

**MANAGEMENT AND
SKILLED SUPERVISION**

**The
TRAINING
WITHIN INDUSTRY
PROGRAM**

**BUREAU
OF
TRAINING**

**WAR
MANPOWER
COMMISSION**

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T.W.I. PROGRAM AND POLICY

The Training Within Industry Program was established in August 1940 by the National Defense Advisory Commission and was continued under the Office of Production Management and then the War Production Board. By Presidential order on April 18, 1942, Training Within Industry functions were made part of the War Manpower Commission. T.W.I. operates as part of the Bureau of Training.

Management is interested primarily in getting out increased and improved production. Supervision and training are sometimes regarded as separate functions, but they are actually concurrent with management. T.W.I. attempts to get this viewpoint accepted, and T.W.I. work deals exclusively with what management itself can do to train its supervisors.

T.W.I. Advocates

It is recommended that all war production plants give balanced and appropriate attention to the following phases of in-plant training:

1. **UPGRADING** of all classes of personnel as their experience and abilities warrant, through planned job progression, job rotation, and intensive supplementary instruction both on and off the job. Each plant should take stock of the talent and experience of its own personnel before employing new men and women.
2. Development of **PRODUCTION SPECIALISTS** through intensive instruction on the job in basic operations.
3. Development of all-around **SKILLED MECHANICS** through trade apprenticeship, in accordance with Federal standards, separate from production worker training, for the purpose of developing a predetermined, limited number of all-around journeyman mechanics.
4. Development **SUPERVISORS** through careful selection, assignment of supervisory duties of increasing responsibility, and provision for related organized help through discussions and conferences, under both plant and outside auspices, dealing with methods of instruction, methods of developing better ways of doing a job, methods of improving working relationships, and knowledge of responsibilities.

T.W.I. Conducts

The Training Within Industry Service conducts intensive programs for newly appointed and experienced supervisors and those responsible for in-plant training. There is no authority to enter a plant on any basis other than with management's cooperation. The programs for supervisors require 10 hours of basic training; and for training directors, 40 hours.

Job Instruction gives the supervisor practice in how to "break in" men on new jobs.

Job Methods helps the supervisor to simplify and improve methods of doing a job.

Job Relations gives the supervisor practice in how to promote teamwork.

Program Development shows training men how they can develop their own in-plant programs by giving them intensified coaching in a method of planning, operating, and improving plant-wide training programs.

Organization

The Training Within Industry Service has a field force with offices in 24 districts throughout the United States and Hawaii. They are staffed by training and personnel specialists, many of whom are loaned by their companies for part-time or full-time work. Headquarters and field offices have advisors from both management and labor.

MANAGEMENT AND SKILLED SUPERVISION

The job of getting out war production and of operating essential services is being done by many millions of men and women. The management of war plants, and other industries such as railroads, and services such as hospitals, depend on their supervisors to get results through these millions of people. The supervisors are the *key* persons in the war production, home-front job.

Since the management responsibilities of supervisors are greater than ever before, the importance of skilled supervision increases daily. At the same time, the difficulties of supervising are mounting—due to unskilled new workers and changing designs. Many supervisors themselves are new—they have not had time to “grown into their jobs.” Under these conditions, every step that management can take to improve the skills of supervision yields important results.

T.W.I. urges management to make the spotting of *all* its training needs the responsibility of a specific person within the organization, and help him to plan training to meet those needs.

The Supervisor's Five Needs

In order to do the job management expects, the supervisor needs knowledge of his work and of his responsibilities, and must constantly use the skills of instruction, of improving methods, and of working with people.

Knowledge of His Work

In order to properly direct the people under his supervision, the supervisor himself must know what doing the particular kind of work involves, what materials and equipment are needed, how the job is done, what standards must be met. Since jobs differ from plant to plant (and even from department to department), only the management knows just what work knowledge is needed by its various supervisors.

Knowledge of Responsibilities

To the people who work under him, the supervisor is management. Unless he clearly knows

just what management expects him to pass on to the workers, what plant policies control his actions, and where he fits into the organization, he cannot be an effective supervisor.

Training supervisors in company policies and relationships is an important phase of improving the quality of supervision—and it is a job which each company must carry on for itself, because individual plants are as different as individual persons.

Skill in Instructing

There are over twenty million workers on important jobs which are relatively new to them. There is no time to be wasted on “coming up to production rate,” and scrap and rejects must be reduced to a minimum. The supervisor *must* be able to get *a* person to do *a* job quickly, correctly, and conscientiously.

