# Training Interventions in Job-Skill Development

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*To Ann, Ralph,*
*Ruth, and Arlene*

# Preface

In an earlier book (*Helping Employees Develop Job Skill*, published by the Bureau of National Affairs in 1976), I made a number of points about the learning process as it relates to industrial jobs and about the developmental nature of that process. I went on to discuss training arrangements and techniques that might assist the process—and assist it in its progressive stages. Thus the ground was laid in that volume, I felt, for an examination of how we might put the principles and techniques to use in the training of production employees. Though I had pointed out some things that could be done, a comprehensive statement of applications remained to be made.

As a further prod, I learned a few things since 1976, though grudgingly. Chiefly, I learned a few things about how to use TV, at various points in the process, as a tool to help learning develop.

I felt a somewhat pressing need, therefore, to write a manual of applications, to give a somewhat detailed description of training interventions (along with a discussion of training materials, personnel, and other related matters) that can fruitfully be used to move a trainee along the long and difficult road to job competency.

I wish to thank my Fieldcrest crew for helping me to see the light in many of these considerations, especially Charles Davis, Mack Johnson, Wade Nelson, Carroll Riggan, and Wanda Dyer.

*Eden, North Carolina* J. E. G.
*December, 1980*

# Contents

## Chapter One

# The Role of Training in the Development of Job Skill

In job-skill training, perhaps more than in any other training matter, we appear to have reconciled ourselves to the view that there is nothing or very little new under the sun. In management training, the number of novel programs emerging in recent years has been truly astounding. A commensurate exploration of new ideas and techniques has not occurred in the training of hourly paid employees.

In terms of the relative volume of learning, our training emphasis is curiously inverted. The bulk of the learning in industry takes place among hourly paid employees on the production floor. Yet in our pursuit of other training objectives—primarily managerial training goals—we tend to neglect the training of production employees and to forfeit the enormous gains in production efficiency (and probably employee satisfaction, as well) that are possible with better nurturing of job skill in the plant and factory.

## Where We Stand in Rank-and-File Training

There is some stirring at the edges, to be sure. We certainly do not lack programs that claim to be useful in motivating employees and modifying their behavior. But we have not mounted a frontal attack on the central problem of how to develop job-performance skill.

Is job training too mundane a subject for trainers? It may indeed lack the glamour of MBO, transactional analysis, the Managerial Grid, and other highly visible managerial programs. It will require trainers to get their hands dirty. In the midst of our absorption in higher-level training, we may be consoled by persisting in the delusion that once we train the supervisors, we will automatically ensure the training of production employees. If comparative return to the company had the appeal it should have, trainers would be scurrying to the production departments to give their attention and efforts directly to job training.

Do we assume that we already know how to train factory employees? If we do know how, we are not using our knowledge to best advantage; job training, as many observers can testify, is generally not well done. Yet the belief persists that the procedures and systems we now employ—many already decades old—are the doctrinal way to proceed. Is there anything new to be discovered? Since we already have the job breakdown, the venerable four-step procedure, and the stopwatch, what else remains?

The answer is "quite a lot" if we take the trouble to look around. A number of new insights and rediscoveries bearing on job training are available to us, although we still must face the task of bringing them together and constructing a comprehensive program out of them. Among the useful concepts and approaches that are emerging from operator training or that are being borrowed from other contexts are the following.

In regard to the characteristics of job skill:

1. The developmental nature of job skill, calling for long-range training interventions.

2. The role of perception in skillful execution of job tasks, calling for task definitions broader than motion descriptions and for task-performance analyses that probe beyond the motion pattern.

In regard to the learning characteristics of employees: the individual nature of progress in learning, calling for nonrigid programs pliable enough to encompass the needs of individual trainees and for instructors who can adapt their tactics to meet such needs and who can diagnose and address unique learning difficulties.

In regard to motivational and informational aspects:

1. The importance of reinforcement not only in the teaching of job skill but in the inculcating of standards of performance that can serve employees as a basis for self-reinforcement after training.
2. The importance of the experience of success in learning not only as an intrinsic satisfaction but also as a means of enhancing the efficacy expectations of trainees, which assist them to confront later learning requirements confidently.

In regard to instructional tools: the pronounced value of TV as an instrument in giving trainees insight into what has to be learned and, in its playback capabilities, as an instrument of in-depth analysis of causes of skill weaknesses.

In regard to identifying training needs: the necessity to examine deficient job performance in the light of skill factors and other factors, to avoid training as a prescription when poor job skill is not the cause of poor performance, and to diagnose the specific aspect of skill at fault if it is. We are beginning to acquire the tools for such purposes.

In regard to overall training approaches:

1. The extreme efficacy of one-on-one coaching in the development of job skill.
2. The importance of quick development of skill to the integration of the new employee into a high-performance system.

Perhaps the major dilemma of today's trainers who are actively engaged in job training is that they tend to get locked into semivalid procedures. In so doing, they have no recourse, when the results are questionable, other than to thrash about within the parameters of their adopted approach in an effort to make certain aspects of it work better. The trouble is basically with their procedures, which in many cases are not solidly grounded in principles of learning. Hence the trainer's need is

to break away to more insightful approaches that are firmly based in the learning process itself.

Two of the traditional procedures that limit trainers' effectiveness and, indeed, their professional growth, are what might be called the common-sense approach to training (represented by the Job Instruction Training steps) and the industrial engineering approach. Although both systems have praiseworthy elements, the tendencies of the practitioners of these systems who are poorly read in the learning literature are somewhat disturbing. As often practiced, JIT tends to be simplistic and the IE approach mechanistic, and both tend to jell into rather fixed procedures that may not provide the degree of variability required to meet the unique learning problems of individual trainees. Those practitioners who operate from a narrow conceptual base do not give convincing proof that they have a comprehensive grasp of how skill develops or that they can make optimal use of instructors in aiding it to develop.

In a JIT program, the statement of what is to be learned is likely to be naive and incomplete and the instructing primarily concerned with the beginning of the learning process. The preparatory steps involved in priming the trainee are often overemphasized to the detriment of practice, which is relegated to the status of "try-out," and to the neglect of those interventions that can aid in the progressive production of skilled performance from such practice.

The practitioner whose training tactics arise from industrial engineering practices unleavened by learning concepts should be wary of such tendencies as the following.

- Inundating the instructors with motion pattern minutiae and assuming that such material is the primary ingredient of the training program.
- Seeing in learning more predictability than actually exists and on such basis establishing a somewhat rigid training schedule.
- Preparing the instructors primarily to follow procedures rather than to guide individual trainees through the complex learning process and past their specific learning problems.
- Overloading the program with expected measurable outcomes (targets) and "underloading" it with the means of getting there by relying more on administrative steps than on principles of learning.

- Giving trainees practice on "exercise boards" (a tactic that transfers little or no learning to the performance of actual job tasks) and moving trainees prematurely from one task to another, thereby inviting interference and minimizing retention.

Another choice of approach of more recent advocacy is offered by the adult learning school, which emphasizes the purposefulness, utility, and meaningfulness of instruction as the learner perceives it and the learner's role in the training process. These are all laudable concepts, but if the question of who exercises control over what is resolved by minimizing the role of guidance, the efficiency of the training effort will suffer. Fortunately, there need not be an incompatability between guidance and purposefulness.

If trainers were restricted to the choice of full-blown programs available to them, they could wind up doing relatively ineffectual things or doing too little to aid the learning optimally. But there are other ways to go. The trainer's challenge is to bring together the various training concepts and approaches whose validity has strong support, to shape them into training programs for rank-and-file employees, and to prepare those who will instruct under such programs to utilize the approaches effectively.

## Basic Points of View Concerning Skill Development

Any trainer or supervisor of employees in industrial jobs should hold a few fundamental convictions to guide his or her training efforts.

1. Learning, not training, is the basic process. Training can be defined broadly as the techniques and arrangements aimed at fostering and expediting learning. The focus is on learning.
2. Acquisition of job skill is a developmental process that runs through a number of stages.
3. The effectiveness of training will depend on how sensitively and skillfully we intervene with our training tools and efforts to help in this developmental process.

It is a major thesis of this book that training interventions should be geared to the learning process and should occur progressively and differentially in terms of appropriate approaches as the trainee advances through the learning stages. Trainers who do not see the need for progressive interventions, who despair of fitting the interventions to the learner's evolving skill, or who are reconciled to shoving a trainee into a job method of sorts and letting "experience take its course" are incapable of bringing efficiency into the learning process. Unguided experience is not a good teacher.

It is the intention of this book to discuss training interventions at various points in the skill-development cycle. But first it is necessary to review the stages in the development of job skill to the extent necessary for a foreshadowing of appropriate interventions. The following short summary indicates how the skill takes shape, stage by stage.

1. Mastery of procedural steps and gross manipulations that represent an approximation of task execution. The purpose of the task may thus be fulfilled, but there is inefficiency in the means.

2. Refinement of the task execution, involving the elimination of certain ineffective motions, a gain in the speed of productive moves, and an efficiency of feedback. Of course, these aspects of refinement are related; efficiency in feedback, as one effect, permits a pruning of the motion pattern, and speed improvements ensue. Additionally, the timing and coordination are sharpened. The body members work together with more precision. There is a quicker movement between subtasks as perceptual feedback improves, and there is simultaneous performance of subtasks as more than one feedback channel come into play.

3. Speed of task execution, as the refinements and precision related to motions and feedback improve. This stage is therefore indistinguishable from stage two in light of a common basis for skill and speed improvement, but the outcome—less time required for task execution —is discernible separately.

4. Organization of the job if several tasks are to be performed and there are conflicting demands on the employee's time. The learning involves the establishment of task priorities, decisions on task completion or interruption, and advance planning of foreseeable work.

5. Coping with unusual conditions. Learning here involves making adjustments in job routines and schedules and acquiring direct skill to correct or ameliorate the adverse circumstances.

## Preview of Interventions Pegged to the Trainee's Learning Needs

The first indicated intervention is an introductory one that is intended to give more meaning to the operation to be learned and to the means of learning it.

In this intervention, we explain and illustrate what happens in the particular process(es) with which the employee is concerned. We do so (1) by giving names to the process itself, the machine parts and equipment involved, and the materials and (2) by following the materials through the process(es) to explain each step in the operation and its purpose. The explanation at this point is not intended to teach the trainee to *do* anything; it is simply intended to give meaning to the setting in which the employee will learn to perform his or her job duties and to the operation itself.

Next we explain (as another employee executes them) the various duties performed by an employee in the particular job. We do so in order to give the new employee a general idea of what the job entails and to tie job duties logically into the purposes of the operation. A new machine operator, for example, is shown his or her functions in regard to feeding material into the machine, monitoring the process for malfunctions, removing finished material, and performing cleaning and minor maintenance chores. Such explanation and demonstration should follow a logical progression—showing what operator duties are required in the processing cycle step by step is a good sequence—so that the employee's duties (his or her contribution) along with the process itself are given purposefulness in relation to intended outcomes in the operation. In this way, the new employee can see, in general, what the overall process is and what form his or her involvement takes in that process.

One additional subject needs explanation before we start training the learner in the performance of job duties. We must deal with certain aspects of safety. We must follow the manufacturing process from point

to point as the material passes through the machine to identify physical hazards, and we must review each of the operator duties in terms of avoiding hazards and unsafe procedures. We must look at the work area as well. The explanation, with illustration, is not intended to cover the subject of safety in a comprehensive way; much will come later, at appropriate times, in regard to safe job methods. But this initial explanation should make the trainee conscious of safety hazards and should more readily enable us to build safety into the trainee's performance as his or her skill develops. It should also help the trainee to avoid accidents during the early learning stage before safe habits are established.

With this background in place, we can begin our major function as trainers: to aid in the development of performance skill. If the job involves a number of job duties, such development will proceed faster if we are able to concentrate on units of skill of appropriate size, representing meaningful parts of the job such as tasks or subtasks. There are problems and principles associated with specifying job parts for training purposes, in regard to both optimal learning outcomes and practical scheduling. Most jobs are too complex to be taught in their entirety. But with the exercise of some ingenuity (and persuasiveness with supervisors), we may find a way to divide the job into meaningful learning units and to teach them, even if the training is done on the job itself amidst the limitations that production requirements and machine utilization impose on the training.

We will assume, therefore, that we can make separate attacks to a significant degree on such job parts as positioning material for feeding into the machine and feeding it in, removing the processed material, repairing breaks in the material or correcting other common causes for machine stops, starting and stopping the machine, and so on.

In the case of each job task identified as a learning unit, our common approach will be to shape the performance skill, although the extent of such shaping effort will depend on the complexity of the particular task.

The first effort is to teach the procedural steps in executing the task and the gross motion pattern (moves and related hand and finger positions). The aim of such effort is to teach the execution of the task in the sense of getting through it with an approximate method. An important by-product is the trainee's early experience of success in "doing something."