

OFFICE OF PRODUCTION MANAGEMENT

Labor Division

“Training Within Industry”

Bulletin #2-B

HOW TO PREPARE INSTRUCTORS TO GIVE INTENSIVE JOB INSTRUCTION

Many companies have found it possible to organize effectively the training of new employees and experienced production workers in new skills so that the learning time is spent on the job, on production work, and under actual shop conditions. On-the-job instruction is given by foremen, lead men, or, where large numbers of men need to be trained at one time, by special instructors.

Some companies have set up training sections separate from the regular production shop, using the output of such sections in the regular manufacturing process. Whether the instruction is given in production shops or in separate training sections, it is necessary to equip those selected to do the instructing with an organized knowledge of production operations and the ability to impart it to others.

In this bulletin are recommended the essentials for the preparation of instructors. It recognizes that modifications must be made to meet varying needs in different situations.

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Training Within Industry

MAKING INSTRUCTIONS

“Instructor” is used here to mean a foreman, lead man, or workman who has a major or full-time responsibility for breaking in production workers.

Individual plant requirements in respect to the number of instructors, time available for training, and degree of teaching skill necessary on specific jobs, will naturally vary. Job training covers a wide range, from an hour or two required to “break in” an employee on a simple, repetitive job to months for more difficult and complicated skills. There are four phases or steps usually followed in developing instructors:

1. Selection of those to be trained
2. Arrangements for their training
3. Content of the training program
4. Supervision and follow-through

1. SELECTION OF EMPLOYEES FOR TRAINING AS INSTRUCTORS

This is the most important step in the process since the ultimate success in training production workers depends upon the ability and skill of the job instructors. The following are important considerations in the selection of employees for training as instructors:

Personal aptitude should be given equal weight with job skill. It is common knowledge that good mechanics do not necessarily make good teachers. A genuine liking for working with people, an ability to express themselves clearly, patience, and the ability to get along with different kinds of people are important.

Recognized skill in the job to be taught. The degree of instructing skill required on any given job is governed to a large extent by the simplicity or complexity of the job.

A willingness to accept this kind of responsibility.

Some companies have used general intelligence, teaching aptitude, and personality tests as aids in the selection of candidates for training.

2. ARRANGEMENTS FOR TRAINING INSTRUCTORS

There are two sources through which trained instructors may be developed.

Under company auspices. If there is not already a supervisor of training within the company, one or more supervisors should be selected and trained to take up this responsibility. An outstanding foreman, engineer, or junior executive might prove to be a good man for this work after he has had some practice. Visits to plants where such instruction is being carried on and help by a training specialist from another company would be useful in launching a program. Some state universities and state vocational education departments are manned to give assistance in training a supervisor to carry on this kind of work.

Usually it is desirable to release from other duties those selected to devote full time to the training of instructors, although in some companies the responsibility is taken over in addition to other duties. Elements of time, convenience, and number of instructors to be trained will be controlling factors.

By outside agencies. Some State Departments of Vocational Training offer courses in how to instruct on the job and are prepared to conduct classes for job instructors within a specific plant, or to hold classes for men from several plants at specially agreed upon central locations.

It has been found that the training of job instructors can best be done in groups of 8 to 10. Suitable quarters, away from the job, should be arranged. Most companies have found it desirable to release men from all job responsibilities during the training, permitting them to give full-time, intensive attention to learning how to instruct.

3. CONTENT OF TRAINING PROGRAM

The scope of the training given and length of the training period will vary.

For example, the machine operator who will break in new workers on his kind of machine may require only 12 to 16 hours of training on how to instruct. The training in this instance would embrace the fundamentals of analyzing the one job he is to teach and supervised practice in how to quickly cover the key points of each operation with a new worker.

On the other hand, the full-time instructor, who is responsible for the instruction of a number of new workers on several jobs requires a greater degree of teaching skill which may take 30 to 48 clock hours for him to acquire.

A typical program of instructor training, containing the major principles, is outlined below. It will not always be possible or even desirable to apply this pattern to all situations.

A. JOB ANALYSIS FOR INSTRUCTION PURPOSES

The purpose here is to develop:

Ability on the part of the prospective instructor to make an analysis of the job to be taught. The experienced man often overlooks details of the job, which, because of his intimate knowledge, have become "second nature" to him. He must look carefully at every detail of a job from the beginner's viewpoint before attempting to teach it.

Ability to recognize and pull out the key operating points or "tricks of the trade" which are most vital to the successful performance of each operation.

Judgment as to the degree of detail to which it is necessary to go in breaking down a job, depending on the complexity of the operation to be taught and the knowledge the learner brings to the job.

These objectives can best be reached by requiring each member of the training group to analyze one job he will teach, under the guidance of the leader. This is done both in the conference group and individually with each trainee who makes an analysis of a job with which he is familiar out in the shop. A general discussion and comparison of analyses is then held with the group to bring about a common understanding of the technique.