This problem is common to all supervisors in all plants and can be met through a common approach. Through industrial experience, a 4-Step Method has been evolved. When the supervisor learns this method and uses it, he develops *skill in instructing*. T.W.I. helps management to provide its supervisors with this skill through the Job Instruction program. Management support is essential to insure the acquiring of this skill.

Skill in Improving Methods

Thousands of jobs are being done the way they are done simply because they got started that way. Many people never question the current method—they just keep on in the old way. Engineers and technicians develop big improvements, but cannot reach into many operations on single pieces of work which are repeated over and over and which, bulked together, make up the real volume of productive effort.

The development of improvements does not require inventive genius—but it does require the questioning attitude of a supervisor who knows the intimate details. The *skill of improving methods* can be learned. It provides a way for tremendous savings through making more effective use of

manpower, machines, and materials. T.W.I. helps management to provide its supervisors with this skill through the Job Methods program. Management support is essential to assure the acquiring of this skill.

Skill in Working with People

Full productive effort comes only when the supervisor becomes the leader of his people, when he organizes them into a team and they work well together. In the past, supervisors have developed a *skill in leadership* through experience.

In wartime, the situations which cause misunderstandings and grievances have multiplied, and the results of these delays are more serious than ever before. Supervisors must quickly learn to lead their people. T.W.I. helps management to provide its supervisors with this skill through the Job Relations program. Management support is essential to insure the acquiring of this skill.

How the T.W.I. Programs Operate

Training Within Industry experience has proven that results come only when *daily* use is made of what has been acquired through basic training. Accordingly, T.W.I. programs are started in plants only when top management, as a result of spending the time necessary to understand the programs, sponsors the programs, prepares to operate them through the production organization, and demands results.

An important step in operating the T.W.I. programs is informing middle management—the persons who link top executives with operating supervision. They also must understand and accept the programs in order that the supervisors will appreciate the importance of using them.

In any plant, regardless of size, any job requires that some one person be made responsible for getting it done. Getting basic training in the T.W.I. programs accomplished and seeing that supervisors use what they have learned in order that continuing results will be obtained is a real job, and T.W.I. insists that the responsibility for this job be definitely assigned.

When these conditions have been met, the Training Within Industry Service makes its techniques available to any eligible establishment (the order of assistance being determined by the priority of importance to the war effort). T.W.I. trains a plant representative to put on the Job Instruction, Job Methods, and Job Relations programs. This preparation of trainers requires one

week. T.W.I. provides the training outlines and simple instruction materials.

The trainer conducts a program by putting on five 2-hour sessions for a group of 10 supervisors. These sessions are to be put on daily or on alternate days. Since these programs are depended upon by plants to do a production job for them, T.W.I. urges management to schedule these sessions during working hours, at plant expense.

In all three of the programs, the first session is devoted to the exposition of a 4-Step Method for supervisors to use. The other four sessions (8 hours out of the 10) are spent by the supervisors in practicing on their own problems.

If a plant is too small to have a trainer from its own staff (in general, this means plants with less than 50 supervisors to be trained), T.W.I. will arrange for an outside trainer who can be compensated for his time through state vocational funds.

After the basic training phase of any one of these programs is started, T.W.I. representatives help the plant to set up procedures to give sustained support to the programs in order that they will be used and results obtained continuously.

Union stewards are eligible for participation in the Job Relations program, either in sessions put on by union trainers under union sponsorship or as members of plant groups made up of both supervisors and stewards.

The Job Instruction Program

When a supervisor has to break in a man on a new job, he is interested in having him come up to quality and quantity requirements of production as quickly as possible, in avoiding accidents which will injure the worker, in avoiding damage to machines and equipment, and in spoiling as little work as possible.

In order to accomplish this, the supervisor needs to get ready to instruct. He must:

Have a time table—

How much skill you expect him to have by what date

Break down the job—

List important steps; pick out the key points.

Have everything ready—

The right equipment, materials, and supplies

Have the workplace properly arranged—

Just as the worker will be expected to keep it

STEP 1—PREPARE THE WORKER.

- Put him at ease.
- State the job and find out what he already knows about it.
- Get him interested in learning the job.
- Place in correct position.

STEP 2—PRESENT THE OPERATION

- Tell, show, and illustrate one IMPORTANT STEP at a time.
- Stress each KEY POINT.
- Instruct clearly, completely, and patiently but no more than he can master.

