

"WHILE THERE ARE VARIOUS MEANS OF INDIVIDUALIZING VOCATIONAL TRAINING, THE INSTRUCTIONAL PACKAGE WHICH IS COMPETENCY-BASED RATHER THAN TIME-BASED, IS ONE OF THE MORE ENLIGHTENED."

# INDIVIDUALIZING VOCATIONAL TRAINING

BY CLIFTON P.  
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Under ordinary conditions, it is neither feasible nor desirable to keep all trainees in a shop course progressing at the same pace or working on the same activity. For one thing, the availability of equipment usually limits the number of trainees who can be involved in a given activity at any one time. Furthermore, experienced instructors know that it is highly unlikely for trainees to be alike in the rate at which they work, their interests, their style of learning or capacity to learn.<sup>4</sup>

Instructional practices which require all trainees — fast, slow or average — to be working on the same activity are typically paced to the "average" trainee's ability. Neither accelerated nor slow learners are stimulated by this type of situation.<sup>1</sup> Fast learners become bored while the slow lag behind and some, discouraged by a rate too fast for them, may even drop out completely. A viable alternate, which addresses the problems of the lock-step, group-paced train-

ing approach, is individualized instruction.

While there are various means of individualizing vocational training, the instructional package (PAK), which is competency-based rather than time-based, is one of the more enlightened. PAKs provide an organized procedure for the delivery of instruction to individual trainees on a personalized basis.

One of the advantages of the instructional package which makes its selection for use appropriate is that it carries much of the load of supervising training experiences. Instructional packages can free an instructor from the role of a full-time transmitter of skills and knowledge for other important duties such as evaluating, counseling, enrichment and individual tutoring as the need arises.<sup>5</sup>

The use of instructional packages can also reduce equipment needs and increase faculty utilization. This is possible because various trainees in a course will be working on a different activity at a particular time.

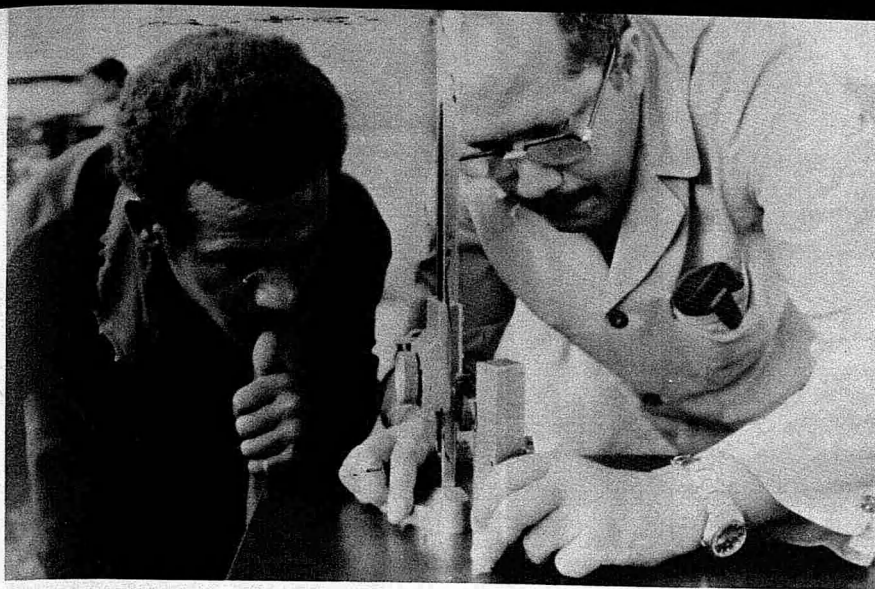
Furthermore, prepackaged in-

structional materials assure that each trainee is exposed to a uniform training program, based on predetermined job tasks and performance requirements derived from various forms of job and task analysis. This logical method results in graduates with consistent and predictable skills.

## Meeting a Wide Variety of Needs

Instructional packages are useful in directing trainees with a wide variety of individual needs and interests through sequential training activities and corresponding resources which enable them to meet performance objectives. Such instructional packages can take different forms. The form used by the Saudi Arabian Ministry of Labor and Social Affairs, Vocational Training Directorate has been standardized and is presented in an illustrated, printed booklet format.

These criterion-referenced, developmentally tested instructional packages are not modified text, reference or workbooks, nor are they programmed texts. They are a carefully designed and sequenced



The Instructional Packet (PAK) can free an instructor for individual tutoring as the need arises.

method of delivering self-paced instruction in printed form to individual trainees.

