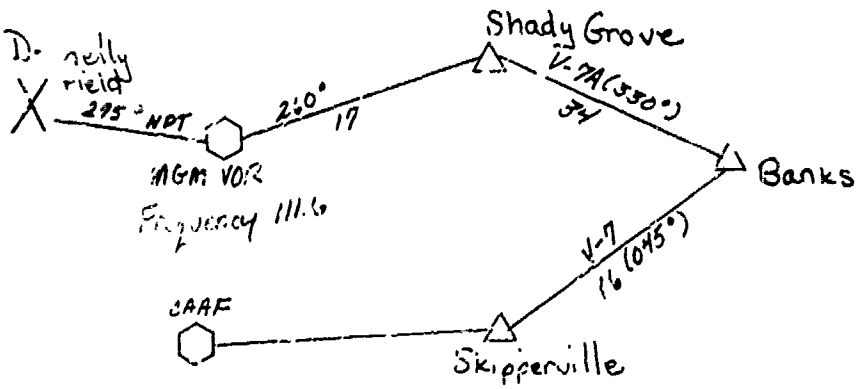
2. Which of the following are optional entries on DD Form 175 (refer to FLIP General Planning Manual, if necessary)?

   a. Transponder Code (Block 7)
   b. Briefing Void Time (Block 31)
   c. Type of Flight (Block 8)
   d. Fuel on Board (Block 17)

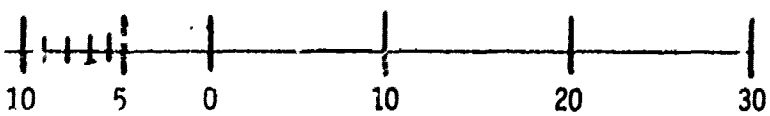
Situation 1: You have received a flight plan for a flight from Cairns Army Airfield to Darnelly Field, Montgomery using the route of flight as follows. Flight altitude is 4,000 feet.

Leg 1 - CAAF to Skipperville in section using Skipperville Standard Instrument Departure (SID) #2.
Leg 2 - Skipperville to Banks on V-7 airway.
Leg 3 - Banks to Shady Grove Intersection - V-7A airway.
Leg 4 - Shady Grove direct MGM VOR

Figure 1--



SCALE (in Nautical Miles)



Sample Answer (4) (con't)

3. The distance from CAAF to Banks intersection is:

   a. 16 nautical miles
   b. 16 statute miles
   c. 34 nautical miles
   d. 34 statute miles

Situation 2: Pressure altitude - 4,000'
Air temperature at 4,000' - +15°c
Calibrated airspeed - 90K

4. Using the CPU-26 computer provided and the information provided in Situations 1 and 2, true airspeed for this flight would be:

   a. 102 knots
   b. 92 knots
   c. 102 miles per hour
   d. 92 miles per hour

Situation 3: Use information contained in Situations 1 and 2 and the information listed below.

Wind direction (magnetic) - 030° (at 4,000' altitude)
Wind speed - 10K (at 4,000' altitude)

5. Average ground speed between Skipperville Intersection and Shady Grove Intersection is:

   a. 74K
   b. 84K
   c. 74 mph
   d. 84 mph

6. Based on the ground speed determined in item 5, your estimated time enroute from CAAF to MGM should be:

   a. 1 + 45 minutes
   b. 1 + 50 minutes
   c. 1 + 31 minutes
   d. 1 + 41 minutes

Sample Answer (4) (con't)

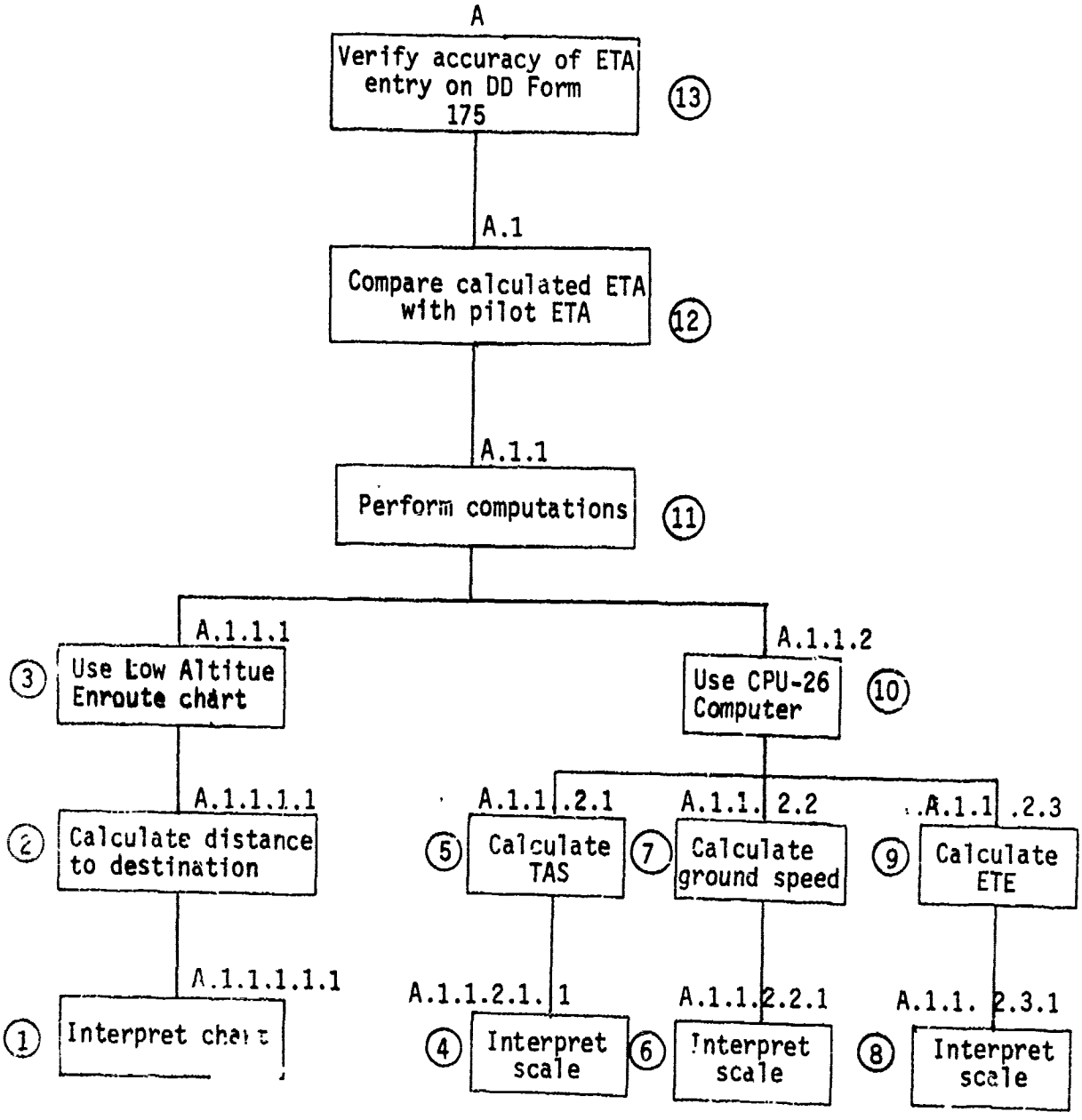
7. Compare the ETA's stated below and identify the correct action.

   Pilot's ETA (CAAF to MGM): 1 + 39
   Your calculated ETA (CAAF to MGM: 1 + 41

   Select the appropriate response for action required.

   a. Approve the flight plan
   b. Disapprove the flight plan
   c. Re-calculate ETA
   d. Direct pilot to change route of flight

Sample Answer (5)



ENABLER FEEDBACK

MODULE 7

1. a. The correct subcategories are:

LO-1 "Operate LVCT" is subcategory 9, positioning movement and recalling procedures. The action verb "operate" is in the list. It includes the cognitive and motor aspects of equipment set-up, principally motor since the cognitive part is simple and illustrated in the manual.

LO-2 "Select test for given symptoms or test results" is subcategory 1, rule learning and using. The action verb is "select". It is definitely a case of choosing a course of action based on applying known rules.

LO-3-1 "Perform the battery positive terminal test" is subcategory 2, classifying as are the LO-3-2 and LO-3-3, because the motor part is relatively simple but the important part is to determine if the battery is serviceable or needs replacing.

b. See attached learning objective analysis worksheet (reverse side page 2).

2. The classification of each learning objective should be in accordance with the outline on pages 12-16, Table III.6 Description of Training Task Categories. Familiarize yourself with this table in advance so you can use it quickly and effectively. Students who submit incorrectly classified learning objectives should be shown which are wrong, and how to correct them. You can review pages 12-16 with him if he has problems. (See Sample Answer pages 3-7.)

3. It is unnecessary to include all of the guidelines listed for each category of learning. It is more appropriate to select only those which are essential to mastery of the learning objectives.

The selection of appropriate guidelines requires judgement. Insure that each of the guidelines listed is both appropriate and necessary. Then quickly scan the guidelines yourself to assure that no important ones have been omitted. Be particularly alert for guideline sequences which omit the four general guidelines:

1. Inform the learner of the objectives.

2. Provide for active practice.

3. Provide guidance and prompts.

4. Provide feedback.

Learning Category	Guide line	Media Selection Criteria	✓	Media Pool
Learning Activity		COMPLEXITY CRITERIA		
		Difficult Motor Acts		
State the objectives	1	Smooth Motor Performance at end of Training		
Demonstrate the procedure visually	4	STIMULUS CRITERIA		
		Visual Form		
		Alphanumeric		
		Pictorial, Plane		
Use the diagrams in the TM or print them. Inform the trainee that the TM is a job aid he can always use	6	Line Construction, Plane		
		Object, Solid		
		Full visual environment		
		Visual Movement		
		Still		
Provide practice, especially reading the voltmeter	10	Limited		
		Full		
		Visual Spectrum		
		Black and White		
Provide visual display of correctly set up LVCT to batteries	14	Gray Scale		
		Color		
		Scale		
		Exact Scale		
		Audio		Media Selection and Rationale:
Provide description of the task in relationship to other similar ones	20	Voice Sound Range		
		Full Sound Range		
		Ambient Sounds		
		Other		
		Tactile Cues		
		Internal Stimulus Motion Cues		
		External Stimulus Motion Cues		
		Fine movement manipulative Acts		
		Broad Movement manipulative Acts		
		TRAINING SETTING CRITERIA		
		Individual Trainee or team training at a Fixed Location		
		Individual Trainees with simultaneous instruction or many locations		
		Individual Trainee or team training with independent instruction at any Location		
		Individual Trainee on-the-job		
		Small Group		
		Large Group at Single Location		
		Team Setting		
		ADMINISTRATIVE CRITERIA		
		Site of Courseware Development		
		Local		
		Central		
		Magnitude of Acquisition Cost		
		Low		
		High		

ourse _____

odule _____

esson _____

Task I D No _____

Learning Objective No A

Page No _____

LEARNING OBJECTIVE ANALYSIS WORKSHEET

arning Objective Action Statement:

Verify accuracy of estimated time of arrival (ETA) entry on Flight Plan (DD Form 175).

Learning Category

Mental skill

Sequence Number:

Media Selection:

ndition:

iven completed DD Form 175 and all data.

Existing Materials Selected? Yes _____ No _____

If yes, outline below:

ndard

s required by Shction II, FLIP.

t Items.

Comments:

Sample Answer (2)
71

TW-EF7-3

Course _____

Module _____

Lesson _____

LO A: Verify accuracy of estimated time of arrival (ETA) entry on Flight Plan (DD Form 175)

Task I D No _____

Learning Objective No. A.1

LEARNING OBJECTIVE ANALYSIS WORKSHEET

Page No. 1

Learning Objective Action Statement:

A.1 Calculate distance between start point and end point for each leg of flight

A.1.1 Read mileage between selected points from low altitude enroute chart

A.1.2 Use straight edge and map scale to compute distance for direct leg of flight

Learning Category:

Rule learning and using

Sequence Number:

Media Selection:

Condition:

Given a route of flight on DD Form 175 and FLIP low altitude enroute chart.

Existing Materials Selected? Yes _____ No _____

If yes, outline below:

Sample Answer (2)

72

Standard:

Accurate to the nearest nautical mile

Test Items:

Comments:

Skills and knowledges:

1. Accurately performs computations with CPU-26.
2. Correctly interprets low altitude enroute chart.
3. Correctly interprets entries on DD Form 175.
4. Correctly interprets FLIP general planning manual.
5. Can identify components of CPU-26 and describe functions of each component.

TW-EF7-4

Course _____ Task I D No. _____

Module _____ Learning Objective No A.2

Lesson _____ Page No 2

LEARNING OBJECTIVE ANALYSIS WORKSHEET

Learning Objective Action Statement:

A.2 Calculate true airspeed
A.2.1 Aline free air temperature with specified pressure altitude
A.2.2 Read true airspeed in airspeed window of CPU-26

Learning Category:

Rule learning and using

Sequence Number:

Media Selection:

Condition:

Given free air temperature for flight level specified in flight plan, CPU-26 computer, and cruising speed specified on DD Form 175

Existing Materials Selected? Yes _____ No _____
If yes, outline below:

Standard:

Accurate to the nearest nautical mile

Test Items:

Comments:

Sample Answer (2)
73

TW-EF7-5

Course _____

Module _____

Lesson _____

Task I D No. _____

Learning Objective No A.3

Page No 3

LEARNING OBJECTIVE ANALYSIS WORKSHEET

Learning Objective Action Statement

A.3 Calculate ground speed for each leg of flight
A.3.1 Aline wind direction with true index
A.3.2 Place dot on wind face of computer on scale corresponding to wind speed
A.3.3 Aline magnetic course with true index
A.3.4 Aline wind dot over true airspeed
A.3.5 Read ground speed under grommet on wind face

Learning Category

Mental

Rule learning and using

Sequence Number:

Media Selection:

Condition:

Given a flight route with specified magnetic headings, distance in nautical miles, wind direction and speed, CPU-26 computer and true airspeed

Existing Materials Selected? Yes _____ No _____

If yes, outline below:

Standard:

Accurate to the nearest nautical mile

Test Items:

Comments:

Sample Answer (2)
74

TW-EF7-6

urse _____ Task I D No _____

dule _____ Learning Objective No A.4

sson _____

LEARNING OBJECTIVE ANALYSIS WORKSHEET

Page No 4

rning Objective Action Statement:

.4 Calculate estimated time enroute for a leg of flight route
.4.1 Set true index at ground speed
.4.2 Locate distance on outer scale of CPU-26
.4.3 Read estimated time enroute on minutes scale of CPU-26

Learning Category

Mental
Rule learning and using

Sequence Number.

Media Selection:

ndition:

Given a leg of flight, CPU-26 computer, distance in nautical miles, and ground speed

Existing Materials Selected? Yes _____ No _____
If yes, outline below:

tandard

Accurate to ± one minute

est Items.