STEP 3—TRY OUT PERFORMANCE

- Have him do the job—correct errors.
- Have him explain each KEY POINT to you as he does the job again.
- Make sure he understands.
- Continue until YOU know HE knows.

STEP 4—FOLLOW UP

- Put him on his own. Designate to whom he goes for help.
- Check frequently Encourage questions.
- Taper off extra coaching and close follow-up.

Throughout the 10 hours, the trainers stress: *If the worker hasn't learned, the instructor hasn't taught.*

When supervisors use the Job Instruction steps, break-in time is reduced, accidents and scrap loss falls.

Typical results of Use of Job Instruction

Steel company—"In the past it has taken 6 weeks to break in a man or woman in handling a traveling overhead crane. After J.I. training of instructors in how to break in people on a crane operation by following a breakdown sheet of the job, it now takes 6-1/2 days. This includes the proper operator maintenance of the crane."

Electric manufacturing company—"One month after the J.I. program was started, reject tickets were reduced about 50% in two departments with 2,500 workers."

Shipyards—"A crew, originally of 85 men, now to 70 (49 of them women), is turning out 10% more work than the original and larger crew did. Better method of training through J.I. effected this result."

Brass Company—"On one operation where 9,600 pieces were run per 8 hours, there was an average of 1,770 pieces of scrap. A J.I. key point

reduced the scrap to 25 pieces, and further application of J.I. reduced this to 5 pieces in 20,000."

The Job Methods Program

Materials are growing scarcer, machinery is difficult to replace, and manpower is critical. Better ways to use available materials, machines, and manpower are developed when supervisors use the Job Methods technique:

STEP 1—BREAK DOWN THE JOB

1. List all details of the job exactly as done by the present method.
2. Be sure details include all—
 - Material handling
 - Machine work
 - Hand work

STEP 2—QUESTION EVERY DETAIL

1. Use these types of questions:
 - WHY is it necessary?
 - WHAT is its purpose?
 - WHERE should it be done?
 - WHEN should it be done?
 - WHO is best qualified to do it?
 - HOW is the "best way" to do it?
2. Also question the:
 - Materials, machines, equipment, tools, product design, lay-out, work place, safety, and housekeeping

STEP 3—DEVELOP THE NEW METHOD

1. ELIMINATE unnecessary details.
2. COMBINE details when practical.
3. REARRANGE for better sequence.
4. SIMPLIFY all necessary details:
 - To make the work easier and safer.
 - Pre-position materials, tools, and equipment at the best place in the proper work area.
 - Use gravity-feed hoppers and drop delivery chutes.
 - Let both hands do useful work.
 - Use jigs and fixtures instead of hands, for holding work.
5. Work out your idea with others.
6. Write up your proposed new method.

STEP 4—APPLY THE NEW METHOD

1. Sell your proposal to your "boss."
2. Sell the new method to the operators.

3. Get final approval of all concerned on safety, quality, quantity, cost.
4. Put the new method to work. Use it until a better way is developed.
5. Give credit where credit is due.

American industry today is the result of improvements. Many of these improvements have been made by specialists, or else by someone who had one “flash” idea that worked. This Job Methods technique stimulates *every* supervisor to look critically at all the jobs he directs—not just once, but repeatedly, as a part of his supervisory job.

Typical Results of Use of Job Methods

Aircraft plant—“An average of 12 hours per plane was being lost in the installation and adjustment of the door-locking mechanism. Workers designed a new lock, accepted by engineering and management, with the result that perfect installation and adjustment can be made in about 20 minutes.”

Cement Company—“An improved method for feeding cement sacks into a cleaner saved 35 miles of walking per day, 70 girl employees affected.”

Warehouse—“In the operation of wrapping 100-pound to 600-pound rolls of duck, a J.M. improvement resulted in a savings of 48% in man-hours, a reduction in the department affected from 1,008 hours to 528 hours per 48-hour week, and eliminated one forklift and truck. This improvement also eliminated skin infections from handling, and results in savings at the annual rate of \$300,000 in labor and material.”

Can Company—“(1) By a new method for testing cans, the girl now doing the job can handle 3 more machines and still have 2 hours left out of 8. (2) In making solder, during busy times one man had to lift twice (once up 4 feet onto a truck and again off the truck into a smelter) a total of 8,000 pounds, or 4 tons, of material per day. By a new method, all this lifting is eliminated. (3) A new method of handling and cutting dunnage lumber results in a 25% savings in cost and eliminates 6 trips of 900 feet each way per carload of cans.”