Instructional packages can be bound in durable cover stock and may have drilled holes for optional insertion in a three-ring binder. Sheets in the PAK can be embellished with a thin one-point border and identified as to their purpose by a distinctive logo with a title. Color can be introduced for effect and organization by using different colors of paper stock or by pre-printing the border and/or logo with various color inks.

Each instructional package is made up of four fundamental components: 1) the introductions, 2) a precheck, 3) instructional modules, and 4) a postcheck.

The Introductions consist of a) an introduction to the PAK, b) the terminal performance objective, and c) the procedure for using the PAK. These three items, together with the title of the instructional package, a numeric code and other information as necessary, are presented on the first sheet. The numeric code specifies the trade, unit, PAK, and page number.

A trainee begins the PAK by reading the introduction which contains a brief overview of the information contained within. It also provides a concise motivational comment explaining the relevance and importance of what is about to be learned. In a short and clear statement, it tells trainees the reason(s) why it is important to learn this material.

In order to avoid creating barriers between trainees and the instructional package, the introduction ought to provide some assurance that they will be successful as a result of this experience. It should indicate that by putting forth a reasonable effort they will learn. In short, there must be some interest and motivation to turn the page and read on.

### Terminal Performance Objective

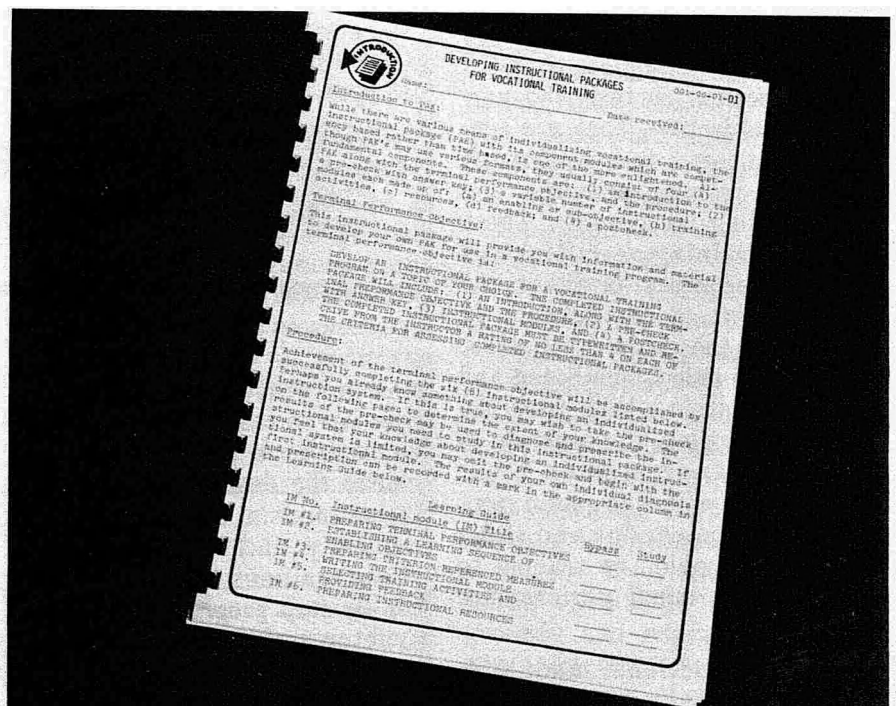
The terminal performance objective (TPO) is the reason the PAK exists. It is an objective, stated in behavioral terms that trainees can understand. The terminal performance objective tells trainees what

they must be able to do, the conditions under which they will perform and the minimum or expected level of performance. The specifications stated in the terminal performance objective are used to develop the criterion-referenced measures incorporated in the pre and postchecks.

The procedure should provide whatever instructions are necessary to facilitate using the PAK. This might include a safety message and directions on when to consult with the instructor. However, on occasion, instructions may be unnecessary, and in those instances they need not be included.

The procedure can also include a table of contents type listing of all instructional modules which make up the PAK. This list of modules may also serve as a learning guide where the results of the precheck can be recorded. These results provide a trainee profile which shows the modules to be studied and those where competency has been demonstrated.

The second component of an instructional package is a precheck or pretest with an answer key. It is designed to determine the extent of trainee competency prior to PAK exposure. The precheck will ascertain which of the enabling objectives, if any, the trainee has



The first sheet of the instructional packet contains the title, a numeric code and the introductions.

already mastered through another learning situation, reading or work experience. This is accomplished by using a sampling of criterion-referenced test items or activities for each module in the PAK. The results of the precheck can be used to diagnose and prescribe which instructional modules a trainee needs to complete. Trainees need only complete those modules within a PAK which present skills and/or knowledge they do not already possess.