Most of such analyses include all or part of the following:

Notes of the steps or operations necessary to do the job;

Special words used in talking about the work, the product, the tools, or doing the job;

Special precautions to insure required quality: ("getting it done right the first time");

Notes on waste prevention, either of tools or materials;

Safety and health precautions necessary for the learner to know in doing the job;

Notes on the troublesome points where the learner must exercise his own judgment;

Supplementary information such as how the product is used, and how his part ties into other operations.

B. PLANNING THE INSTRUCTION

Each prospective instructor is required to make notes of a simple plan for putting over instruction which he is going to give. One or more of these units is tried out in a practice teaching situation (see below) and each demonstration is followed by review and discussion. Using the job analysis as a base, decision must be reached regarding:

What fundamentals must be driven home.

In what order the operations can best be taught.

What must be done to build up satisfactory output after operations have been learned.

What facts must be given to the learner about the job and when.

C. TEACHING THE JOB

The new instructor must be helped to understand the teaching process.

The conference leader puts on a sample demonstration, involving real teaching situations to make clear each of the three following major requirements. The group analyzes and discusses what the leader has done.

- a. The steps through which the instructor leads a learner.

In the process of teaching any part of a job, the new worker is only conscious of acquiring new knowledge and skill and is not aware of the four steps through which the instructor carries him:-

First, the learner's attention and interest is secured;

Second, the learner is shown how to do that part of the job;

Third, the instructor lets the learner try to do it, correcting mistakes before they become fixed in ineffective work habits;

Fourth, the learner is given full responsibility for his duties but is closely watched by the instructor until he has gained skill, speed, and confidence.

- b. How the instructor puts across to the learner the ideas he must know to perform each operation.
- c. How the instructor checks to see that the learner understands clearly.

D. THE BEGINNER'S LEARNING DIFFICULTIES

It is necessary for the instructor to identify some of the learning difficulties inherent in jobs, how they may be classified, and their effect on the new worker in making it hard or easy for him to become proficient. There are at least six kinds of these learning difficulties:

Confusion over complex details

Understanding the main idea

“Unlearning” old habits

Catching the “knack”

Getting the “feel”

Developing speed, ease, and confidence

Prospective instructors are placed in the position of “green” learners. The conference leader gives several teaching demonstrations, using simple units of instruction that are new to, and of real interest to, the learner. Group discussion follows each demonstration to help the new instructor to get the “green” employee’s point of view.

E. PRACTICE TEACHING

Each new instructor must be given the opportunity to gain confidence that he can apply what he is learning out in the shop. Nothing is more helpful than practice under constructive coaching. Let him demonstrate how well he can apply the principles of job instruction in a practical teaching situation.

Throughout the entire period of training and as often as possible, each prospective instructor is required to teach a worker who is new to the company and/or to a particular job, one or more complete operations under the observation of the group and the leader. The operations to be taught are selected by the prospective instructor and are actual jobs which are part of his own shop work. They are of such a nature that the complete operation can be covered with the learner in 20 to 25 minutes. How to use a file correctly, how to read a micrometer, and how to perform a simple assembly operation are examples of the type of instruction units used. The learners are usually sufficiently “green” to make it possible for their interest in learning something new to be genuine.

After each demonstration, through group discussion, the work of each prospective instructor is constructively criticized and evaluated.

4. SUPERVISION AND FOLLOW THROUGH ON THE JOB

It is not sufficient to turn out a corps of trained instructors. The training of individual workers begins only at this point and there are several steps that may be taken to insure the instructor’s effectiveness in getting workers into production quickly.

- a. Provision should be made for a proper wage differential between the rate for instructors and the top rate of the work classification for which they are training workers. This policy provides an incentive to experienced men to attain competence in instructing new workers.
- b. Special instructors, skilled men trained as instructors, or trained lead men can safely handle five to ten men on production work. A check sheet or record of the worker’s performance, the speed with which the worker builds up skill, his method of doing the operations, rejects and spoilage, and injuries are points to be closely

checked on the job by the supervisor of training as well as by production supervisors.

In most companies, special instructors report administratively to the foreman responsible for production and are a part of the regular production force, but are under the technical direction of the staff training director.

- c. Frequent visits to the shop where the new instructor is working should be made by the training supervisor.
- d. After instructors have been on the job for a month or two, they should be brought back for a half day conference in which instruction techniques are reviewed in the light of actual teaching experience. Periodic conferences of this type will help the instructor to improve his effectiveness.
- e. Periodic reports regarding the success of new workers thus trained should be made to upper management. Having authorized the program, executives naturally are interested in its progress and success.

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Unless the program results in a saving of at least one half the time usually taken by the old haphazard watching, telling, or just “showing “em how” methods of breaking in new workers, the instructor training program has not been well planned or carried out.

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