Sample Answer (2)

75

Comments:

TW-EF7-7

If a list of guidelines contains inappropriate entries, explain to the student why each is inappropriate. If critical guidelines are missing, require students to make additions to their lists. (See Sample Answer page 9)

4. The student must match each specific learning guideline with a specific learning activity. Again, a good bit of judgement is required. For students who are unable to develop an acceptable learning activity for each learning guideline, review pages 24-26 and discuss learning activities for his objectives. (See Sample Answer page 10)

5. Natural feedback is something that occurs as a result of performing an action that lets the performer know if it is right or wrong, good or bad, finished or not finished, etc.

   Artificial feedback is something that is made to occur to let the performer know if he is right or wrong, good or bad, finished or not finished, etc.

   A learning activity is the specific behavior a student performs during a particular episode of learning.

Sample Answer (3)

The guidelines chosen are:

SUB-CATEGORY 1: RULE LEARNING AND USING

Guideline No.

1. At the beginning of the training, the instructor or the materials should clearly inform the trainee of the learning objectives; that is, what the trainee is expected to be able to do by the completion of training. Relate the objectives and learning activities to operational tasks which the trainee must perform in future real-world assignments.

4. Present examples of when the rule applies, and when it doesn't.

5. Provide opportunities to apply the rule in a variety of new situations in which the learner has not previously been trained to apply the rule. During practice, practical applications and practice tests provide the student with immediate knowledge of results about his correct and incorrect answers. Provide rewards for correct application of the rule.

9. Relate the rules to be learned to operational tasks which the trainee must perform in future real-world assignments.

78

Learning Category: Rule learning and using	Guideline	Media Selection Criteria	✓	Media Pool
Learning Activity				
State objectives verbally and in writing	1	COMPLEXITY CRITERIA		
		Difficult Motor Acts		
		Smooth Motor Performance at end of Training		
Explain rule	4	STIMULUS CRITERIA		
		Visual Form		
Demonstrate use of rule to solve problem using computer and diagrams		Alphanumeric		
		Pictorial, Plane		
		Line Construction, Plane		
		Object, Solid		
		Full visual environment		
		Visual Movement		
Provide practice in applying rule to solving problems to be of increasing complexity	5	Still		
		Limited		
		Full		
		Visual Spectrum		
		Black and White		
Relate rules to real world tasks	9	Gray Scale		
		Color		
		Scale		
		Exact Scale		
		Audio		
		Voice Sound Range		Media Selection and Rationale
		Full Sound Range		
		Ambient Sounds		
		Other		
		Tactile Cues		
		Internal Stimulus Motion Cues		
		External Stimulus Motion Cues		
		Fine movement manipulative Acts		
		Broad Movement manipulative Acts		
		TRAINING SETTING CRITERIA		
		Individual Trainee or team training at a Fixed Location		
		Individual Trainee with simultaneous instruction at many locations		
		Individual Trainee or team training with Independent Instruction at any Location		
		Individual Trainee on-the-job		
		Small Group		
		Large Group at Single Location		
		Team Setting		
		ADMINISTRATIVE CRITERIA		
		Site of Courseware Development		
		Local		
		Central		
		Magnitude of Acquisition Cost		
		Low		
		High		

ENABLER FEEDBACK

MODULE 8

1. See pages 2 and 3.

2. Media selection includes a series of interdependent steps. The only way to assure that a student has made the correct choice is to examine his work in light of this sequence of steps:

   a. The student begins with a sequence of learning activities developed in Block III.1. These are entered in the learning activity column on the left-hand side of the worksheet. Has the student listed them properly?

   b. A stimulus criterion is selected for each learning activity. Only those stimulus criteria which are absolutely necessary should be marked. This will yield a selection which is the least expensive media available to do the job. Has the student selected the minimum stimulus criteria?

   c. The student turns to Appendix B, pages 174-184, and locates the matrix appropriate to the sub-category into which his learning activities fall. Has he selected the correct matrix?

      He next marks the delivery system most appropriate to his stimulus criteria, training setting criteria, and administrative criteria. Are the student's selections consistent with the three criteria?

   d. The student now has a media pool consisting of several media choices. His final decision is to select the optimum media mix by eliminating impractical approaches according to the 11 criteria listed on pages 120-121. Has he done so? Is his rationale in keeping with the criteria? Each incorrect stage must be corrected before the next stage can be judged.

   (See Sample Answer page 4.)

3. Student responses should include discussion of all 10 factors (A-J) in line with their objectives, learning activities, and delivery system (media selection) as specified under "Determine Management Guidelines," pages 124-137, Block III.2. Student answers of 10 factors should be specific enough for someone else to understand and follow the rationale for the selected management plan. Students who are unable to generate a meaningful response for any factor should reread the pages corresponding to that factor and try again.

   (See Sample Answer pages 5-8.)

Operate LVCT		Exercise 1		TW-EF8-2
Learning Category 9	Guide line	Media Selection Criteria	✓	Media Pool
Learning Activity		COMPLEXITY CRITERIA		Logic trainer with tutor.
State the objectives.	1	Difficult Motor Acts		
		Smooth Motor Performance at end of Training		
Demonstrate the procedure visually.	4	STIMULUS CRITERIA		Lab carrel with equipment and linear instructional materials.
		Visual Form		
Use the diagrams in the TM or print them. Inform the trainee that the TM is a job aid he can always use.	6	Alphanumeric	✓	
		Pictorial, Plane		
		Line Construction, Plane		
		Object, Solid	✓	
		Full visual environment		
		Visual Movement		
Provide practice especially in reading the voltmeter	10	Still	✓	
		Limited		
		Full		
		Visual Spectrum		
Provide visual display of correctly set up LVCT to batteries.	13	Black and White		
		Gray Scale		
		Color		
		Scale		
		Exact Scale		
Provide description of the task in relationship to other similar ones.	20	Audio		Media Selection and Rationale
		Voice Sound Range		
		Full Sound Range		
		Ambient Sounds		
		Other		
		Tactile Cues	✓	Lab carrel with equipment and linear instructional materials.
		Internal Stimulus Motion Cues		
		External Stimulus Motion Cues		
		Fine movement manipulative Acts		
		Broad Movement manipulative Acts		
		TRAINING SETTING CRITERIA		This is a relatively simple task on readily available equipment.
		Individual Trainee or team training at a Fixed Location		
		Individual Trainees with simultaneous instruction or many locations		
		Individual Trainee or team training with Independent Instruction at any Location		If developed for this purpose it can also be used FCTT.
		Individual Trainee on-the-job		
		Small Group		
		Large Group at Single Location		
		Team Setting		
		ADMINISTRATIVE CRITERIA		
		Site of Courseware Development		
		Local		
		Central	✓	
		Magnitude of Acquisition Cost		
		Low	✓	
		High		

SUB-CATEGORY 9 Exercise 1 TW-EF8-3

RECALLING PROCEDURES AND POSITIONING MOVEMENT

Directions:

To choose a delivery system:

1. Place a "✓" (light pencil) in boxes representing criteria (rows) that must be met.

2. Select the delivery systems (columns) that have an "X" in each row designated by a "✓". These are the candidate delivery systems.

Criteria for Selecting Instructional Delivery Systems

		Alternative Instructional Delivery Systems											
		Delivery Approaches Permitting the Application of All Learning Guidelines and Algorithm								Delivery Approaches NOT Permitting Complete Application of Learning Guidelines and Algorithm			
		Operational System in Laboratory with Tutor	Simulator with Tutor and Tests	Procedures Trainer with Tutor and Tests	Agile Trainer with Tutor	CAI with Photo or Operable Mockup	Teaching Machine with Photo or Operable Mockup	Microfiche w/wo Photo or Operable Mockup	Programmed Text - Branching	Laboratory Trainer with Equipment and Linear Instructional Materials	Operational System in Real Environment with Tutor	Texts, Lectures and Demonstrations	
Complexity Criteria													
● Difficult Motor Acts		X	X	X	X					X	X		
● Smooth Motor Performance at End of Training		X	X	Y						X	X		
Stimulus Criteria													
● Visual Form													
Alpha-Numeric	✓	X	X	X	X	X	X	X	X	X		X	
Pictorial, Plane					X	X	X	X	X	X		X	
Object, Solid	✓	X	X	X	X					X	X	X	
● Visual Movement													
Static	✓				X	X	X	X	X	X		X	
Full Movement		X	X	X	X	X				X	X		
● Audio													
Voice Sound Range		X	X	X		X				X	X	X	
Full Sound Range		X	X	X						X	X		
Ambient Sounds		X	X	X							X		
● Other													
Tactile Cues		X	X	X						X	X		
Internal Stimulus Motion Cues		X	X	X						X	X		
Training Setting Criteria													
● Individual Trainee at Fixed Location		X	X	X	X	X	X	X	X	X	X	X	
● Individual Trainee with Independent Instruction at Any Location								X	X				
● Small Group					X							X	
● Large Group at Single Location												X	
● Team Setting		X	X	X	X						X		
Administrative Criteria													
● Site of Courseware and Special Hardware Development													
Local								X	X	X	X	X	
Central	✓	X	X	X	X	X	X	X	X	X	X		
● Magnitude of Acquisition Cost													
Low	✓							X	X	X		X	
High		X	X	X	X	X	X			X	X		

Sample Answer (2) TW-EF8-4

82

Learning Category: Rule Learning and Using Learning Activity	Guide line	Media Selection Criteria	✓	Media Pool
State objectives verbally and in writing.	1	COMPLEXITY CRITERIA		Microfiche Programmed Text (linear) Traditional Classroom Programmed Instruction
		Difficult Motor Acts		
		Smooth Motor Performance at end of Training		
Explain rule.	4	STIMULUS CRITERIA		
		Visual Form		
		Alphanumeric	✓	
		Pictorial, Plane	✓	
		Line Construction, Plane		
Demonstrate use of rule to solve problem using computer and diagrams.		Object, Solid	✓	
		Full visual environment		
		Visual Movement		
Provide practice in applying rule to solving problems. Problems to be of increasing complexity.	5	Still	✓	
		Limited		
		Full		
		Visual Spectrum		
		Black and White		
		Gray Scale		
Relate rules to real world tasks.	9	Color		
		Scale		
		Exact Scale		
		Audio		Media Selection and Rationale
		Voice Sound Range		
		Full Sound Range		
		Ambient Sounds		
		Other		
		Tactile Cues		Programmed Text (linear) Printed matter Self-scoring exercises Workbook Traditional Classroom 1. Combination satisfies all criteria 2. Conducive to self-pacing 3. Minimize instructor requirement 4. Capitalize on use of existing materials
		Internal Stimulus Motion Cues		
		External Stimulus Motion Cues		
		Fine movement manipulative Acts		
		Broad Movement manipulative Acts		
		TRAINING SETTING CRITERIA		
		Individual Trainee or team training at a Fixed Location	✓	
		Individual Trainees with simultaneous instruction or many locations		
		Individual Trainee or team training with independent instruction at any Location	✓	
		Individual Trainee on-the-job	✓	
		Small Group		
		Large Group at Single Location		
		Team Setting		
		ADMINISTRATIVE CRITERIA		
		Site of Courseware Development		
		Local	✓	
		Central		
		Magnitude of Acquisition Cost		
		Low	✓	
		High		

Sample Answer (3)

INSTRUCTIONAL MANAGEMENT PLAN: Flight Operations Specialist Course

I. Mode of Instruction:

Group, self-paced. Refer to Program of Instruction and Whekly Training Schedule. Classes designated as mandatory for group meetings are annotated with double asterisk (**).

II. Course Management:

1. Students--

a. Entry - Entry into a phase of training will be determined by completion of the appropriate programmed texts and completion of required entry and end-of-phase tests. Entry into advanced phases will be granted only upon attainment of a minimum score of 85%.or higher on the end-of-phase test. Students scoring 75% or higher on a phase or block pretest may be excused from formal instruction but everybody must score at least 85% on posttest or take remedial instruction.

b. Early completion - Student is considered to have completed the course upon completion of required instruction and achieving test scores outlined above and in the course syllabus. Academic records and certification of completion of course requirements will be forwarded to Director, Resident Training Management, for students completing the course ahead of scheduled class completion data. Such individuals will be reported to AC for reassignment within 72 hours.

c. Recycling (academic) - Students failing to achieve minimum standards for advancement will be recycled through the phase at which failure occurred. Academic and personnel records of individuals twice failing a particular phase will be forwarded to the academic review board for consideration for relief from the course. Academic records will reflect record of counselling sessions required by course syllabus and instructor's guide.

d. Program incomplete - Students who fail to complete the course (except as outlined in (c) above) due to illness or other emergency will re-enter the course at the beginning of the first phase after the last one successfully completed, providing he re-enters within 30 days. For absences greater than 30 days, the individual must re-enter as a new student and may advance as prescribed in 1(a).

e. Program completion - At the end of the seventh week of instruction, a roster of individuals who will graduate on schedule will be forwarded to AG for publication of assignment instructions. Changes to this roster may not be made up after the tenth week except for exceptions outlined in 1(c) and 1(d) above. Persons on this roster at end of tenth week will graduate with their class and be reassigned as a group.

Sample Answer (3) (con't)

2. Instructors--

a. Group instruction - Classes presented to groups will be structured in accordance with the lesson plan and course syllabus. Instructor will prepare the classroom as outlined in instructor's guide. The conference method of instruction is the preferred mode for group instruction and the instructor may ask for student participation in subject areas listed as a study assignment on the class schedule.

b. Self-paced instruction - Instructors designated to monitor self-paced classes will be available at all times during the scheduled period to monitor student performance, administer tests as appropriate, review work, provide informal instruction, and assist students as required.

c. Study assignments - Instructor may assign a reasonable amount of additional readings to students experiencing difficulties or to students wishing to broaden their knowledge in a particular area. Assignment of additional readings in excess of that prescribed in the course syllabus and training schedule should be considered in light of the student workload, nature of the problem, and student preparation time.

d. Additional instruction - Instructors receiving a request by at least five students should report such requests to his academic department. The first open hour will be devoted to such instruction. Instructors are encouraged to honor requests by individuals if their workloads permit. Academic departments will grant compensatory time for instructors providing additional instruction outside the normal work day.

e. Administration of tests - Instructors will administer within-course tests as defined in the syllabus. Entry tests, end-of-phase/end-of-course tests, and comprehensive tests will be administered by the Evaluation Division with the assistance of the instructor. Security of tests will be as outlined in Instructor's Guide and Evaluation Division SOP.

f. Class schedule - Published weekly in format of sample at Incl 1. Basis of issue: 1 each student; 1 each instructor; 5, Director, CRTM; 5, student company; 15, academic department.

3. Information and Reports--

a. Instructor summary
b. Student biographical summary (profile)
c. Counseling Checklist (See Annex K-Student Company SOP)
d. Report of unsatisfactory progress
e. Summary report of end-of-phase tests
f. Summary report of end-of-class academic standing.

Sample Answer (3) (con't)

4. Support Personnel--

a. Secretarial - Requests for secretarial help will be submitted to the appropriate academic department. Requests in excess of capabilities will be forwarded by the academic department to Director, Resident Training Management.

b. Drivers - Vehicles and drivers will be provided by Post Transportation in accordance with the training schedule. Instances of unsatisfactory support will be reported to the academic department for appropriate action.

c. Other - Other requirements will be processed by academic departments.

III. Facilities and Equipment

a. Training aids - These will be issued to the instructor by TASO not earlier than 48 hours prior to class.

1) Training films - none required.
2) 35mm slides - provided by instructor, Kodak Carousel projector issued by TASO as above.
3) Simulators - none required

b. Student equipment (bring to class) - Issued at beginning of phase.

1) TM 1-225 - Navigation for Army Aviation
2) CPU-26 computer
3) WEEMS Plotter
4) Packet of FLIP publications (General Planning Manual and Low Altitude Enroute charts)

c. Classroom facilities -

1) Group instruction - Room 103, Classroom Building 5507
2) Self-paced study and individual work - Room 104, Classroom Building 5507 (individual carrels)
3) Other - Requests will be forwarded to Director, RTM NLT three working days prior to date needed
4) Maintenance of classrooms - Smoking and drinks not allowed in classrooms. Cleaning will be by contractor.

IV. Consumables and Courseware

	Basis of Issue
	1/student (to be turned in at end-of-phase)

Sample Answer (3) (con't)

2. Study Guides and Workbooks	Basis of Issue
a. PT-A-101, CPU-26 computer	1/student
b. Handbook on Flight Planning Techniques	1/student
c. PT-A-101-3, Interpreting Aeronautical Symbols	1/student
d. Workbook, Practical Exercises in Problem Solving	1/student
3. Instructor Guides	20/course

***

4. Student responses may take an outline form, but must include a meaningful entry for each of the 9 factors (A-I). Responses should address each of the instructional settings selected in Block I.5 and include setting-specific problems for each. The System Master plan should reflect all necessary considerations for the implementation of the course. The Enabler should judge the System Master Plan without the use of other student products (so as to determine if the SMP is thorough enough). Students who are unable to generate a meaningful response for any factor should reread pages 138-142 and try again.

5. a. Meet the conditions necessary for learning
   b. Costs
   c. Resource availability

6. High: Film, slide/tape

   Low: Group instruction w/live instructor, microfiche, print

ENABLER FEEDBACK

MODULE 9

1. The trainee should "accept partially" for several reasons. First, it was ISD'd, and second, the instruction for the first learning objective was very effective. The instruction for the second one may need revisions.

   The "accept partially" decision is based on:

   a. the lower effectiveness on the second learning objective

   b. the fact that only "Lesson 3" is pertinent to the learning objectives and,

   c. the materials are print rather than slide-tape. The last makes it possible to easily use only the required subset and to make revisions in the second objective.

2. The answer here is dependent on the situation. It should include, where applicable, specific similar courses in other services, government agencies, industry, allied, military, other commercial sources, and schools or universities.

3. The possible variations in responses are almost infinite. The match between available materials and the student's selected objectives will be the determining factor. Some reasons for acceptance or rejection are listed below.

	Rejection	Acceptance
objectives	mismatch not available	good match
intended users	underqualified overqualified	similar or same
criteria or standards	standards too high standards too low data unavailable	similar or same criteria or standards
tests	mismatch, unavailable	similar or same, could be modified
delivery system	unavailable, cannot be modified	available or obtainable modifiable
ownership	cannot be changed permission to use cannot be obtained	can be modified, no copyrights or fees

	Rejection	Acceptance
level of detail	too much, too little	acceptable or similar to needs
cost of reproduction	too high - e.g., higher than alternatives	
management plan	unabailable, unworkable for requirements	useable, alterable
time	too long	within range

4. a. The Enabler should designate a portion of the learning objectives for this part of the exercise. Approximately 6 closely related objectives should be sufficient. The student's product should be judged on its appropriateness rather than its artistic value. The script, sketches, etc., need only be sufficiently clear in order for the Enabler to know what the student is trying to do.

   (See Sample Answer pages 3-10.)

   b. For this exercise, the Enabler should designate 4-10 objectives for which existing materials are available. The student's product should follow the guidelines given on page 250 of the Phase III Manual.

5. The instructor's guide outline should include the items described on pages 262-265 of the Phase III Manual.

6. Do the materials match your learning objectives and standards, your intended students, will it cost less to use or be available sooner than what you could develop?

Sample Answer (4a)

FRAME 1 - RULES FOR DETERMINING ETA

RULE

1. Measure distance of each leg of flight. Distance given in nautical miles.

2. Calculate Estimated Time Enroute (ETE) for first leg of flight by dividing distance (from Rule 1) by ground speed. State ETE in hours and minutes.

   Repeat Rule 2 for each leg.

EXAMPLE

$\frac{15}{60}$ = ¼ hour (15 minutes)

3. Sum the ETE's for all legs of the flight

Leg 1 + Leg 2 + Leg 3 + Leg 4 = Total ETE

4. To the sum found in Rule 3, add 15 minutes for aircraft warmup and takeoff.

Total ETE + 15 minutes = _____

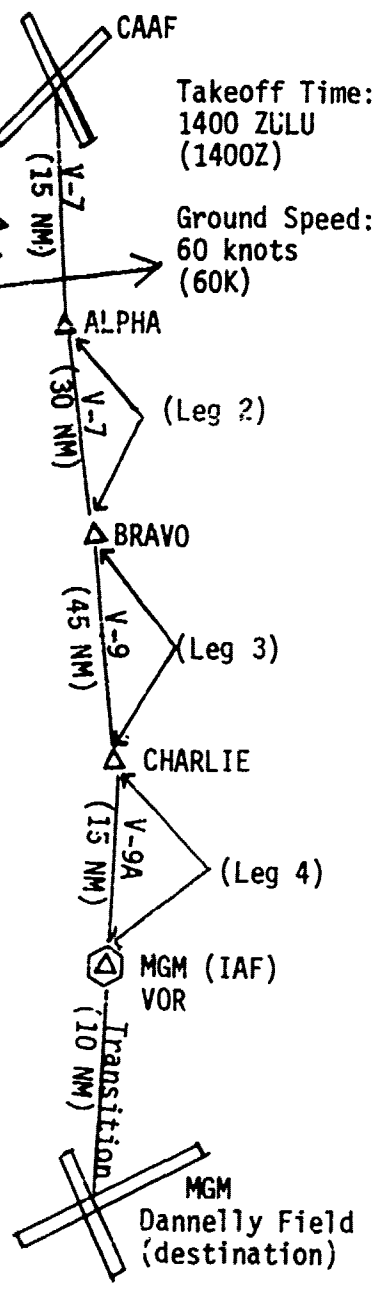
5. Add the result found in Rule 4 to the pilot's takeoff time. Pilot's takeoff time is stated in ZULU (not local) time. The result is the pilot's ETA (Estimated Time of Arrival).

+ Takeoff Time = _____

_____ (ETA in ZULU time)

6. Compare your ETA to pilot's. If times do not agree within ± 3 minutes, recompute.

MAP A



MAP LEGEND: △ - Airway Intersection

V-7,etc. - Victor Airway

IAF - Initial Approach Facility

VOR - Visual OMNI Range

Sample Answer (4a) (con't)

FRAME 2

The first step in calculating ETA is to determine the distance for each leg of flight and between the last intersection crossed and the initial approach facility serving as an approach facility for the point of intended landing. You must carefully apply rules from FRAME 1, since a discrepancy of more than 3 minutes may allow the pilot to takeoff with an insufficient fuel reserve. Refer to map A.

The total distance for Leg 1 and Leg 2 is _____ nautical miles (NM).

Sample Answer (4a) (con't)

FRAME 3

Answer: 45 nautical miles

FRAME 4

Rule 2 provided you with a means of computing the Estimated Time Enroute (ETE) for a leg of flight. Applying this rule to determine the ETE for the first leg of the flight from CAAF to MGM (Map A) would result in this equation.

$$\frac{\text{Distance (Leg)}}{\text{Ground Speed}} = \text{ETE (hours)}$$

Based on a ground speed of 60 knots your ETE for Leg 1 would be _____.

TURN TO FRAME 5 (NEXT PAGE)

Sample Answer (4a) (con't)

FRAME 5

Your Answer: ¼ hour or 15 minutes.

Remember: $\frac{\text{Distance}}{\text{Ground Speed}} = \frac{15}{60} = \frac{1}{4}$ hour

FRAME 6

To determine the Estimated Time Enroute (ETE) for the flight from CAAF to the Initial Approach Facility (Rule 3) you would repeat the procedure used in FRAME 3 for each leg of flight. NOTE: It is important to compute these ETEs individually since a change in heading may change head winds and change your ground speed. Applying this rule would result in a total ETE of

_____ for the flight from CAAF to MGM VOR (IAF).

Sample Answer (4a) (con't)

FRAME 7

Your answer: 1 hour and 45 minutes

Computations: 1st Leg - $\frac{15}{60}$ = ¼ hour

2nd Leg - $\frac{30}{60}$ = ½ hour

3rd Leg - $\frac{45}{60}$ = 3/4 hour

4th (final) Leg - $\frac{15}{60}$ = ¼ hour

Total ETE - 1 3/4 hours or 1 hour and 45 minutes

FRAME 8

You are not yet ready to compare your ETA with the pilot's ETA. Remember Rule 4 - YOU MUST ADD 15 MINUTES TO THE TOTAL ETE for engine warmups and takeoff. THEN ADD THIS TOTAL TO PILOT'S TAKEOFF TIME.

YOUR ETA FOR THE FLIGHT DEPICTED ON MAP A IS _____.

A. ETA 2 Hours (Turn to FRAME 11)
B. ETA 1600 Zulu (1600Z) (Turn to FRAME 17)

Sample Answer (4a) (con't)

FRAME 9

What you failed to do was to apply Rule 5 which states, "Add the total ETE derived from application of Rules 3 and 4 to the departure (take off) time for the flight. The result is ETA expressed in ZULU (Greenwich Mean Time). Go back to FRAME 3 and select the correct answer.

Sample Answer (4a) (con't)

FRAME 11

Your answer: A. ETA 2 hours

WRONG. You failed to apply Rule 5 in solving the problem. Go back to FRAME 9 and reread Rule 5.

Sample Answer (4a) (con't)

FRAME 17

Congratulations: You have chosen correctly. Your answer, B. 1600 ZULU or 1600Z is absolutely right. You are now ready to continue with the exercises.

TURN NOW TO FRAME 10.

***

ENABLER FEEDBACK

MODULE 10

1. The student's analysis should include:

Pretest: All students were naive.

Entry Test: All students had the necessary entry skills.

Within-Course and Posttest:

Item

(1) The third within-course test may have been unnecessary. Try deleting the last learning-testing sequence.

(2) The second within-course test may have been unnecessary. Try deleting one of the learning-testing sequences.

(3) Students did not master the material but passed the posttest. No change recommended.

(4) Students did not do well on the third trial. Revise.

(5) Students did well on first attempt within-course and failed posttest. Maybe a review before the end would help.

(6) Again too much loss before the posttest. Also recommend a review.

(7) Improvement shown within course but lost before posttest. Needs more or improved instruction.

(8) Students failed within-course and posttests. Revise.

(9) The students did worse on the third try than on the first two. Some confusing or misleading instruction should be suspected here.

(10) Failure both times. Revise.

The student's rationale can very, but inconsistencies such as in (9) should be noted.

2. a. Individual trials are discussed in Block III.5 on pages 285-303. The trainee should have as a minimum: Answer sheets for entry test, the pretest, the posttest, and the within-course test items, list of comments and questions from the student and time required for individual trials. No specific format is required but it should be orderly enough to be useful to other people.

b. The test item data in "a" should be coded by objectives and tied to the specific pages of learning materials. The student should list the deletions, replacements, and additions

(See Sample Answer on pages 3 and 4.)

c. The revisions and rationale for them should be documented.

d. The results of the second trial should be summarized in the same way as in "a."

Sample Answer

DATA FROM 2nd TRIAL: Posttest + = Correct - = Incorrect

Item	Student B	
1	-	2 answers
2	+	
3	+	
4	+	
5	+	
6	+	

Summary of Analysis: Delete or change item 1 on test. There are 2 correct answers.

***

3 It is an iterative process of trying instruction on students from the intended population using their responses to revise it, then trying it out on more students, until they reach some preset criterion or intended outcome.

Sample Answer (2b)

DATA FROM 1st TRIAL:

Posttest

+ = Correct
- = Incorrect

Item	Student A
1	-
2	+
3	+
4	+
5	+
6	-

Summary of Analysis: Clarify Rule 5. Revise Frame 7. Add another Frame on calculating ETA.

(SEE TEST ITEMS NEXT PAGE)

Sample Answer (2b) (con't)

T ^T ITEMS

1. Estimated time of arrival of 3:00 o'clock P.M. would be expressed as;

   A. 1500
   B. 1500 hours
   C. 3:00 o'clock P.M.
   D. 1500Z

2. Estimated time enroute for a leg of flight can be determined by which of the following equations;

   A. $\frac{\text{Distance}}{\text{True airspeed}} = \text{ETE}$

   B. $\frac{\text{Distance}}{\text{Groundspeed}} = \text{ETE}$

3. To allow sufficient time for aircraft warmup and take off, it is necessary to;

   A. add 15 minutes to total ETE
   B. add 30 minutes to total ETE
   C. subtract 15 minutes from total ETE
   D. none of the above

4. If, after having calculated the ETA, you find that your ETA is 10 minutes greater than the pilot's ETA you would;

   A. Diaspprove the flight plan
   B. Insist that you are right
   C. Both you and the pilot would recompute
   D. Both A and B

5. Estimated time enroute (ETE) is expressed in;

   A. Miles per hour
   B. Zulu time
   C. Hours and minutes
   D. Unnecessary since you are concerned with ETA

6. With a total estimated time enroute (ETE) of 2 hours and a departure time of 1500Z, the ETA should be;

   A. 1300Z
   B. 1515Z
   C. 1715Z
   D. None of the above

***

ENABLER FEEDBACK

MODULE 11

1. The student's response should identify or describe such items as the following:

   a. Instructor's manual
   b. Student's manual
   c. Instructor training
   d. Tests
   e. Evaluation plan
   f. Instructional materials
   g. Time allocation
   h. Equipment
   i. Space allocation

   NOTE: The student may say that he cannot complete this exercise until he does the exercises in Block V.1 (Module 12). If so, encourage him to complete Block V.1 and then come back to this exercise.

   Student's responses should be sufficiently complete and detailed that the selected "instructor," given these items, likely could effectively fill the instructor's role. The items above are discussed in Block IV.1, pages 4-15.

   Sample Answer

   The instructor should have the following:

   a. Instructor's manual
   b. Details of internal evaluation plan that affect the student (instructor).
   c. Details of the management plan that affect the instructor - local SOP, scheduling, equipment location, contingency plans and other similar details
   d. Instructor training:

      1) Movement and gesturing techniques
      2) Oral techniques and manner of delivery
      3) Classroom preparation
      4) Use of equipment and media
      5) How to develop an effective training situation
      6) Handling student questions
      7) Use of training aids
      8) How to improve instruction

***

2. The emphasis here should be on local requirements not covered in the student's instructions prepared in Block III.4. These instructions should be tailored to the particular instructional setting, activities, etc., included in the particular instruction developed in this workshop in Block III.4. Some or all of the following may be appropriate:

   a. Tell the class where they will meet, when they will meet, where the bus will pick them up, how much time they will have for lunch, where they may eat, and so on.

   b. Describe the type of preparation the students must make before coming to class. Will there be homework? How often and how much? Will they have to bring tool kits, or bathing suits, or wear fatigues?

   c. Explain classroom procedures. Will the course be self-paced or group instruction? Who are the instructors? How long will the course last? What are the grading procedures? What will tests cover and how will they be administered?

   d. Since this course is still in the development stage, student cooperation is especially important. The students must be patient when as yet untried instruction fails to perform, or when student evaluations are requested. Explain to the class that it is a partner in the development of the course and all cooperation and involvement will be appreciated.

   Student responses should include the types of activities listed above. If a student is unable to produce such a list on his own, show him yours. Then permit him to re-submit a list.

3. a. The platform instructor must plan and deliver most instruction, while the self-paced instructor usually has his instruction planned and delivered for him.

   b. The platform instructor must be skilled at holding and communicating with the slower student.

   c. The self-paced instructor must assure that students move through the instruction at a reasonable pace.

   d. The self-paced instructor must decide who must be "recycled" through what instruction and when.

   e. The platform instructor must base his decisions on the good of "most" of his class. The self-paced instructor must decide what is best for each individual in his "class."

   f. The platform instructor usually considers only one topic at a time. The self-paced instructor must be prepared to entertain questions about any pertinent topic at any time.

g. The instructor in the self-paced course must be thoroughly familiar with the planned management of the instruction. The platform instructor must be thoroughly competent in the subject-matter area being taught.

Student lists should contain the types of teacher behaviors listed above. Students who are unable to develop such lists should reread Block IV.1 and try again.

Sample Answer

Self-paced Course:

Instructor acts as teacher, monitor, tutor and fulfills an administrative need by keeping track of student progress, recommending or providing remedial instruction. He will occasionally have to assist students with personal problems by providing guidance and counselling. He is a manager, tutor, counselor, supervisor, and administrator. His job is much more complex and demanding than the average platform instructor's.

Platform Instructor:

Primary function is to present instruction. He probably interacts less with students and is primarily a lecturer.

Problem Areas for Instructors:

1)* Identify slow learners --Provide remedial instruction or tutoring.
2)* Identify fast learners --Allow them to progress (if possible) to maintain interest level and prevent boredom.
3) Deficiencies or problem areas with instructional materials-- Record and provide corrective action if possible.
4) Unexpected situations--Be prepared, have contingency plans available.
5) Adequacy of materials--Insure they are available, check and re-check.
6) Equipment malfunction or breakdown--Plan ahead. Know where and whom to call.

*Applicable more to self-paced than platform instructors.

***

4. If an instructor does not document problems, they are unlikely to come to the attention of those with the ability to solve them.

If an instructor makes a change in his course without documenting it, others have no way to evaluate the results. Was subsequent success or failure due to the change? Or was it in spite of the change? There is no way to tell without documentation.

Students who are unable to describe these reasons should read pages 35-37 of the Phase IV Manual and try again.

5. The course designer, manager, and instructor use the instructional management plan to implement the instructional program.

6. Hard data is objective; e.g., test results, time, etc.
Soft data is subjective; e.g., opinions, attitudes, etc.

ENABLER FEEDBACK

MODULE 12

1. All items in the plan should be complete, clear and logical. The internal evaluation plan is discussed on pages 11-33 of the Phase V Manual. The individual items are discussed on the following pages:

   a. Progress evaluation plan: pages 11-14
   b. Process evaluation plan: pages 14-22
   c. Performance evaluation plan: pages 22-28
   d. A plan for collecting information from students: pages 29-30
   e. A plan for collecting information from instructors: pages 31-33

   If any part of the plan is inadequate, tell the student which areas are inadequate and have him read the appropriate sections in the manual and revise that portion of the plan.

   (See Sample Answer, pages 2-6.)

2. The emphasis in this exercise should be on correct interpretation of the data and appropriate recommendations for revision. Some guidelines are:

   a. For Unit 1, the entry test scores, pretest scores, posttest results, time requirements, and student opinions appear realistic and in accordance with the plan. No revisions are required.

   b. The average entry test score of 32 for Unit 2 is unusually low for a course with no remedial lessons. Table c indicates that students with low Unit 2 entry test scores did poorly on the Unit 2 instruction. There is a strong indication here that the student entry behavior is not according to plan. This is supported by the instructor's report of having to provide additional instruction, by the unexpectedly high time requirement, by the low number passing the lesson and unit posttests, and by student's opinion of the instruction. The Project Schedule shows that entry behavior was checked using an inappropriate substitute group. The summary test data and student performance data show that they entry level was set too high for the students.

      The recommendation for revision should be that the learning analysis for the Unit 2 learning objectives be extended, that test items be developed for the new learning objectives, and that the new assumed entry behavior be verified on an appropriate group of students. New instruction will have to be located or developed for the new learning objectives, and the validation step and internal evaluation step will have to be repeated.

Sample Answer (1)

Internal Evaluation Plan for US Army Aviation Center

Proponent MOS's Process and Progress Evaluation Plan

I. Assumptions:

1. All jobs are being performed - no new jobs to be concerned with.
2. There are existing training programs for each job.

A. Progress Evaluation

I. Information Plan:

1. Information Requirement and Reports (see Inclosure 1).
2. Project Time Schedule (see Inclosure 2).
3. Collection of information (see Instructional Management Plan - Incl. 3).

II. Responsibilities:

1. See Inclosure 1 (Information Requirements and Reports)
2. USAAVNC Regulation 10-1 -- Operations and Functions Manual

B. Process Evaluation

I. Responsibilities:

1. USAAVNC Regulation 10-1
2. Information Requirements and Reports (Incl. 1)

II. Procedures - Inclosure 4 (Process Evaluation Checklist)
(See Table V.2 Phase IV and V Manual)

Performance Evaluation Plan (Inclosure 5)

X - Action
O - Input
R - Review
A - Approval

Report of Major Milestones Completed*

Responsible Agency	Analysis of Documentation of Existing Courses	Report of Courses in Need of Update/Revision(Include est. mate of % presently useable)	Schedule X-Resource Requirements	Priority List for Revision	Phase I-Job Analysis	Phase II- Instructional Design	Phase III-Develop Instruction	Report of Major Tng Aids or Major Expenditure for Delivery System	Completion of System Master Plan & Inst. Mngt Plan	Internal Evaluation Completion-ist Phase	External Evaluation Completion-1st Phase	Completion of Annual Review	Remarks
sk Analysis Div.	O	O	XX	O	X	O	O	O	O	O	O	X	
ept. of Academic Training	X	X	X	O	O	X	X	X	O	O	O	X	
irector, DRTM	O	O	X	X	R	R	R	R	X	X	X	R	R-Review forwarded to CATB
valuation Div.	O	O	X	O	O	O	X	O	O	O	O	X	
lans & Ops Div	O	O	X	O	-	O	-	O	O	O	O	X	
rmy Wide Tng Support	O	O	X	O	O	O	X	X	O	O	O	X	
urriculum Review Board	-	A	R	A	A	A	A	A	R/A	R/A	R/A	A	A-Approve and submit final report to TRADOC as required
ffice of Force Development	-	-	A	-	-	-	-	R	R	O	R	O	A-Assemble Schedule X and submit Manpower request to DCSRM TRADOC

Note 1-Report problem areas to Curriculum Review Board as required
Note 2-Report any deviations from

*Report only if milestone beginning or completion will be exceeded by two weeks

Information Requirements & Reports

(Incl. 1)

Project Time Schedule

(Effective December 1, 1975)

Event No.	Name	Estimated Completion	Actual Completion	Notes
001	Analyze Existing Courses	Jan. 30, 1976		1, 2
002	Priority List for Revision	Aug. 15, 1976		1
003	Phase I - Job Analysis	Aug. 15, 1978		1, 2, 3
004	Phase II - Instructional Design	Aug. 15, 1979		1, 2, 3
005	Phase III - Develop Instruction	Aug. 15, 1979		1, 2, 3
006	Implementation of Instruction	Aug. 15, 1979		1, 2, 3
007	Instrumental Evaluation	Dec. 1, 1979		1, 2
008	External Evaluation	June 1, each year		1, 2
009	Annual Review	Sep. 1, each year		1, 2, 3

NOTE: 1. Agency designated action (see Incl. 1) will prepare supporting milestone schedule and submit for approval to CRB

2. Reports of completion will include explanation of deviations from Process Evaluation Plan (Incl. 4)

3. Report will be submitted for each job as completed.

(Incl. 4)

BLOCK I. 1 Analyze Job — Process Evaluation Checklist

	Completed Procedure	Explanation
Review Available Job Data		
Plan Data Collection		
Train Job Analysts		
Prepare Forms		
Select Sample		
Collect Data at Job Site		
Analyze Data		
Revise Consolidated List		
BLOCK I. 2		
.		
.		
.		
BLOCK II. 1		
.		
.		
.		

(Incl. 5)

Performance Evaluation Plan

I. External Requirements

1. Documentation

a. Trip Reports (On-Site Interviews with CO's)
b. CODAP
c. Reports of ARTEP Evaluations
d. SQT Results

2. Summary of Data

II. Entry Skills

1. Student Profile

2. Summary of Entry Test Results

3. Battery of Aptitude Tests - Applicable Area

III. Performance on Internal Tests

1. Weekly Summary of Student Performance

2. Counseling Checklist (see Student Company SOP)

3. Report of Unsatisfactory Student Progress

4. Summary Report of Class Academic Standing

IV. Instructional Units - see Appropriate Syllabus or ITP

***

2. (con't)

The Project Schedule and the results of the original course validation also should be reviewed to find out why the problem with Unit 2 was not detected earlier. This is to make certain that any mistakes made the first time will not be repeated.

c. The average pretest score of 41 on Unit 3 indicates that most students already know the material. This conclusion is reinforced by the large number passing the lesson and unit posttests, and by the unexpectedly short average time to complete.

A recommendation should be made that Unit 3 be revised. Either the learning objectives that most students already know should be deleted from the course, or the pretest should be used to exclude the students from the parts they already know.

(See Sample Answer, page 8.)

3. Student responses must contain most of the questions/categories listed under "determine who will provide data," pages 65-66; "determine what data are required," pages 66-68; "determine when external evaluation will take place," page 68; and "determine how the data will be gathered," pages 68-69. Incomplete student responses must be completed and resubmitted.

(See Sample Answer, page 9.)

4. The emphasis in this exercise should be on correct interpretation of the data and appropriate recommendations for revision. Some guidelines are:

a. Although students felt only moderately confident in their preparation for tasks 1-30, Unit 1, all other sources indicate that trainees were, in fact, strong in those tasks. Thus, as in the internal evaluation in Block V.1, no revision of Unit 1 is recommended.

b All data sources indicate that Unit 2 tasks are a problem area. The evaluation team report suggests that the old training system may have been more effective in teaching these tasks. These results support the revision recommendations made in Block V.1. Extend the learning analysis of the Unit 2 objectives, add objectives and additional instruction.

In addition, the original task list seems to be out of date. It includes tasks that are no longer performed because of the computerized inventory system. It also omits the new tasks associated with the computerized system. Revisions must include eliminating training for unnecessary tasks and adding training for new tasks.

Sample Answer (2)

INER

Interpretation of Test Data

1. Entry Skills

   Unit 1 - (45) acceptable level of performance
   Unit 2 - (32) unacceptable level of performance
   Unit 3 - (49) acceptable level of performance

2. Pre-tests

   Units 1 and 2 - low
   Unit 3 - high

3. Post Test

   Unit 1 - 2 of 100 no-go
   Unit 2 - 10 of 100 no-go (After 3 trials)
   Unit 3 - 100% go

Findings

1. Students in general do not have requisite entry skill for Unit 2

2. Unacceptable failure rate on Unit 2

3. Average time spent on Unit 2 is unacceptable

4. Attitude of students is poor to fair in Unit 2

Recommendations for Revision

1. Revise Unit 2 - Based on data in Table a - Unit 2 may not be relevant to group who went through - Take a close look at unit - Complete Front End Analysis

2. Revise Policy

   a. Allow advanced placement for high pre-test scorers or exempt where applicable
   b. Provide remedial work as required
   c. Look at objectives for Unit 2 - May not be consistent with the job-standards. May be too high - May require different delivery system
   d. Look at sequence - May want to place Unit 3 first, then Unit 1, then Unit 2 if there is a potential for transfer of learning
   e. Use control groups to identify problem area - Select by random sample

Sample Answer (3;

External Evaluation Plan

A. Data Sources

1. Baseline data from tryout of TLO's
2. Commanders and supervisors
3. Evaluation team (field trips)
4. Job incumbent of graduates
5. Graduates of an existing course

B. What Data Are Required

1. On-the-job performance after graduation
2. Improvement in on-the-job performance after new course (comparison of previous graduates with new graduates)
3. Change in OJT training requirements (old vs new)
4. Recommendations for change in instruction

C. When External Evaluation Will Take Place

Within 30-90 days after graduation - Continuous process for sample of students from each class

D. Data Collection Methods

1. On-site administration of JPM
2. CODAP/MODB
3. Questionnaires
4. On-site or telephonic interviews of commanders and supervisors

***

4. (con't)

c. All data sources indicate that the instruction in Unit 3 is too easy; everyone seems to know most of the tasks prior to instruction. The entry level line established for the learning objectives of many of those tasks must be raised. This will eliminate training on many objectives.

Sample Answer

Interpretation of Data:

1. Baseline data for Unit 2 indicates satisfactory performance on old instructional system.
2. Graduates in general reflected dissatisfaction with level of training in Unit 2.
3. Based on student comments and attitudes reflected in INER, Unit 2 does not reflect real-world requirements.
4. Supervisor comments bear out #3.

Recommendations:

Apparent discrepancy identified between training needs and actual training provided. Analyze job with respect to stock inventory system and revise Unit 2 as necessary.

Provide Unit 4 (computer inventory system) for trainees successfully passing entry test for Unit 3 and high pretest on #3.

***

5. Each item on the revision plan format given in Figure V.16 of Block V.3 should be complete. The primary emphasis should be on the appropriateness of the revision plan based on the data and assumptions.

(See Sample Answer, pages 11 and 12.)

6. Job performance is inadequate. Changes in job requirements. Changes in entry behavior of students.

7. Not as much chance as on the first and second time. There is a point at which further improvement in any one factor (time, cost, effectiveness, etc.) gets more and more difficult and expensive.

8. No, the ISD process never stops. The reasons are given on page 83 of Phase V.

Sample Answer (5)

Revision Plan for Flight Operations Specialist Course

1. Training Requirements:

   a. Total number: 250 per year (10 classes of 25 each)
   b. Degree of proficiency: Adequate performance on JPM within 90 days after graduation.
   c. MOS: 71P

2. Costs:

   a. Institutional: $1250 per student
   b. OJT: 350 per student
   c. Total: $1600 per student

3. Reason for Revision:

   a. Based on external evaluation
   b. Shift training burden from unit to institution at an overall savings.

4. Details of Deficiency: Graduates unable to perform at an acceptable level on JPM. EXER report indicates that equipment in sufficient quantities is not available to support FOJT program. Also lack of qualified supervisors. Change in job requirements.

5. Deficiency in Present Course:

   a. CPU-26 computer not taught in present course

6. Recommended Changes:

   Develop unit on CPU-26 computer based on reports from field evaluation teams and CCDAP. Delete unit on terminal weather reports and develop JPA and/or STEP.

   a. Estimated Cost of Revision: Increase in instructional costs of $150 per student for instructional materials & instructor time. No additional costs for student TDY since course length will not be changed. Potential unit savings of $250 per student through elimination of FOJT program for computer.

   b. Time Schedule: See internal evaluation plan

   c. Impact: No major impact on course length. No increase in instructor spaces.

   d. Personnel Requirements: No change

Sample Answer (5) (con't)

7. Estimated Costs:

a.	Institutional:	$1400 per student (increase of $150)
b.	Unit:	100 per student (decrease of $250)
c.	Total:	$1500 per student (estimated savings of $100 per student)

8. Alternative Plans Considered: FOJT program supplemented by STEP. Based on lack of supervisor, difficulty of material, and availability of resources, resident school plan seems better.

9. Future Requirements: Outlook is stable. No anticipated changes in job.

10. Probable Results if Course Not Revised:

    a. Less than adequate performance for on-the-job performance of graduates.
    b. Dissatisfaction with school product on part of commanders.
    c. Poor unit performance on ARTEP evaluation.
    d. Poor individual performance on SQT.

11. Assumptions:

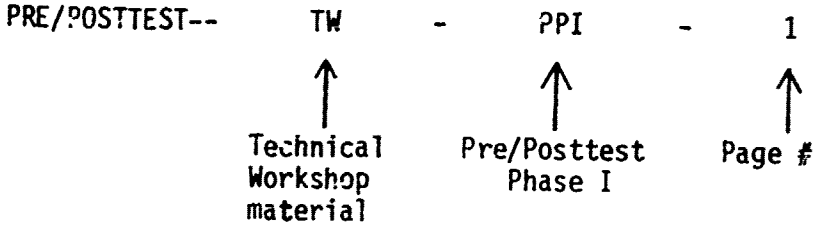
    a. Baseline data has been collected.
    b. Funds are available for External Evaluation.
    c. Current CODAP reports are available.
    d. Previous course not developed using ISD.
    e. JPMs for the job will be developed.

***

APPENDIX A

PRE/POSTTESTS AND ANSWER KEY

The multiple-choice pre/posttests have a coded page number in the upper left-hand corener which designates that they are Technical Workshop materials and which phase of the IPISD Manuals they cover.



For example, TW-PPIII-3, is the third page of the pre/posttest material for Phase III of the IPISD Manuals. When these tests are grouped according to phases they serve as the pretests for the workshop.

These tests can also be broken down into tests which cover a particular modules. They are then used individually as posttests for module assignments.

PHASE	MODULE
Phase I:	Module 1 Module 2 Module 3 Module 4
Phase II:	Module 5 Module 6
Phase III:	Module 7 Module 8 Module 9 Module 10
Phase IV:	Module 11
Phase V:	Module 12

The answer keys list the answer for each question and, where applicable, the page number of the manual where the answer may be found. Some questions will not have a specific page reference as they are general questions covering a broad area of the manuals.

The copies of the pre/posttests contained in this appendix are to be used as masters for duplicating material for the workshop. Close security on these tests and on the answer keys should be maintained.

MODULE 1

DIRECTIONS: Using the answ sheet provided for recording your responses, choose the most appropriate answer for each item.

1. In order to develop adequate training for a job, you must find out:

   a. What major duties the job includes:
   b. What tasks make up the job.
   c. Where the job holde s will be loacted.
   d. All of the abcve.

2. The first step in the ISD process it to:

   a. Analyze exi ting courses.
   b. Identify the discrepancy between present training and present or future needs.
   c. Determine a budget allocation system.
   d. Formulate a set of tasks for training.

3. Which does not describe a job?

   a. Jet transport pilot
   b. Radar technician
   c. Bomb defuser.
   d. Military policeman

4. Which of the following statements is false?

   a. Tasks are performed in relatively short periods of time.
   b. Tasks are dependent on other tasks.
   c. A task is observable.
   d. A task is a statement of action.

5. Which of the following is not documented in a job analysis?

   a. Conditions
   b. Cues
   c. Standards
   d. Times

6. Which data collection method is likely to be best in analyzing a new job?

   a. Group interviews
   b. Library search
   c. Jury-of-experts
   d. Individual and observation interviews

7. Questionnaire surveys should sample:

   a. As large a group as possible or at least 3,000 individuals in a very large DOS.
   b. All job holders at selected stations.
   c. Everyone who knows about the job.
   d. Only the most expert job incumbents.

8. A validated task list:

   a. Contains only tasks selected for training.
   b. May still contain tasks requiring no training.
   c. Is useful only in job analysis.
   d. Should be sent to each individual interviewed.

9. Task delay tolerance refers to:

   a. How long you can put off teaching the task.
   b. The length of time to do the task.
   c. The tolerable delay between the initiating cue and the task performance.
   d. The length of delay tolerable between teaching the successive elements that make up a task.

10. Consolidating data to select tasks for tarining is for the purpose of:

    a. Comparing incumbent and supervisor responses.
    b. Helping you to select what tasks should be trained.
    c. Eliminating prior documentation materials.
    d. Insuring that the information can be computer processed.

11. In selecting tasks for training some tasks may be deleted because:

    a. They would cost too much to train.
    b. They don't need to be trained.
    c. Nobody could do them even if they were trained.
    d. They are not tasks at all, but are elements of tasks.

12. Management inputs and approvals are an essential part of tasks for training because:

    a. This "makes it official."
    b. You are more likely to get all the resources you need if you get management involved.
    c. The final selection of tasks for training will depend on management resource and need assessments.
    d. Management will rank order tasks for you so you can select them for training.

MODULE 2

DIRECTIONS: Using the answer sheet provided for recording your responses, choose the most appropriate answer for each item. Begin with number 13 on your answer sheet.

13. A JPM is said to have good "predictive validity" if:

    a. It accurately predicts what tasks can be trained.
    b. Those passing the JPM can perform the task adequately.
    c. It predicts the validity of each task in a job.
    d. Those performing the task can predict the measurement methods used.

14. If predictive validity cannot be assured, then:

    a. A JPM should have high physical fidelity.
    b. A JPM should have low physical fidelity.
    c. The task should be measured by a JPT.
    d. Someone wrote the JPM incorrectly.

15. Which task would most likely have a JPM with high predictive valicity?

    a. Typing requisitions
    b. Disposing of a live hand grenade
    c. Launching an ICBM
    d. Stopping arterial bleeding

16. A multiple task is:

    a. A task among a sequence of dependent tasks.
    b. A task with a number of possible inputs.
    c. A task that is done repeatedly.
    d. A task with more than one element.

17. Task performance may be measured:

    a. For adequacy.
    b. For appropriateness.
    c. By more than one JPM.
    d. All of the above.

18. All JPMs must measure:

    a. A product.
    b. A process.
    c. Both a and b.
    d. Either a or b, or both.

19. JPM cues should be:

    a. Critical.
    b. Always identical to on the job cues.
    c. Realistic, especially critical cues.
    d. Given without warning.

20. JPM standards are:

    a. Applied to all persons taking the test.
    b. Never specified in advance.
    c. Necessarily high.
    d. Always objective.

21. Which is not a JPM scoring procedure?

    a. Product rating
    b. Checklist
    c. Scales of performance
    d. Random assessment technique

22. JPM rating errors include:

    a. Errors of standard.
    b. Errors of management.
    c. Errors of halo.
    d. Both a and c.

23. A validated JPM:

    a. Has proven predictive validity and/or physical fidelity.
    b. Has demonstrated its cost-effectiveness.
    c. Is used to find rating errors.
    d. Is exactly the same as a verified JPM.

24. JPMs should test performance under consitions that:

    a. Are as bad as possible.
    b. Would make a difference in performance.
    c. Are similar to those in the classroom.
    d. Are not to be encountered on the job.

25. A new JPM should be tried out:

    a. On every student to validate it.
    b. On a few job holders to uncover any difficulties.
    c. Before any instruction is given.
    d. To generate instructional objectives.

26. A JPM checklist is:

    a. A list of JPMs yet to be taken.
    b. An aid for a person to use during a task.
    c. A list of observable elements used in rating performance.
    d. A device for determining that JPMs are valid.

MODULE 3

DIRECTIONS: Using the answer sheet provided for recording your responses, choose the most appropriate answer for each item. Begin with number 27 on your answer sheet.

27. Existing courses should be analyzed:

    a. To avoid duplication of effort.
    b. To possibly save resources.
    c. To use as a temporary expediency.
    d. All of the above.

28. When analyzing existing courses your primary concern is:

    a. How much money can be saved by adoption.
    b. Whether it will teach the required performance.
    c. Whether it was developed in your command.
    d. What JPAs are available.

29. Job analysis data for an existing course may not be acceptable because:

    a. It may be obsolete.
    b. It may not have been collected correctly.
    c. Both of the above.
    d. None of the above.

30. In adapting an existing course:

    a. Adopt its JPMs as well.
    b. Examine its JPMs for useability.
    c. Ignore the JPMs and write your own to assure quality.
    d. Revalidate the course only if the student populations are different.

31. What must you find out about an existing course that will indicate whether or not the course would be suitable for your use?

    a. That the course was ISD'd.
    b. All Phase I steps were done with a population similar to your intended population.
    c. That the content is the same.
    d. That the course has more tasks for training than you need.

MODULE 4

DIRECTIONS: Using the answer sheet provided for recording your responses, choose the most appropriate answer for each item. Begin with number 32 on your answer sheet.

32. Which of the following is not a description of an instructional setting?

a. Formal On-the-Job Training
b. Installation Support School
c. Memphis Naval Air Station
d. Resident School

33. Which of the following is a JPA?

a. Tool kit
b. Troubleshooting and repair manual
c. Repair record form
d. Exhaust gas analyzer

34. STEPs may eliminate:

a. The need for an instructor's presence.
b. Feedback to the student.
c. Self-study.
d. All of the above.

35. FOJT would least likely be used in:

a. Radar repair.
b. Parachuting.
c. Clerical work.
d. Jet engine overhaul.

36. Clustering tasks is done with regard to:

a. Conditions and constraints that would influence setting selection.
b. Skill and rank of the trainees.
c. Personnel and equipment needs for instruction.
d. All of the above.

37. Which of the following would reduce the chances of using a JPA without training?

a. Task requires only a simple set of procedural steps.
b. Task requires great physical skill.
c. Task is always done in an office with pencil and paper.
d. Task is only done rarely.

38. STEPs should probably not be selected in training tasks:

    a. That are primarily intended for individual instruction.
    b. Where close supervision is required.
    c. Both a and b above.
    d. None of the above.

39. Where large groups of individuals must be taught the same thing at the same time, which of the following can often provide effective, efficient training?

    a. Resident School
    b. Formal On-the-Job Training
    c. Job Performance Aids
    d. Work experience

40. A task may be assigned to:

    a. Group instruction.
    b. Both RS and FOJT.
    c. Only JPAs as instruction.
    d. All of the above.

41. The factors you primarily should consider when you recommend where training should be conducted are:

    a. Training time, difficulty, task complexity.
    b. Decay rate, supervision, resource constraints, task conditions.
    c. Existing courses, availability of simulators, number of instructors.
    d. Climate, intelligence of students, investment/return rate.

42. Which setting is likely to have the most instructional resources?

    a. JPA
    b. STEP
    c. RS
    d. FOJT

43. Which of the following is likely to be the least expensive setting for training tasks which are suitable for all settings?

    a. JPA
    b. STEP
    c. RS
    d. FOJT

44. The decision on where to train has traditionally been made by:

a. A cost-effectiveness analysis.
b. Training managers.
c. The Resident School.
d. A Jury-of-Experts.

MODULE 5

DIRECTIONS: Using the answer sheet provided for your responses, choose the most appropriate answer for each item.

1. Learning objectives (LOs):

   a. Are based on JPMs.
   b. Describe what students will learn to do.
   c. Both a and b.
   d. None of the above.

2. LOs and Terminal learning objectives (TLOs) should be written with three parts:

   a. Action, noun, condition.
   b. Action, condition, standard.
   c. Subject, action, standard.
   d. Subject, verb, requirement.

3. The first step in developing objectives is to:

   a. Prepare and document TLOs.
   b. List the necessary learning steps.
   c. Validate the JPMs.
   d. Determine student entry behavior.

4. Which is <u>not</u> a criterion of LOs and TLOs?

   a. Must be stated in learner (not teacher) terms.
   b. Must specify an overt act as evidence of learning.
   c. Must state a standard against which student behavior is measured.
   d. Must state precisely what steps the teacher must take to prepare the student.

5. The four learning categories are:

   a. Physical skill, information, attitude, mental skill.
   b. Verbal skill, quantitative skill, manual skill, mental skill.
   c. Information, communication, execution, resolution.
   d. Quantitative, qualitative, oral, written.

6. Which is not a suitable TLO "condition"?

   a. Within one second
   b. Under water
   c. Given an M16A1 rifle
   d. Using a mark 5 transit

7. Which is not a type of standard for an LO?

   a. Referring to SOP
   b. Implying no error
   c. Specifying what is done
   d. Specifying product quality

8. Which action reveals attitudes?

   a. Recalls
   b. Classifies
   c. Chooses
   d. Adjusts

9. Learning analysis breaks TLOs down into:

   a. Steps, elements, and motions.
   b. LOs and learning steps (LSs) necessary for TLO mastery.
   c. The instructional procedure.
   d. Their fundamental characteristics.

10. In mental skills learning analysis, a learning hierarchy:

    a. Identifies subskills needed.
    b. Is of little use since it concerns information.
    c. Ranks learning by category.
    d. Simplifies decision making for the student.

11. In information learning analysis you are not concerned with:

    a. Listing facts the student must learn.
    b. Developing memory devices for information.
    c. Eliminating from instructional consideration any facts the students already know.
    d. Information which can be "stated".

12. A physical skills learning analysis specifies:

    a. The amount of strength and coordination needed to perform a task.
    b. The individual movements and sequencing of movements necessary to form a total skill.
    c. The information and mental skills required to perform the physical skills.
    d. All of the above.

13. In attitude learning analyses you should:

    a. Observe the attitudes needed for a task.
    b. List the knowledge needed to form good attitudes.
    c. List the things a person would do or say to indicate the desired attitude.
    d. All of the above.

14. The purpose of the "conditions" part of the objective is:

    a. To allow analysis of a job product.
    b. To describe the time limit on task performance.
    c. To define the task performance process.
    d. To describe the tools and aids and the physical environment present during task performance.

15. The purpose of the "standards" part of the objective is:

    a. To make similar tasks identifiable.
    b. To describe acceptable task processes and products.
    c. To define standard operational procedures.
    d. To describe the beginning and ending points of a task.

16. How detailed a test should be depends on:

    a. How long the course lasts.
    b. The use for which it is intended.
    c. The scoring method.
    d. Which tasks are most important.

17. In using written tests for non-writing tasks, the main disadvantage is:

    a. The artificial initiation and termination cues.
    b. Cheating is possible.
    c. It takes much longer to score.
    d. The test can never be very accurate.

18. Scores on mental skills tests should be distributed:

    a. Evenly across all response options.
    b. With distinct clusterings of students' scores.
    c. With most people doing worse than average.
    d. Any of the above should be expected.

19. The problem with testing information is:

    a. Setting standards due to lack of job criterion.
    b. Sampling due to large amount of information.
    c. Both a and b.
    d. Neither a nor b.

20. In testing physical skills you should set TLO test standards:

    a. As high as possible.
    b. Very low for new learners.
    c. At an intermediate level.
    d. To match the JPM.

21. It is best to test attitudes by:

    a. Observing student behavior for evidence.
    b. Using a polygraph during the TLO test.
    c. Giving the student a multiple choice test.
    d. Having the student list examples of good and bad attitudes.

22. In which case should standards be low enough to be attainable and high enough to be an interesting challenge?

    a. TLO test
    b. Within training
    c. Job
    d. JPM

23. A false positive is exemplified by:

    a. A failing student who may be able to perform the task.
    b. A "yes" answer to a false question.
    c. A graduate marksman who can't adjust a rifle sight.
    d. Affirmation that a "false" response is correct.

24. In order to rank order students by performance you will need:

a. A criterion and a distribution producing test.
b. A reliable test and the highest score on record.
c. A novice and an expert to take a ranking test.
d. An extremely large number of students.

25. In setting cut off scores remember:

a. The higher the better.
b. It is the TLO that is most important.
c. A score of 70% is passing.
d. The LOs completely determine job performance.

26. The term "fidelity" as used in testing means:

a. Test results predict job results.
b. The degree to which the test situation "looks like" the job situation.
c. The honesty of the answers given concerning attitudes.
d. The similarity in time and/or quality between a learner's performance and an incumbent's performance.

MODULE 6

DIRECTIONS: Using the answer sheet provided for your responses, choose the most appropriate answer for each item. Begin with number 27 on your answer sheet.

27. Which of the following includes the skills, information, and attitudes that an individual possesses at the time he comes for instruction?

a. Aptitude
b. Knowledge
c. Entry behavior
d. Baseline ability

28. The external systems requirements which state minimum entry behavior are:

a. Rank, security clearance, criminal record.
b. Age, height, vision.
c. Aptitude, degrees, language ability.
d. Any of the above.

29. In order to verify or revise your list of learning objectives and their test you should:

a. Test a sample of the population with the LO test items to determine the degree of match between the LOs and the entry behavior.
b. Do a summative evaluation after the training period and then make any needed improvements.
c. Both A and B above.
d. Neither A nor B above.

30. A test of students entry behavior may result in:

a. Further learning analysis.
b. Deletion of some of the learning objectives.
c. Either A or B above.
d. Neither A nor B above.

31. Instruction should begin at the point that matches the entry behavior of:

a. All prospective students.
b. Most prospective students.
c. Some prospective students.
d. None of the above.

32. An entry test is needed:

a. When deficient students will be given remedial instruction before the course begins.
b. To determine if incoming students abilities have increased over time.
c. To determine if some students need only part of the course.
d. When external requirements of the system equal or exceed those for course entry.

33. An entry test compares to a pretest in that:

a. An entry test is much longer.
b. An entry test contains only entry level objectives but a pretest covers the course.
c. Both A and B above.
d. Neither A nor B above.

34. Pretests can be for:

a. Internal course evaluation.
b. Determining if student entry behavior is changing over time.
c. Indicating that some students should jump ahead to save time and resources.
d. All of the above.

35. A post-test may be:

a. An alternate form of a test.
b. More detailed than a test.
c. Either A or B above.
d. Neither A nor B above.

36. Which of the following rules apply to sequencing of instructions?

a. Supportive objectives should be placed close together.
b. Independent objectives may be placed in any order.
c. Dependent objectives must be presented after prerequisite instruction.
d. a,b, and c
e. a and c

37. The purpose of sequencing learning objectives is to:

a. Place objective in an optimum sequence of presentation.
b. Produce the most learning in the shortest time.
c. Both of the above.
d. None of the above.

38. Sequencing LOs with dependent relationships is simplified by:

a. A good learning hierarchy.
b. A good pretest.
c. Interview data from job incumbents.
d. Consulting the course instructors.

39. "Fly an F5B" has a _____ relationship to "Fly an F4E".

a. Dependent
b. Independent
c. Supportive
d. None of the above

40. Sequencing LOs which are supportive causes _____ when done correctly.

a. Enthusiasm
b. Skill
c. Dependency
d. Transfer

41. One basic sequencing rule is to place two learning objectives close together in the learning sequence when:

a. One learning objective is dependent on the other.
b. There is a supportive relationship between the two learning objectives.
c. The learning objectives are independent of each other.
d. The learning objectives are "common factor" objectives.

42. Which of the following is not true of sequencing?

a. Sequencing is important to low aptitude students.
b. Sequencing is important to redundant materials.
c. Sequencing effects are long range.
d. Sequence is important with unfamiliar materials.

43. Sequencing is least important to objectives with:

    a. Independent relationships.
    b. Dependent relationships.
    c. Supportive relationships.
    d. Common factors.

44. Common element LOs generally should be sequenced:

    a. Toward the end of the course.
    b. Toward the beginning of the course.
    c. With wide separation.
    d. After all of the dependent LOs.

45. Objectives may be grouped by:

    a. Their relationship to each other.
    b. Their relationship to the original grouping of tasks.
    c. Both A and B above.
    d. Neither A nor B above.

46. Grouping of LOs:

    a. Should be well done because once decided on, the sequence groups are unalterable.
    b. Will undoubtably change the sequence.
    c. Is to help clarify the program.
    d. Is seldom necessary for complex tasks.

47. You would develop a test of entry behavior:

    a. Based on the learning analysis.
    b. Based on assumptions about the intended students.
    c. Based on trials on the intended students.
    d. a, b, and c
    e. a and c

MODULE 7

DIRECTIONS: Using the answer sheet provided for recording your responses, choose the most appropriate answer for each item.

1. Learners should be informed of TLOs because:

   a. It helps them meet the objectives.
   b. It makes them take pretests.
   c. It satisfies their natural curiosity.
   d. It prompts their activity.

2. Choose the false statement.

   a. Students learn faster through active practice.
   b. Skills are improved during learning through practice.
   c. Watching demonstrations is effective practice.
   d. Retention of learning is improved by practice.

3. Which is true of prompting?

   a. Cues or prompts before performance eliminate time wasting trial and error.
   b. Cues can be used before or during practice.
   c. Both of the above.
   d. Neither of the above.

4. Feedback is letting the student know all but which of the following?

   a. What he is doing wrong.
   b. How he can improve his performance.
   c. What he is doing right.
   d. How others are performing.

5. Natural feedback:

   a. Is present during learning and on the job.
   b. Is supplied by the instructor.
   c. Is present only during learning.
   d. Must be carefully planned.

6. The most appropriate form of artificial feedback is:

   a. Complete.
   b. Immediate.
   c. Specific.
   d. All of the above.

7. The mental skill learning categcry has several sub-categories. Which of the following is not one?

   a. Classifying-recognizing patterns.
   b. Recalling bodies of knowledge
   c. Identifying symbols
   d. Rule learning and using

8. Voice communicating is a sub-category of the _____ learning category.

   a. Mental skill
   b. Information
   c. Physical skill
   d. Attitude

9. "Distinguish" and "monitor" are two of the action verbs which might be used in a learning objective in the _____ sub-category.

   a. Detecting
   b. Recalling bodies of knowledge
   c. Rule learning and using
   d. Steering and guiding continuous movement

10. If a learning objective doesn't seem to fit very well into any one sub-category:

    a. It may not be specific enough.
    b. It may be better broken into two objectives.
    c. Both of the above.
    d. Neither of the above.

11. Using learning guidelines or flowcharts will result in:

    a. Essentially the same learning activity selection.
    b. Two different approaches to teaching which suit particular tasks.
    c Confusion, since only one or the other should normally be used for any one course.
    d. Error, since they must be used together.

12. A learning activity is:

    a. Something done during instruction that is specific to a particular LO.
    b. Anything a student does during instruction or testing.
    c. Active practice to help the student learn.
    d. An objective describing a physical activity task.

13. In order for various LOs to be met:

    a. The same learning activities are required for all LOs.
    b. Students must be shown correct performance until they learn it.
    c. Appropriate learning activities are recommended in order to meet different objectives.
    d. The learning steps must be repeated in the proper sequence until they are learned.

14. Which of the following is <u>not</u> a consideration in specifying learning activities?

    a. Cost of materials for media alternatives
    b. TLO conditions
    c. TLO standards
    d. Ability to test performance of the activities

15. In flowcharting, the symbol  means:

    a. Inputs
    b. Start
    c. Outputs
    d. Decision

16. Learning guidelines are used in ISD:

    a. To improve learning effectiveness.
    b. To decrease learning time.
    c. To permit appropriate learning activities.
    d. a, b, and c.

17. Which of the following is <u>not</u> a general learning objective?

    a. Provide for an adequate amount of trial and error.
    b. Inform the learner of the objectives.
    c. Provide active practice.
    d. Provide feedback to the learner.

MODULE 8

DIRECTIONS: Using the answer sheet provided for recording your responses, choose the most appropriate answer for each item. Begin with number 18 on your answer sheet.

18. In selecting media for learning activities you should:

    a. Identify stimulus criteria, select media which meet these criteria and then use the best two or three.
    b. Identify stumulus criteria, select media which meet these criteria and then use those which are cheap, available, and apply easily to your particular situation.
    c. Either a or b.
    d. Neither a nor b.

19. An instructional delivery system is:

    a. Either printing, sound, or pictures (movies).
    b. The media pool selected for a course.
    c. A specified mode of course operation based on management, schedule, media and setting.
    d. A simulator or teaching machine and its associated courseware.

20. Block scheduling of instruction is appropriate when:

    a. The course content is highly stable and the course is expected to have a long life.
    b. Group interaction is a desired instructional outcome.
    c. Both a and b.
    d. None of the above.

21. An important consideration when developing a System Master Plan is:

    a. Once the plan is made, changes should not be permitted.
    b. That the plan need not be too detailed if the instructional setting is FOJT.
    c. That the plan will serve as a basis for finding discrepancies in course implementation.
    d. That the plan should not duplicate items already included in the instructional management plan.

22. An instructional management plan is:

    a. A description of course objectives and the learning activities for each.
    b. A work assignment for each instructor.
    c. A flexible course-oriented cost-accounting system.
    d. A set of procedures used to assure a smooth flow of students through the system.

23. Required stimulus criteria are:

a. The need for exciting learning activities associated with critical learning objectives.
b. The qualities or capabilities of a medium that are required to carry out the intent of a learning activity.
c. Criteria of proper student response during a learning activity.
d. Used by the instructor to select proper teaching methods.

24. The Learning Objective Analysis Worksheet contains spaces for:

a. Learning category and activities, and media selection criteria.
b. Media pool and selection rationale.
c. Both a and b.
d. None of the above.

25. Per amount of instruction, which costs <u>least</u>?

a. Sound film - 16mm
b. Television - 1 inch video tape
c. Still photo prints - color
d. Silent film - 8mm

26. A medium which satisfies your required stimulus criteria may be impractical for many reasons. Which of the following is <u>not</u> one of these reasons?

a. Time needed for production
b. Cost is too high
c. Does not present a stimulus in sequence
d. Medium is still under technical development

27. A student self-paced management plan:

a. Precludes the possibility of group meetings.
b. Is preferred (where possible) in ISD.
c. Is usually less effective than block scheduling.
d. Is not recommended in ISD.

28. The IPISD Manuals recommend that:

a. Block scheduling be used when individual experiences are expected to vary.
b. Group-paced instruction be used when appropriate.
c. Individualized instruction be used.
d. Self-paced instruction be used when the content changes frequently.

29. A System Master Plan is <u>not</u> required for which of these settings?

a. FOJT, RS
b. ISS, RS
c. OJT, JPA
d. FOJT, ISS, RS

MODULE 9

DIRECTIONS: Using the answer sheet provided for recording your responses, choose the most appropriate answer for each item. Begin with number 30 on your answer sheet.

30. Which is not often an advantage of using off-the-shelf (existing) instructional materials?

a. They often cost less than new materials.
b. They are often useable or adaptable to your course quite quickly.
c. They may teach the task better than the materials that could be made.
d. Their use may avoid unnecessary duplication of effort.

31. When reviewing existing instructional materials to decide whether to use them or produce new materials, a primary question is:

a. Which tasks should be taught?
b. Are the tasks being taught properly?
c. How was the course developed?
d. Who developed the course?

32. A practical way to select existing materials for use is:

a. To eliminate all materials except those that are appropriate to your LOs, learner characteristics guidelines, and management plan.
b. Try out all available materials and see which of them work best with students.
c. Both a and b.
d. None of the above.

33. When collecting existing materials for review, you should stop collecting when:

a. You have all of the materials you can find expediently.
b. You find something that will work.
c. You have 25 or 30 materials.
d. None of the above.

34. In considering whether to alter existing materials to suit your course needs better:

a. Make sure there is a long term use for them.
b. Consider their condition.
c. Remember, deletion is simpler than addition.
d. All of the above.

35. If you find materials that are satisfactory for most students, but difficult for some, you should:

    a. Use them only with good students.
    b. Prepare some remedial materials if possible.
    c. Do not use them.
    d. Revise them to make it simpler

36. The Learning Guidelines are useful in selection of existing materials in that:

    a. Materials that violate the guidelines can be eliminated immediately.
    b. The Guidelines state what the materials are in advance.
    c. They describe the amount of learning guidance required.
    d. Existing materials are consistent with learning guidelines.

37. If existing materials are found that satisfy your course needs but don't conform to your selected delivery system:

    a. You should use them anyway.
    b. Eliminate them from consideration.
    c. You may be able to modify them inexpensively.
    d. It is unlikely that they will be useful in any way unless they are "still visual".

38. Usually, the existing materials collected bear what relationship to the course management plan?

    a. They will fit "as is".
    b. They will require substantial modification.
    c. They will be unsuitable altogether.
    d. They will bear no relationship.

39. Revisions in existing materials consisting of deletions and/or additions should be done by:

    a. The instructor concerned.
    b. A subject matter expert.
    c. A media specialist.
    d. Any of the above.

40. The principal aim of this block in the ISD procedures is to:

    a. Save time.
    b. Save money.
    c. Avoid duplication of effort.
    d. All of the above.

41. The critical factor of success in accomplishing the work required in this block is:

    a. The dollar value of the selected materials.
    b. The time required to use the selected materials.
    c. The student acceptance of the selected materials.
    d. The appropriateness of the selected materials to the course.

42. The final step in selecting materials is:

    a. Obtaining command approval.
    b. Acquiring enough copies to meet local needs.
    c. Approval of a subject matter expert.
    d. Obtaining satisfying results in student tryouts.

43. Instruction need not be prepared if:

    a. A platform lecture is to be used.
    b. Formal On-the-Job Training is to be used.
    c. Both a and b.
    d. Neither a nor b.

44. "Developing" materials should be first tried on students:

    a. As soon as a draft lesson is completed.
    b. After it has been approved by a subject matter expert.
    c. As soon as there is a draft of a meaningful unit.
    d. After the course is assembled as a whole.

45. Such items as the target population description, testing information, and instruction description should be:

    a. Included in the instructor's guide.
    b. Made a part of the instruction.
    c. Included in the student's guide.
    d. Prepared after the first course session.

46. Which of the following are <u>not</u> likely to be involved in the development of instructional materials?

    a. Job incumbents
    b. Subject matter experts
    c. Media specialists
    d. Writers

47. The most valuable inputs for beginning the development of instructional materials will be found:

    a. In the mind of the developer.
    b. On the Learning Objective Analysis Worksheet.
    c. In the front end analysis documentation.
    d. In the feedback from successful materials.

48. In preparing video materials, a storyboard is:

    a. The title or subtitle print.
    b. A live or recorded audio adjunct.
    c. A picture containing a written paragraph.
    d. A sketch of what is to be shown.

49. In programmed instruction, a frame is:

    a. A unit of information and questions on it.
    b. A single photograph or drawing.
    c. One aspect or point of view of a topic.
    d. A single rule or example of something.

50. An adjunct program:

    a. Is a different way of teaching than any other.
    b. Is a test and feedback technique.
    c. Uses special directions to guide a student to specific parts of existing instructional materials.
    d. Reduces the amount of teacher preparation needed to validate an instructional program.

51. In describing a JPA;

    a. Each step in the procedure should consist of several movements to promote memorization.
    b. Use the shortcuts that the experts use.
    c. Each step should contain one operation or movement.
    d. Each step should have a description of why a certain operation or movement is performed.

52. To do a good job of designing an FOJT program you will need:

    a. A thorough task analysis and the help of a subject matter expert.
    b. The resident school documentation for the task.
    c. A media expert and the results of the task analysis.
    d. Time to verify the design through twenty or thirty iterations.

53. Job Performance Aids should not be used when:

    a. The behavior sequence is long and complex.
    b. Task delay tolerance is very low.
    c. The tasks are rarely performed.
    d. The task must be performed from memory.

54. Which of the following is not true of FOJT progra ?

    a. STEPS may be effectively used.
    b. RS instruction should normally follow.
    c. Media is rarely used.
    d. JPMs should be used.

55. The first draft of instruction or materials should:

    a. Be as complete as possible.
    b. Contain the minimum possible instruction.
    c. Contain as much instruction as possible.
    d. Resemble existing materials and lessons.

56 The design objective of instruction is:

    a. Design the best possible instruction.
    b. Design average instruction.
    c. Design effective instruction at minimum cost.
    d. Design instruction most preferred by students.

MODULE 10

DIRECTIONS: Using the answer sheet provided for recording your responses, choose the most appropriate answer for each item. Begin with number 57 on your answer sheet.

57. Validation of instruction should begin:

    a. As soon as a meaningful segment of material is complete.
    b. As soon as you are reasonably sure the instruction is correct.
    c. When you think you have enough instruction to insure that the desired behaviors will be learned.
    d. As soon as you get a clear idea of what the instruction will be like.

58. Instruction that is being validated should be designed to be:

    a. Clearly acceptable.
    b. Acceptable.
    c. Clearly unacceptable.
    d. Barely unacceptable.

59. The most effective validation method is to:

    a. Have an expert observe the instruction as it takes place and tell you what needs to be changed.
    b. Try it out on members of the target population and revise it until it works.
    c. Both a and b.
    d. None of the above.

60. During validation you should collect:

    a. Only the data you intend to use.
    b. Both student attitudes and test data.
    c. All the data you can get from a trial.
    d. Both b and c.

61. The subject selected for an individual validation trial should be:

    a. Reasonably expert in the subject matter area.
    b. An individual who has the proper attitude toward ISD.
    c. A member of the target population.
    d. Anyone who doesn't know the material yet.

62. By inspecting the operation of a course you can not tell:

a. What the objectives are.
b. That the tests match the learning objectives.
c. That the instruction is valid.
d. That it is being taught well.

63. The effectiveness of instruction as it is being developed is best judged on the basis of:

a. Consensus of the developers.
b. A subject matter expert's judment.
c. Comparative analysis with successful courses.
d. Trials on students.

64. Instruction is subjected to the validation process because:

a. Student performance is only indirectly observable.
b. It is the only process to insure that instruction works.
c. Validation is a valuable documentation for the design of successive courses.
d. It determines when initial development of the course is over.

65. A learning objective rating sheet is used to:

a. Determine the difficulty of learning objectives.
b. Identify a chart for determining minimum and maximum sample sizes.
c. Rate attitudes.
d. All of the above.

66. Platform lectures already in use:

a. Are not subject to validation.
b. Should be revised, if needed, and validated.
c. Are probably acceptable.
d. Should be replaced by self-pacing.

67. Formative evaluation is a:

a. Process for rating instructors.
b. Process for grading student performance.
c. Process for evaluating instruction.
d. Method of test design.

68. Which of the following is the only known way to insure the effectiveness of instruction?

a. Rank ordering students
b. Validation
c. Evaluating instructors
d. None of the above

69. Instruction which greatly exceeds the requirements for effectiveness is:

a. Readily detected by inspection.
b Always shows up during tryout.
c. Extremely difficult to detect by measuring.
d. The most important requirement for students.

70. In order to insure that materials are effective in a course setting, they should be:

a. Tried on small groups first.
b. Tried on as many students as possible.
c. Tried out in their final form.
d. Revised after each student uses them.

71. If you establish a criterion on a test or performance measure of 90, this means:

a. That 90% of the students must pass the course.
b. That 90% of the students must pass the first time.
c. That 90% is considered to be a "pass" for that test.
d. That 10% attrition is acceptable.

72. If there are five objectives in a course, an 80% score on the posttest is acceptable if:

a. All of the errors are isolated to a single objective.
b. Errors are random.
c. 80% of the people pass it.
d. The designers have established the 80% criterion.

73. Whether one accepts or rejects the instruction being tested depends on:

a. The level of risk being accepted and student performance.
b. The number of students being tested.
c. The number of errors on each test.
d. The criterion score for passing each test.

74. Validation of lectures is difficult because lectures:

a. Do not permit self-pacing.
b. Often depend on outside exercises.
c. Are for motivation.
d. Affect student attitudes.

MODULE 11

DIRECTIONS: Using the answer sheet provided for recording your responses, choose the most appropriate answer for each item.

1. The beginning of implementation of the instructional management plan takes place:

   a. After preparing part of an internal evaluation plan but before beginning to conduct instruction.
   b. After beginning to conduct instruction and preparing an internal evaluation plan.
   c. Both a and b.
   d. Neither a nor b.

2. The instructor's manual may have to be supplemented prior to implementing instruction because:

   a. There probably will not be time to do it later.
   b. The learning objectives may have to be changed to meet local needs.
   c. The instructor's manual will not include the internal evaluation plan.
   d. The target population may have changed.

3. The role of the instructor is that of:

   a. Presenting the instruction.
   b. Managing the instruction.
   c. Both a and b.
   d. Neither a nor b.

4. The instructor should pay particular attention to:

   a. Why the learning objectives were selected.
   b. Why a particular delivery system was selected.
   c. How the performance tests should be administered.
   d. All of the above.

5. The instructor should document <u>all</u> changes from the original course plan because:

   a. The results of training might not be credited to the instruction that actually occurred.
   b. He deserved credit for improving the course.
   c. He may have to explain and defend his actions.
   d. Those who conduct external evaluation will need to know which graduates can be expected to perform well on the job.

MODULE 12

DIRECTIONS: Using the answer sheet provided for recording your responses, choose the most appropriate answer for each item.

1. The purpose of process evaluation is to:

   a. Inspect documentation of the course.
   b. Compare planned accomplishments with actual accomplishments.
   c. Determine whether each process is appropriate.
   d. Inspect and document the quality of the outputs of each block.

2. The responsibility for finding out whether a course meets planned objectives is assigned to:

   a. External evaluators.
   b. Internal evaluators.
   c. Course managers.
   d. Senior instructors.

3. Which of the following is <u>least</u> useful when obtained from students?

   a. Performance data
   b. Time data
   c. Perceived quality and preference data.
   d. Instructional improvement data

4. Which of the following are students <u>least</u> able to rate?

   a. Instructor's presentations
   b. Instructor's knowledge of the subject
   c. Instructor's demonstrations
   d. Instructor's appearance

5. A description of an unusual occurrance or problem in the instruction is called:

   a. A critical incident report.
   b. A student rating report.
   c. An instructor rating report.
   d. A report of progress.

ANSWER KEY

Phase I

Question	Answer	Page Ref.
MODULE 1		
1	d	2
2	b	3
3	c	8
4	b	15
5	d	
6	c	41
7	a	71
8	b	114
9	c	23
10	b	139
11	b	141
12	c	143-8
MODULE 2		
13	b	158
14	a	161
15	a	159-160
16	b	164
17	d	165
18	d	170-171
19	c	179
20	a	180
21	d	195-199
22	d	202-204
23	a	205
24	b	178
25	b	207
26	c	196
MODULE 3		
27	d	215
28	b	215
29	c	221
30	b	225
31	b	
MODULE 4		
32	c	231
33	b	233-4
34	a	235
35	b	237
36	d	243-5
37	b	248
38	b	
39	a	259

ANSWER KEY

Phase I
(cont.)

Question	Answer	Page Ref.
4C	d	
41	b	244-259
42	c	
43	a	
44	c	

ANSWER KEY

Phase II

Question	Answer	Page Ref.
MODULE 5		
1	c	1-3
2	b	5
3	a	
4	d	8-9
5	a	12
6	a	13
7	c	15
8	c	16-17
9	b	18
10	a	20
11	b	24-25
12	b	26
13	c	28
14	d	
15	b	
16	b	38
17	a	40
18	b	41
19		
20	d	44
21	a	45
22	b	47
23	c	51
24	a	53-54
25	b	55
26	b	
MODULE 6		
27	c	63
28	d	64
29	a	65-66
30	c	67-68
31	b	
32	a	70-72
33	b	72-73
34	d	73-74
35	c	
36	d	
37	c	80
38	a	82
39	c	83
40	d	87
41	b	87
42	b	89
43	a	90
44	b	92

18. Instruction certainly should be revised if:

    a. The established criteria are not being met.
    b. There is an excellent chance that it can be made more efficient.
    c. Both a and b.
    d. Neither a nor b.

19. The basis for revision should be:

    a. INER results.
    b. EXER results.
    c. Instructor feedback.
    d. Both a and b.

6. It is important to train instructors in ISD courses because:

   a. Many instructors are not accustomed to instruction emphasizing student performance rather than instructor performance.
   b. They may be required to operate unfamiliar equipment during the instruction.
   c. They must be completely competent with tests and testing procedures.
   d. All of the above.

7. One method used to avoid the practice of instructors teaching the tests is:

   a. Keeping tests secret.
   b. Having teaching and testing accomplished by different people.
   c. Having tests scored by different people.
   d. None of the above.

8. During internal evaluation, the instructor needs to document:

   a. Instructor problems, student questions, graduates' performance.
   b. Changes, times, graduates' performance.
   c. Times, student problems, instructor problems.
   d. The instructor is not required to document.

9. The kinds of data collected for evaluation are:

   a. All hard and soft data.
   b. Hard data only.
   c. Soft data principally.
   d. All data that are relevant and can be readily used.

10. When the EXER indicates a clear deficiency in student performance in the field:

    a. The instruction must be revised.
    b. The tests must be revised.
    c. Both tests and instruction must be revised.
    d. Revision will depend on the immediate needs of the field user.

11. System revision is usually undertaken by:

    a. Those responsible for the initial development of instruction.
    b. The normal quality control function.
    c. Those responsible for testing.
    d. Those who are directly related to areas requiring revision.

ANSWER KEY

Phase II
(cont.)

Question	Answer	Page Ref.
45	c	93
46	c	94
47	d	

12. The internal evaluator's responsibility is to:

    a. Determine which students should pass and which should remain for additional training.
    b. Determine if the instruction has met the requirements as measured by the tests.
    c. Both a and b.
    d. Neither a nor b.

13. The primary purpose of external evaluation is to:

    a Determine if the learning objectives are being met, and if not, why.
    b. Permit an impartial evaluation of the course content.
    c. Ensure that students do not graduate until they have received sufficient training.
    d. Determine if graduates can do the job for which they were trained.

14. External evaluation is donducted:

    a. Before the implementation of the instruction.
    b. During implementation of the instruction.
    c. Both a and b.
    d. Neither a nor b.

15. External evaluation data should be collected:

    a. Before training begins.
    b. Just before graduation.
    c. 30 - 90 days after graduation.
    d. One year after graduation.

16. Results of external evaluation might be a recommendation for:

    a. Changes in the instruction.
    b. Changes in the job structure; that is, make sure the actual job matches the job description.
    c. Both a and b.
    d. Neither a nor b.

17. The ISD process ends when:

    a. The trainees can meet the learning objectives.
    b. The graduates perform adequately on the job
    c. Both a and b.
    d. Neither a nor b.

ANSWER KEY

Phase III

MODULE 7

Question	Answer	Page Ref.
1	a	4
2	c	5
3	c	6
4	d	6
5	a	9
	d	9
7	b	11
8	c	11
9	a	13
10	c	17
11	a	20
12	a	24
13	c	2
14	d	25
15	d	18
16	d	12
17	a	4

MODULE 8

18	b	
19	c	107-123
20	b	125
21	c	138
22	d	105
23	b	107-8
24	c	109
25	c	25 & 112
26	c	
27	b	124-6
28	b	124-5
29	c	139

MODULE 9

30	c	201
31	b	199-200
32	a	198-202
33	a	202-203
34	d	206-7
35	b	208
36	a	210
37	c	214
38	a	215
39	c	
40	d	
41	d	198
42	d	201-2

6. If students score higher on the posttest than on the pretest:

   a. The instruction is effective.
   b. The instruction is not effective.
   c. The test is reliable.
   d. None of the above.

7. An individual takes a test on two occasions. He is likely to:

   a. Score higher the second time if he had a very high initial score.
   b. Score lower the second time if he had a very high initial score.
   c. Score low the second time if he had a low initial score.
   d. None of the above.

8. External evaluation data is collected from:

   a. The Occupational Data Banks.
   b. Job incumbents and supervisors.
   c. DOS tests.
   d. Instructors.

9. The purpose of the process of revision in ISD is to:

   a. Update job analysis data.
   b. Update learning objectives and JPMs.
   c. Control the match between resident and non-resident instruction.
   d. Update the instruction so that it meets the current needs of the field or fleet.

10. An example of "soft" internal evaluation data is:

    a. The results of a JPM.
    b. The results of a paper and pencil test for the task.
    c. A trainee's opinion as to whether he could perform.
    d. All of the above.

11. Data from attitude or opinion surveys is:

    a. Not as reliable as test data.
    b. Of no value unless supported by test data.
    c. More reliable than test data if secured from appropriate sources.
    d. Valid but not reliable.

ANSWER KEY

Phase III
(cont.)

Question	Answer	Page Ref.
43	d	248 & 275
44	c	
45	a	262-6
46	a	222-3
47	b	224-5
48	d	234 & 240
49	a	247
50	c	251
51	c	
52	a	
53	d	252
54	b	257-8
55	b	261
56	c	261
MODULE 10		
57	a	
58	d	282-4
59	b	283-4
60	a	288-295
61	c	286 & 289
62	c	283
63	d	283-5
64	b	281
65	b	320
66	b	329
67	c	281
68	b	281
69	c	282
70	a	285
71	c	296
72	d	296-7
73	a	320
74	b	329

ANSWER KEY

Phase IV

MODULE 11

Question	Answer	Page Ref.
1	a	2-4
2	c	5-6
3	c	30-31
4	c	34-35
5	a	35-37
6	d	7-8
7	b	33
8	c	
9	d	
10	d	92
11	d	115

Phase V

Question	Answer	Page Ref.
1	d	16
2	b	
3	d	
4	b	33
5	a	29
6	d	46-47
7	b	48-49
8	b	
9	d	

Question	Answer	Page Ref.
10	c	4
11	a	4
12	b	39-40
13	d	64
14	d	64
15	c	68
16	c	81-82
17	d	83
18	a	97-98
19	d	89-90

APPENDIX B

WORKSHOP QUESTIONNAIRES

STUDENT PROFILE QUESTIONNAIRE

1. Name (Last, First, MI) _____

2. Rank (if applicable)_____

3. Social Security #_____ 4. Age_____

5. Branch_____

6. DOS_____

7. Job Title/Position_____

8. Total Years in Service _____ 9. Total Years in Current Regular Assignment _____

10. Assignment/Address/Phone _____

_____

_____

11. Number of Years of Formal Schooling _____

12. Circle highest degree completed: H.S. AA BA MA EdD
AS BS MS PhD

13. Academic major (if applicable): BS_____
MS_____
PhD_____

14. Have you ever had a course in Educational Technology (ET)?

Yes No

15. Will you be directly engaged in some phase of ET when you return to your regular assignment?

Yes No Don't Know

16. Do you have any plans for continuing your formal education? If so, please indicate what those plans are.

Yes No Don't Know

17. What areas of ET most interest you? Rank order 3 areas.

1st_____

2nd_____

3rd_____

18. Are you a product of: Service Academy _____

ROTC _____

OCS _____

Other (Specify) _____

19. Do you plan on making the service your career?

Yes No

Job Profile Form

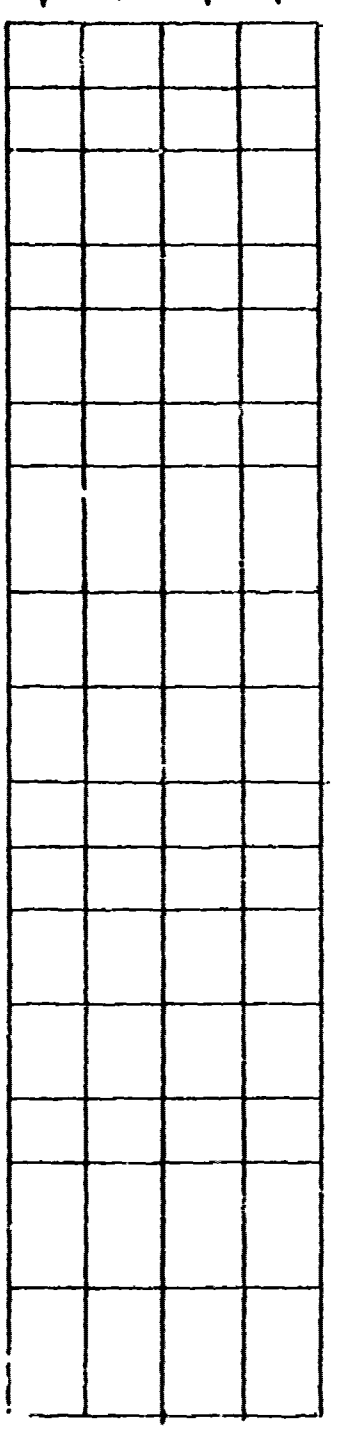
The Job Profile Form is used to assist the Enabler and the student in setting the students' criteria for each workshop module. This form is filled out by the student in concert with a workshop Enabler. An Enabler assists the student in filling out the form to insure that clear definitions of the functional statements are communicated. The student is to check the appropriate box(es) for each functional statement.

A general rule of thumb is, if the student performs, is responsible for, or supervises personnel who perform 50% or more of the functions within a given module, his criterion for that module should be set at 100%, due to the interrelationship between functions and assignments within a given module. The actual criteria set within your workshop will be dependent upon local SOP.

JOB PROFILE

NAME: _____

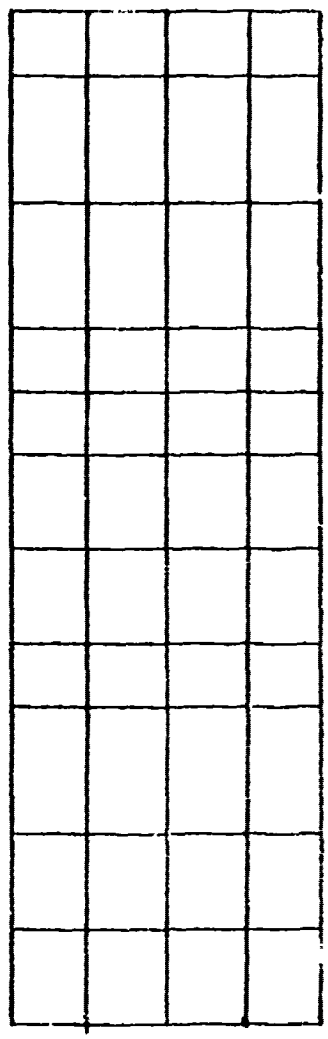
You perform this function
You supervise personnel who perform this function
You are ultimately responsible for this function
You are disassociated from this function



MODULE		FUNCTIONS
1	1.	Describe jobs by giving their definitions
	2.	Validate tasks lists
	3.	Specify the conditions, standards, cues and elements of each task
	4.	Select tasks for training
2	5.	Develop Job Performance Measures (JPM's)
	6.	Write Administrative Instructions for JPM's
3	7.	Analyze existing courses for the purpose of task analysis
4	8.	Select Instructional Settings
5	9.	Write Objectives
	10.	Perform Learning Task Analyses
	11.	Write Test Items
	12.	Prepare entry tests, pre-posttest, and within course tests
6	13.	Set student entry levels
	14.	Sequence and structure the course objectives
7	15.	Classify Learning Objectives in terms of types of Learning
	16.	Specify learning guidelines and activities which are to take place in the instructional setting

You perform this function
You supervise personnel who perform this function
You are ultimately responsible for this function
You are disassociated from this function

MODULE	FUNCTIONS
	17. Select instructional media and methods
8	18. Develop total plan for implementing instruction, e.g. facilities, instructor personnel, support, etc...
	19. Review and select existing materials for use in courses
9	20. Develop instructional material
	21. Develop instructors Guide
10	22. Validate the effectiveness of the course
	23. Train instructors
11	24. Present instruction
	25. Collect evaluation data on the effectiveness of courses
12	26. Collect evaluation data on the performance of students in the field following training
	27. Revise the instructional system based on internal and external evaluation



Technical Workshop Progress Sheet

The Technical Workshop Progress Sheet is used to follow the progress of each student through the Workshop. This form is filled out by the Enabler. Space is made available for recording data and assignment for each module. This form can be filled out on a module or phase basis depending on the method used to collect relevant data. After the results the Phase pretests are compiled and the Enabler enters these scores on the form for each module. Using the Job Profile Form, the Enabler assigns the student's criterion for each module. An assignment for each module is made based on the student's criterion and his pretest score for that module. If the assignment requires reading and a posttest, the posttest score is entered in the appropriate space. The product evaluation column is used to record the successful completion of the module exercises.

A sample of a partially completed form follows:

The student data for this form is shown here:

	Modules				
	1	2	3	4----------12	
Pretest scores	50	75	20	80	10
Criterion (JPF)	100	100	100	0	0

NAME _____

TECHNICAL WORKSHOP PROGRESS SHEET

Module	Module Pretest Score	Your Criterion	Assignment	Module Posttest Score	Product Evaluation
1	50	100	Read Blocks I.1 and I.2 of the ISD Manuals and take Module 1 posttest	100	(Initials of Enabler signify completion)
2	75	100	Read Block I.3 of the ISD Manuals and take Module 2 posttest	100	JPF
3	20	100	Read Block I.4 of the ISD Manuals and take Module 3 posttest	90	
			Discuss missed items with Enabler or reread appropriate section (judgemental)		JCR
4	80	0	Read Block I.5 in ISD Executive Summary or equivalent in manuals	N/A	N/A
. . . . .					
12	10	0	Read Blocks V.1-V.3 in ISD Executive Summary or equivalent in manuals.	N/A	N/A

NAME _____

TECHNICAL WORKSHOP PROGRESS SHEET

Module	Module Pretest Score	Your Criterion	Assignment	Module Posttest Score	Product Evaluation

APPENDIX C

WORKSHOP FORMS

JOB DATA WORKSHEET

JOB TITLE _____ DOS _____ PAGE NO. _____

DUTY/CODE _____ LEVEL _____ DATE _____

ITEM CODE	TASK, ELEMENTS, J.P.M.	CONDITIONS	INITIATING CUES	STANDARDS	NOTES

Course _____

Module _____

Lesson _____

Task I.D. No _____

Learning Objective No _____

Page No _____

LEARNING OBJECTIVE ANALYSIS WORKSHEET

Learning Objective Action Statement:

Learning Category:

Sequence Number:

Media Selection:

Condition:

Existing Materials Selected? Yes _____ No _____

If yes, outline below:

Standard:

Test Items:

Comments:

Learning Category	Guide line	Media Selection Criteria	✓	Media Pool
Learning Activity		COMPLEXITY CRITERIA		
		Difficult Motor Acts		
		Smooth Motor Performance at end of Training		
		STIMULUS CRITERIA		
		Visual Form		
		Alphanumeric		
		Pictorial, Plane		
		Line Construction, Plane		
		Object, Solid		
		Full visual environment		
		Visual Movement		
		Still		
		Limited		
		Full		
		Visual Spectrum		
		Black and White		
		Gray Scale		
		Color		
		Scale		
		Exact Scale		
		Audio		
		Voice Sound Range		Media Selection and Rationale:
		Full Sound Range		
		Ambient Sounds		
		Other		
		Tactile Cues		
		Internal Stimulus Motion Cues		
		External Stimulus Motion Cues		
		Fine movement manipulative Acts		
		Broad Movement manipulative Acts		
		TRAINING SETTING CRITERIA		
		Individual Trainee or team training at a Fixed Location		
		Individual Trainees with simultaneous instruction or many locations		
		Individual Trainee or team training with Independent Instruction at any Location		
		Individual Trainee on-the-job		
		Small Group		
		Large Group at Single Location		
		Team Setting		
		ADMINISTRATIVE CRITERIA		
		Site of Courseware Development		
		Local		
		Central		
		Magnitude of Acquisition Cost		
		Low		
		High		

APPENDIX D

IPISD WORKSHOP DIRECTOR'S CHECKLIST

IPISD Workshop Director's Checklist

____ 1. Identify the departments and agencies within the local command that perform functions similar to the ISD procedures.

____ 2. Interview the supervisors of these departments and agencies to determine the needs of the command with respect to the implementation of ISD procedures.

____ 3. Identify workshop content options most appropriate for students from the various agencies.

____ 4. Identify potential workshop enablers.

____ 5. Conduct workshop and administrative training for potential enablers.

____ 6. Select most qualified personnel to serve as enablers.

____ 7. Develop overall schedule of activities for the workshop.

____ 8. Request classroom and equipment required for the slide-tape presentations.

____ 9. Request individual study areas for students.

____ 10. Obtain the required number of IPISD Manuals, Student Workbooks, pretests/posttests, and forms for the design and development of instructional materials.

____ 11. Obtain all miscellaneous materials required for the workshop (pencils, paper, push pin, flip chart paper, staples, scotch tape, masking tape, felt markers, chalk, eraser, easel).

_____ 12. Request subjects/trainees for the tryouts of student-developed instructional materials.

_____ 13. Confirm previously selected workshop content options through interviews with students and evaluations of their background and experience.

_____ 14. Provide students with a schedule of the time and location of Enabler availability.

_____ 15. Conduct daily meetings with the Enablers to insure that the students are meeting their objectives according to the selected option.

_____ 16. Develop data collection plan for workshop follow-up study.

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE	READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER: N/A	2. GOVT ACCESSION NO. / 3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle): Interservice Procedures for Instructional Systems Development: Workshop Director's Guide (Technical Level Workshop)	5. TYPE OF REPORT & PERIOD COVERED: Final 25 Jun 73- 31 Dec 75 / 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s): Robert K. Branson, Gail T. Rainer, John P. Furman, Barry M. Wagner, Michael R. McCluskey, and Gerald D. Puterbaugh	8. CONTRACT OR GRANT NUMBER(s): N61339-73-C-0150
9. PERFORMING ORGANIZATION NAME AND ADDRESS: Center for Educational Technology, Suite 1A, Tully Gym, The Florida State University, Tallahassee, Florida 32306	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS: Task V: Model & Procedures for Interservice Instructional Systems Development
11. CONTROLLING OFFICE NAME AND ADDRESS: President, US Army Combat Arms Training Board, ATTN: ATTNG-TB-TA, Ft. Benning, Ga. 31905	12. REPORT DATE: December 1975 / 13. NUMBER OF PAGES: 188
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)	15. SECURITY CLASS. (of this report): UNCLASSIFIED / 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE: N/A

16. DISTRIBUTION STATEMENT (of this Report)

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18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Interservice Instructional Systems Development
Workshop Director's Guide
Technical Level
Suggested Approach
Local Adaptations
Follow up procedures
Exercises & Feedback

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report contains instructions for directors of workshops on Interservice Procedures for Instructional Systems Development. It includes a description of facilities, equipment and personnel support requirements, use of workshop materials, local adaptations, follow-up procedures, and exercises and feedback.

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