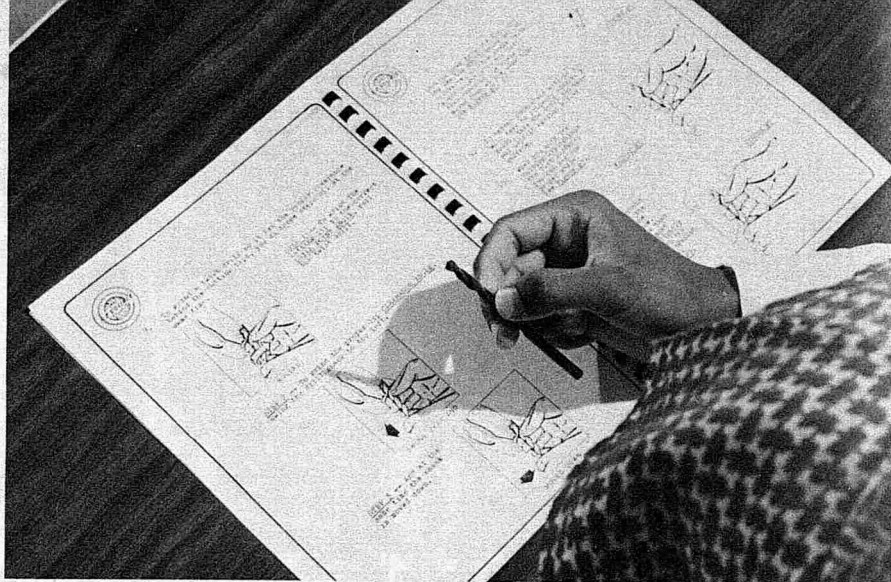
When trainees feel that their exposure to the content of a PAK is limited, they may omit the precheck and begin with the first instructional module. They may also elect to review the precheck to gain a sense of what learning is about to take place.

The third component, which comprises the bulk of an instructional package, consists of a number of generously illustrated printed modules of instruction. A module is described by Mager as a combination of the instructions, content and activities which facilitate the development of a desired competence.<sup>3</sup>

Some self-contained modules present essential knowledge, some provide hands-on practice experience to gain skills, while others integrate the knowledge, skills and attitudes required to perform a job task.

Modules of about six to 12 pages in length are designed to focus upon a specific job task and performance objective. They are contrived to direct a trainee through sequential training activities and corresponding resources. These relevant training activities and learning resources facilitate the development of competence in performing the desired job task. Modules are titled, numbered and sequenced within a PAK from the simple to complex, the concrete to the abstract, or in some other logical way so as to build progressively knowledge and skills which will enable the trainee to attain the terminal performance objective.

Each instructional module is made up of: a) an enabling or sub-objective, b) a training activity(s),



Resource sheets incorporate graphics to help make things clear.

c) resources, and d) feedback. The first part of the module consists of the enabling or subobjective and on occasion an optional introduction to the module. When used, the introduction is prepared according to the same guidelines presented for the introduction to the PAK.

The enabling objective is a prerequisite through which a trainee progresses in order to achieve the terminal performance objective of the PAK. Each enabling objective is written for the target group in behavioral terms according to criteria previously discussed for a terminal performance objective.

When accomplished, the enabling objective will equip the trainee with the competence needed for the performance of a job task.

#### **Application of Skill or Knowledge**

The next part of the instructional module is the training or learning activity(s). This experience provides for the application of a skill or knowledge derived from the resources furnished. Each activity must be consistent with the behavior stated in the enabling objective so that after completing the experience a trainee is able to achieve the desired performance. The sequential training activity frequently includes checkpoints where trainees self-check their step-by-step progress or seek instructor assistance prior to the feedback sheet.

Many of the required resource sheets can be prepared from avail-

able materials. Sources for non-copyright materials include business and industrial enterprises, curriculum centers, government agencies, and colleagues. Periodicals and reference books are also excellent resources; however, the revised copyright law must be observed.

Other resource materials must be developed by the instructor. For maximum effectiveness in attaining the enabling objective, resource sheets should be written in a brief no-nonsense style utilizing numerous illustrations, charts, plans, and other graphics to help explain or make things clear.

Feedback is the last part of an instructional module. It is intended to keep the trainees informed of their personal progress. Feedback enables trainees to obtain some type of information concerning the correctness of their responses to the training activity prior to the postcheck. Types of feedback depend on the kind of training activity and range from examples of acceptable exercises to answers for multiple-choice questions.

The feedback device will be used by trainees individually as a method of self-checking their achievement of the enabling objective. When trainees have not reached the acceptable proficiency level, they may recycle through the module to assure success in the post-check. This procedure is suggested in implementing individualized training; otherwise, every trainee

would require instructor input for each enabling objective.

The fourth and final component of an instructional package is a criterion-referenced measure — post-check or posttest. The postcheck, which is similar to the precheck in what it measures, will be used to assess a trainee's achievement of the terminal performance objective following PAK completion. Postchecks may range from multiple-choice instruments which measure the achievement of knowledge, to checklists used in eval-

uating exercises completed by trainees. If trainees pass the post-check, they proceed to the next instructional package.

When trainees do not achieve the minimum level of competency required to meet the terminal performance objective, they arrange with their instructor to: 1) complete modules previously bypassed, 2) repeat training activities, 3) review supplementary resources, 4) complete additional activities, or perform some other related activity before repeating the post-

check.<sup>4</sup> Competency is assured because the instructor directs the trainee into meaningful activities that eventually lead to mastery of the objective.

Instructional packages and their component modules are delivered in a manner which allows utilization by individual or small groups of trainees. Individual use does not mean that a trainee sits in front of a box (carrel) working on a PAK in isolation. The instructional package is designed for use under the direction and with the assistance of an instructor.

PAKs can be used to support an instructor demonstration in which all steps are explained and shown and the finished product can be seen. The instructor demonstration, a proven training method which functions well, provides the big picture so that trainees can proceed step-by-step according to the instructions provided by the PAK.

#### Instructional Media

While some trainees are proficient with and will use illustrated, printed materials effectively, others require or choose media. It is therefore important to identify or develop instructional media such as audio and video-cassette tapes, sound filmstrips and sound/slide programs which will augment printed materials. The availability of printed instructional packages and appropriate media will provide a range of training options for attaining each enabling objective. This should contribute to increased motivation and heightened interest, thereby promoting learning.

Emphasis is placed on those forms of media which can be produced within a reasonable amount of time with available equipment. A viable approach is to move from relatively simple mediation to the more complex, making every effort to maintain continuity and avoid duplication of effort. Both media and the printed material it augments should be refined to a literacy level which accommodates variations in the backgrounds and educational experiences of trainees.

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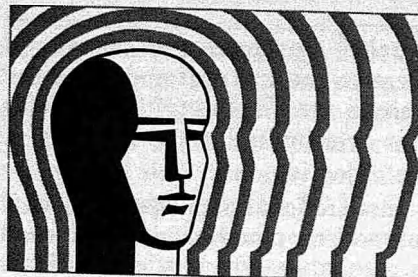
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ages and media is largely dependent on the thoroughness of the design, planning, development and editing that precede each finished product. Nevertheless, PAKs and media should be developmentally tested against criterion-referenced measures before being implemented. This is done to discover flaws and to determine the validity of content and sequence in terms of trainee achievement.

An evaluation of procedures for using instructional packages and media should also be conducted. This is necessary because the longer it takes a trainee to decipher directions, the less time and effort is spent on actual learning. Thus developmental testing includes an evaluation of the instructions, as well as the instruction.

A sound developmental testing plan includes individual product tryouts, small group, and operational or field testing. Each instructional package or mediated component is validated when testing gives enough consistent results to establish with confidence that it will do what was intended when used under appropriate conditions for the target population.<sup>2</sup>

Instructional materials should not only promote learning but ought to be acceptable to trainees. Therefore, the testing plan should include an analysis of trainee attitudes toward the materials, as well as their test performance. After all necessary revisions are made and the products are judged valid, the training program is ready for implementation and general dissemination.

Observations of the products in use and data collected during each program offering should be utilized to continually improve the reliability of PAKs and media. Feedback from follow-up surveys on the performance of graduates at the workplace, along with labor market information, and recommendations from craft advisory committees, can also be used to improve the training program. This feedback process exists to modify and update instructional materials when inconsistencies are discovered between the training program

and the needs of the job.

### Summary

Individualized instruction is a viable alternate to lockstep, group-paced training. It provides numerous benefits for the trainee, instructor and the institution. Criterion-referenced, developmentally tested instructional packages are a carefully designed and sequenced method of delivering self-paced instruction to individual trainees.

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