The Job Relations Program

The supervisor can avoid many problems in his department if he builds a foundation of good relations. T.W.I. stresses these fundamentals:

Let each worker know how he is getting along.
Figure out what you expect of him.

Point out ways to improve.

Give credit when due.

Look for extra or unusual performance.
Tell him while “it’s hot.”

Tell people in advance about changes that will affect them.

Tell them WHY, if possible.

Get them to accept the change.

Make the best use of each person’s ability.

Look for ability not now being used.

Never stand in a man’s way.

People must be treated as individuals.

Applying the foundations is not, however, enough. Because problems do arise, the supervisor must be able to handle them before they seriously affect production or grow to larger proportions. The problem solving technique is:

DETERMINE OBJECTIVE

STEP 1—GET THE FACTS

Review the record.

Find out what rules and plant customs apply.

Talk with individuals concerned.

Get opinions and feelings.

Be sure you have the whole story.

STEP 2—WEIGH AND DECIDE

Fit the facts together.

Consider their bearing on each other.

What possible actions are there?

Check practices and policies.

Consider objective and effect on individual, group, and production

Don’t jump to conclusions.

STEP 3—TAKE ACTION.

Are you going to handle this yourself?

Do you need help in handling?

Should you refer this to your supervisor?

Watch the timing of your action.

Don’t pass the buck.

STEP 4—CHECK RESULTS.

How soon will you follow up?

How often will you need to check?

Watch for changes in output, attitudes, relationships

Did your action help production?

Typical Results of Job Relations

Coal mine—"As a direct result of Job Relations, the output of coal has increased 120 cars per week (480 tons of coal)."

Steel company—"Complaint cases to management have dropped 54% since J.R. was started. Grievance committee meets now on an average three times a month; formerly it was at least three times a week."

Radio plant—"Since the Job Relations program has been in effect, about 6 weeks, employee complaints or grievances have been reduced 97% from 30 per month to 1 per month."

Food plant—"Most of the problems that used to come to management are now handled by the foremen themselves. Foremen have increased confidence. The foremen are noticeably careful in making a decision to be sure they are within the practices and policies of the company so that they will be supported by their superiors."

Meeting the Plant's Overall Training Needs

The majority of T.W.I. time is spent in the field of supervision but, as stated, T.W.I. programs are not started in a plant until management has indicated its definite intent to stress their use by giving the responsibility for training direction or coordination to a specific person.

T.W.I. provides to management assistance for this training man through 4-day Program Development institutes in which the man learns and uses a 4-Step Method of meeting production problems through training.

STEP 1—SPOT A PRODUCTION PROBLEM

Get supervisors and workers to tell about their current problems.

Uncover problems by reviewing records—performance, cost, turnover, rejects, accidents.

Anticipate problems resulting from changes in organization, production, or policies.

Identify training needed.

Tackle One Specific Need At A Time

STEP 2—DEVELOP A SPECIFIC PLAN

Who will be trained?

What content? Who can help determine?

How can it be done best?

Who should do the training?

When should it be done—how long will it take?

Where should it be done?

Watch for relation of this plan to other current training plans and programs.

STEP 3—GET PLAN INTO ACTION

Stress to management evidence of need—use facts and figures.

Present the expected results.

Discuss plan—content and methods.

Submit time table for plan.

Train those who do the training.

Secure understanding and acceptance by those affected.

Fix responsibility for continuing use.

Be sure management participates.

STEP 4—CHECK RESULTS

How can results be checked? Against what evidence?

What results will be looked for?

Is management being informed—how?

Is the plan being followed?

How is it being kept in use?

Are any changes necessary?

Is the Plan Helping Production?

The institute is scheduled as two consecutive days during which the members practice the method, using material drawn from many industries. Then they return, after one week, for work on their own plans which they have meanwhile developed. Throughout, T.W.I. stresses that:

The *Line* organization has the responsibility for making continuing use of the knowledge and skills acquired through training as a regular part of the operating job.

The *Staff* provides plans and technical "know how," and does some things FOR but usually works THROUGH the line organization.

WAR MANPOWER COMMISSION

Bureau of Training

TRAINING WITHIN INDUSTRY SERVICE

C. R. Dooley, *Director*

Walter Dietz, *Associate Director*

M. J. Kane and William Conover, *Assistant Directors*

For service or further information, call the nearest
War Manpower Commission representative, or: