DEVELOPING IN-COMPANY TRAINING COURSES

systematic procedure to improve profitability of training

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How do we usually set about improving the training in our organizations?

Let us see if this seems familiar to you.

Periodically, those of us in training posts receive requests for assistance, or we spot opportunities for training improvement ourselves.

In most firms spotting these opportunities is no trick. The literature and the mail abound with lengthy shopping lists of desirable training or development projects that a progressive organization really *should* buy.

So when a training need emerges, it is very tempting to leap in to meet it. We take a look at our shopping list and in no time we introduce yet another training program or training course. How often do we establish the *relative* urgency or importance of the training need we are setting out to meet?

There are many aspects of training that need improvement in most firms, but we can't invest in them all at once. How *do* we, in practice, decide what training improvement to buy this month, next month, next year and in five years' time?

When we consider investing in new training equipment or training materials, we give a great deal of thought to the relative urgency and importance of what is available. Do we give as much attention when we are planning our investment of training time, which is much more expensive than training equipment or material?

CRITICAL APPRAISAL NEEDED

In my view, a critical appraisal of the methods we adopt in developing in-company training programs and courses is overdue.

Are we spending sufficient time investigating the *problem* to which improved training is the supposed answer?

Is training necessarily the most profitable solution to the problem? Quite often it is not. It is much more profitable to simplify the work, than to set up elaborate training courses for the workers.

Even if training *is* the best solution, improving the training in one area only is very seldom effective. So how do we decide which area deserves first priority for training improvement?

Surely a more systematic, critical approach is needed if we are to insure a satisfactory return on our investment in training; an improvement in productivity through training?

To illustrate these thoughts, let me describe how a training improvement project has typically been approached in the past. When we have seen what can occur when this old-style approach is used, we can take a look at what experience with programmed instruction would suggest is missing from the method that has so often been used.

We can then go through the same training project again; this time filling in the gaps. The second time I will be describing what might be considered an "ideal" approach to the development of training courses.

This ideal approach is, of course, not always justified economically, particularly when the course throughput of trainees will not be high. We should therefore finish by discussing a few practical short-cuts to the ideal pattern.

BASIC TRAINING DEVELOPMENT CYCLE

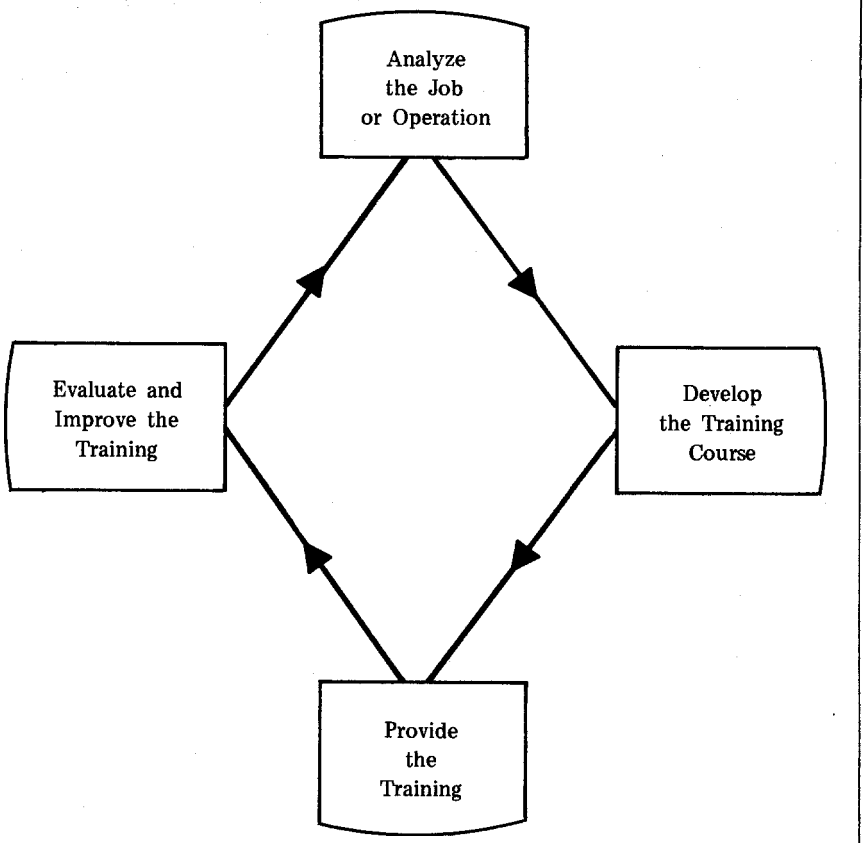
Figure 1 illustrates the four basic phases in the development of an in-company training course, whatever approach you are following.

We have called this the Training Development Cycle because developing training is really an endless activity. No sooner have you completed a training course, than you need to improve it. If you don't need to improve it, then you need to begin work on other training programs in related areas, which have been affected by the improved training.

The *first phase* starts with the job or operation (e.g., the job of a "Secretarial Clerk" or the operation of "Writing Effective Business Communications"). In fact, whatever training you are intending to develop.

The *next two phases* are self explanatory.

Figure 1. The Basic Four Phase Training Development Cycle



The *last of the four basic phases*, is the check-up on results of the training (however informal) and the modification of the initial attempts.

PRACTICAL EXAMPLE

Let us follow these four basic phases through in a little more detail. We can take as a typical example a project undertaken by the training officer in a fertilizer factory.

The production manager came to the training officer's office one morning with a problem. He was concerned about the number of accidents he was having among the new laborers whose job it was to load fertilizer bags into railway trucks. New laborers joined the loading gangs without any training. Would the training officer assist the foreman to prepare a training program for them? Obviously, he said, if they were trained in the safe methods, the number of accidents would be reduced.

The training officer agreed that this would be a very worthwhile training project.

FOLLOWING THE FOUR BASIC PHASES

Analyze the Job. The training officer spent many hours with the foreman preparing job instruction breakdowns of the various jobs undertaken by the loading gangs.

Particular attention was paid to the safety key points in the breakdowns.

Develop the Training Course. A training course program was prepared. The course covered four full days and included all aspects of the work of the loading gang.

An instructor was selected and trained to put the course across.

Provide the Training. New starts were put through the training course in small groups. Demonstrations were given on the correct working practices with particular emphasis on safety. Trainees were tried out in turn and were questioned on their knowledge of the safety key points.

At the end of the course, they were allocated to one of the loading gangs.

Evaluate and Improve the Training. The training was extremely thorough and very few trainees failed to satisfy the foreman at the end of the week that they could do the work safely. The production manager, the foreman, the training officer and the instructor were all extremely pleased with the course.

Minor improvements were made and the training continued for three months on a routine basis.

An analysis was then made to compare the accident rate among the trained group with an equivalent group who had not received any formal training. To everyone's dismay, there was no significant difference between the two groups. The training course had not succeeded in reducing the accident rate among new starts in the loading gangs.

What had gone wrong?

To help us find out, we should take a look at the programmed instruction approach to training.

IMPORTANCE OF SYSTEMATIC PREPARATION IN P.I.

It has often been stressed that the effectiveness of a programmed book or teaching machine is dependent on one important factor. That is, the amount of care that went into the preparation of the training material presented.

Of course, this isn't a question of conscientiousness. It is a question of following a systematic method of preparation.

Some of the important steps in this method are, for example:

1. Study the context of the job in which training is needed (i.e., the part that the job plays in the organization, the nature of the supervision, the present training procedure, etc.).
2. Decide the part that programmed instruction could play in the total training situation. (i.e., to what part of the training is programmed instruction appropriate?).

3. Study the job in detail (i.e., find out how it is done successfully — and not so successfully — in order to establish the factors critical to success).
4. Decide knowledges and skills trainees should have when they have completed the programmed part of the training (i.e., the target performance for the programmed instruction course).
5. Decide knowledges and skills trainees should have when they begin the program (i.e., performance standard that can be expected before the training).
6. Prepare tests that will determine whether these standards have been reached (i.e., the method of checking the agreed starting and finishing standards).
7. Decide the *minimum* training content needed to bring trainees up from starting level to finishing level (i.e., what MUST be put across).
8. Decide best learning sequence in which to present the training content (i.e., to assist the learners to learn as easily as possible).

Of course, there are many more, but these items are typical of the things that *must* be done properly in the preparation of programmed training material. If any item is omitted, or done poorly, the success of the program is endangered.

LIMITATIONS OF JOB INSTRUCTION APPROACH

In the case of our training officer in the fertilizer factory, he carried out some of these steps most conscientiously. Unfortunately, others were completely overlooked. Most significant of these omissions were the first two steps.

Since he had relied only on the job instruction approach, this is quite understandable. Job instruction was never designed for off-the-job training given by special instructors. Job instruction is essentially aimed at on-the-job training given by the supervisor of the trainees. Its greatest asset is its simplicity and therefore its (relative) acceptability to working supervisors.

Something more than a complete reliance on job instruction should, however, be expected of professional training people.

MORE COMPREHENSIVE PROCEDURE

Now let us look at a more comprehensive approach to developing training courses — one that owes a lot to both job instruction and programmed instruction.

PHASE 1: IDENTIFYING PRIORITIES FOR TRAINING IMPROVEMENT

Firstly, the training officer examined the problem, as stated by the production manager (i.e., too many accidents to new loaders). He recognized that providing them with a training course may *not necessarily* be top priority for training improvement.

He then set about finding out how the course requested could be expected to improve the accident rate. He talked to the foreman and to the loading supervisor. He spent a lot of time watching the loading gangs at work. He paid particular attention to the supervision they received from above. He noticed that there was a wide variety in working methods between the gangs. He also noticed that the methods of supervision varied widely.

He then took a look at the plant accident statistics, and *here* he struck gold. He found that there were lasting differences in accident rates between gangs of some supervisors over a 12-month period. The differences were persistent, despite the fact that the members of the gangs were constantly changing. This meant that the supervisors, not the loaders, were the ones influencing the high accident rate.

The training officer went back to the production manager to report his findings. He said that the value of standard training for new loaders would be largely undone by the subsequent supervision they received from above. He recommended that, instead, top priority be given to training the loading supervisors.

Shown the facts, the production manager immediately agreed to the revised approach.

PHASE 2: ANALYZING THE JOB

The first thing necessary was to establish exactly what constitutes effective supervisory practice. How does the good supervisor with a low accident rate work? How does a poor supervisor with a high accident rate work? How are the difficulties encountered by the poor supervisor overcome by the good supervisor?

While investigating these factors, the training officer found that it was not the knowledge of the safe working methods that separated the good from the poor supervisor. The poor supervisor *knew* what his loading gang was supposed to do. What he *did not* know was how to get them to work at top speed without sacrificing safety.

The training officer now knew what training the supervisors needed. Training in the safe working methods of his gang was *not* required. What *was* needed was training in the planning and supervision aspects of their work.

The training officer now made a close study of the way these tasks were undertaken by good supervisors. The breakdowns he made were checked by the foreman to insure that the best methods would be used as the training content.

Then it was necessary to decide "How can satisfactory planning and supervision be measured?" That is, "What measurable standard must we set for our trainees to achieve on the job?"

Direct measurement being difficult, the training officer decided to measure planning and supervision in terms of results. For example, "to reach Experienced Worker Standard, the loading supervisor, given five trained loaders and a portable conveyor, must be able to completely load three railway trucks within four hours, without allowing any deviation from the standard method." Another example, "given a loading target for his shift, he must provide the foreman with a list of his complete dunnage and tarpaulin requirements within the first half-hour of his shift."

PHASE 3: PLANNING THE TRAINING STRATEGY

Now that he has fixed his training content and his target performance, the training officer needed to plan the training approach. All training need not *necessarily* be given in a formal training course.

It was necessary to decide HOW should each aspect of the training be given (e.g., individual learning or group learning, formal presentation or discussions, project work or exercises, etc.). Also WHO is the best person to give each aspect, WHEN and WHERE should it be given.

The training officer recommended that the foreman and the senior loading supervisor give the basic training during overtime, in groups of three or four. The senior supervisor would follow up each trainee over a four-week period after the training was completed.

It was then necessary to decide what level of knowledge and skill should be expected at the start of the formal training and what level at the finish (i.e., before coaching on-the-job). He decided that knowledge of standard loading procedures were needed at the start; and a knowledge of planning and supervision procedures expected at the finish. Verbal tests of knowledge were prepared to check whether these standards were achieved.

PHASE 4: DEVELOPING THE TRAINING COURSE

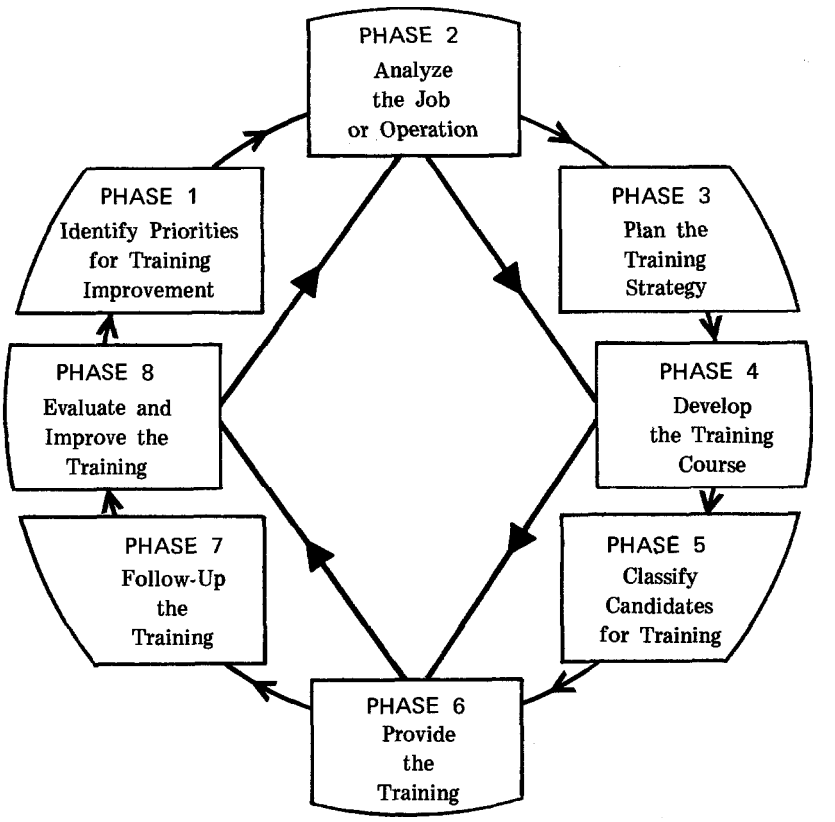
Working with the foreman, the training officer prepared a carefully graded course, designed to insure continual progress and feed-back for the trainees. He then coached the foreman and senior supervisor in the presentation of the course. Minor changes were made and a rough course manual was compiled.

PHASE 5: CLASSIFYING CANDIDATES FOR TRAINING

The training officer recognized that training should always be given to meet individual needs. One or two supervisors, for example, probably did not need any formal training. Possibly all they needed was coaching on the job.

This meant classifying trainees according to their needs. Figure 3 shows the system used.

Figure 2. The Eight Phase Training Development Cycle



The Experienced Worker Standard had already been decided (i.e., three trucks loaded within four hours, etc.). Any supervisor whose need for this training was in doubt was given this "test." Three supervisors were able to meet the standard but fell down on a few minor points. They were given appropriate coaching by the senior supervisor on the job and, with suitable pats-on-the-back were left to carry on doing a good job.

The foreman gave the verbal Course Entry Test on the standard loading procedures to the remaining supervisors. Two were not up to standard and were given individual coaching on the loading procedures by the senior supervisor. Those that *were* up to standard were nominated for the training course.

PHASE 6: PROVIDING THE TRAINING

The training was given as planned, but adjusted to meet the difficulties that the trainees encountered.

At the end of each course, the trainees were given the simple verbal test to find out whether the expected Passing Out Standard had been achieved. Those that failed to reach the standard were given individual coaching after the course.

PHASE 7: FOLLOWING-UP THE TRAINING

After each session of the course, each trainee was given coaching on the job by the senior supervisor. He was shown how to apply what he had learned on the course *in his own job.* In this way knowledge acquired during the course was turned, without delay, into skill on the job.

As soon as possible, the Experienced Worker Standard "test" was given to each trainee. The supervisor was told that he had met the standard expected and that a periodic check would be made to assist him in maintaining it.

PHASE 8: EVALUATING AND IMPROVING THE TRAINING

Finally the training officer reviewed the results of the Passing Out Test and the difficulties encountered by the trainees during follow-up. This answered the question "How well did the training succeed in improving the performance of loading supervisors on the job?"

Then he asked himself the question "How profitable was this training?". That is, "What results were obtained from this training?" (e.g., reduced demurrage on trucks, reduced accidents, reduced damage to bags, to equipment, etc.). Also, "How could I get the same or better results, at a lower cost the next time the training is given?"

Armed with the answers to these questions he was able to plan improvements to the training strategy, course objectives, course material, course presentation and/or follow-up on the job.

THE COMPLETED TRAINING DEVELOPMENT CYCLE

This completed the top priority project. The whole exercise had taken the training officer two months of work, spread over a period of about six months, but results proved that the time had been well invested.

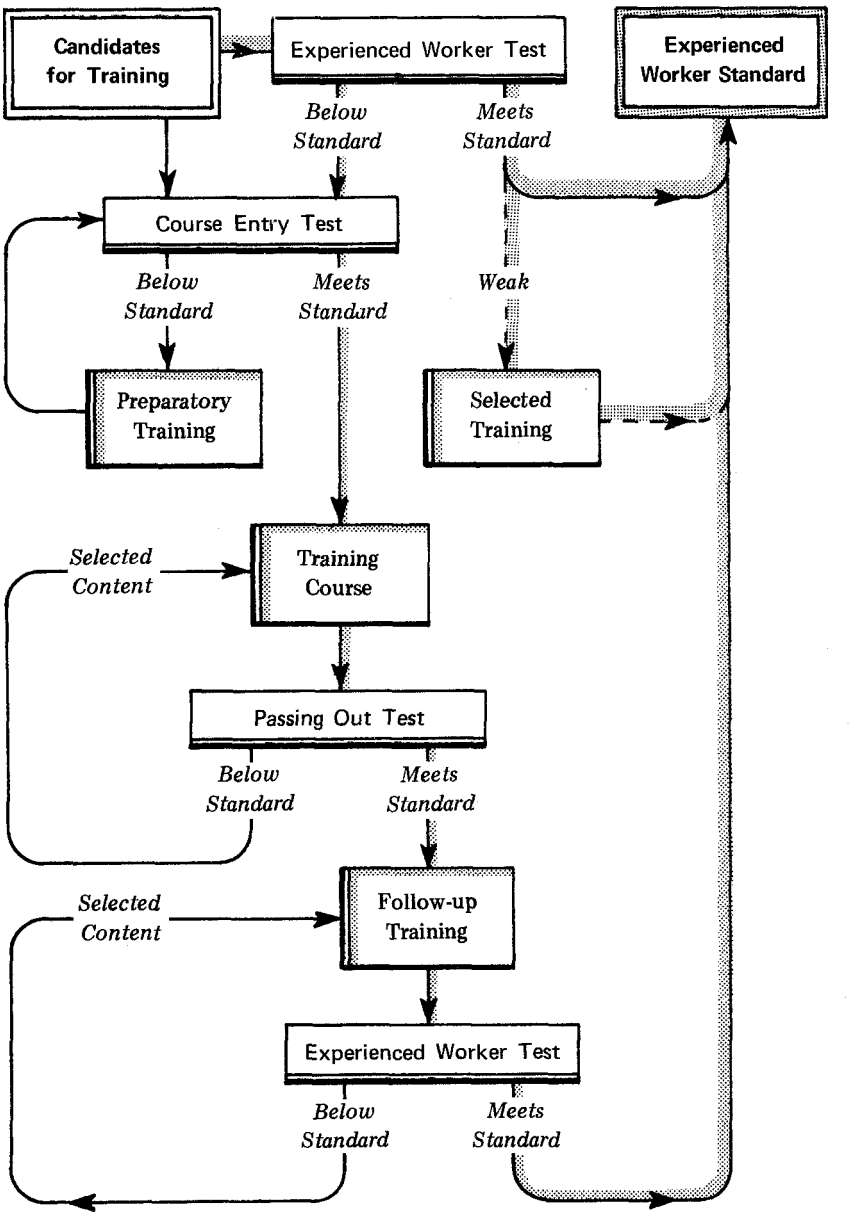
He now took another look at the priorities for training improvement. The question of training new loaders had not been fully tackled. Was there still a need for a formal training course or would their training be better undertaken by the individual loading supervisors? He didn't know immediately, but he did know that now it wouldn't be too difficult to find out.

MAIN FEATURES OF NEW APPROACH

Before looking at the abbreviated procedure which he followed, let us sum up the main features that make the eight-phase approach different from the basic job instruction approach.

1. The problem that training can help to alleviate is clearly established at the start (e.g., some supervisors are unable to enforce safe practices without falling behind on work output).
2. Formal training is planned to supplement, not to replace existing informal training (e.g., knowledge of planning and supervision given off-the-job; skill developed through coaching on-the-job).
3. Performance standards required are specified before the training content is decided (e.g., Experienced Worker Standard of loading rate, etc., provides direction to the development of the training).
4. Minimum training content needed is all that is given (e.g., no training on the safe loading practices was given during the formal course).
5. Trainees are given training to match their individual needs (e.g., three supervisors were given only coaching on the job, two were given preparatory coaching for the course and the

Figure 3. Training Routes to Experienced Worker Standard on the Job



rest went straight on to course training).

6. Training content is arranged for best learning, not for best doing (e.g., the easiest and most interesting aspects were put across first to capture the learners' interest and confidence).

SHORTENED TRAINING DEVELOPMENT PROCEDURE

Now finally, let us return to the fertilizer factory to look at an abbreviated training development procedure.

The training officer's concern now was the training of new loaders.

Phase 1: **Identifying Priorities.** This phase was omitted (priorities had already been established).

Phase 2: **Analyzing the Job.** This phase was thoroughly covered. All the tasks were listed and task breakdowns prepared. Experienced Worker Standard was specified for each task.

Phase 3: **Planning the Strategy.** Each task was questioned and a decision made as to whether the training was best provided in a preliminary course or on-the-job by the loading supervisor.

Most tasks fell into the latter category and it was decided to use a learner-controlled training approach.

A few general items were included in an induction course to be given by the senior supervisor on the first morning.

Phase 4: **Developing the Course.** A manual for the induction course was prepared and the senior supervisor was trained to put it across.

Training objectives had been prepared for the tasks that the new loaders would learn on-the-job. The loading supervisors were then trained to use these in giving on-the-job coaching.

Phase 5: **Classifying Candidates.** This phase was omitted (none of the new starts had worked in the factory before).

Phase 6: **Providing the Training.** The induction program was run along formal lines, but the coaching of new starts on the job was extremely informal. The main emphasis was on telling the trainee

DEVELOPING TRAINING: CHECK LIST

Phase 1: **Identify Priorities for Training Improvement.**

- 1.1 Have I established the real problem that improved training is expected to alleviate?
- 1.2 Is improved training the best solution to the problem?
- 1.3 Have I established which job or operation deserves top priority for training improvement?
- 1.4 Apart from training, what else is needed to alleviate the problem?
- 1.5 Does the head of the unit concerned fully support my proposals?

Phase 2: **Analyze the Job or Operation.**

- 2.1 Have I established the best way of doing the job or operation?
- 2.2 What background is needed in learning the job or operation?
- 2.3 Have I spotted the aspects which are most and least important and the aspects which are most and least difficult to learn?
- 2.4 Have I spotted the types of learned performance involved, which indicate the need for special instructional methods?
- 2.5 What standards of performance are expected from an experienced worker on the job?
- 2.6 How will performance standards be measured?

Phase 3: **Plan Training Strategy.**

- 3.1 Have I specified the total content in which training is needed?
- 3.2 Have I decided the best way to handle each aspect of the training?
- 3.3 Do the supervisors of the trainees fully support my proposed training plan?
- 3.4 What standards of performance do I expect the trainees to have before and after the formal training course?
- 3.5 How will these standards be measured?

Phase 4: **Develop the Training Course.**

- 4.1 In selecting instructional methods, did I consider the importance, learning difficulty and types of learned performance involved in each aspect of the training? *
- 4.2 Have I prepared an adequate lesson plan to guide the presentation of each session?
- 4.3 How will I check the progress of the trainees during the course?
- 4.4 Does the time table offer sufficient variety to maintain the trainees' interest?
- 4.5 What instructional aids and equipment will I need to prepare for the course?

*See *Developing Vocational Instruction*, Mager and Beach Fearon

what he was expected to be able to do, and on regular checks on progress.

The senior supervisor did his own checks to ensure the loading supervisors were providing the coaching that was needed. The senior supervisor formally passed out each new start when advised to do so by his supervisor.

Phase 7: **Following-up.** This phase was omitted (trainees were coached right up to Experienced Worker Standard by their own supervisors).

Phase 8: **Evaluating and Improving the Training.** The training method chosen was extremely economical and only informal checks were made on its effectiveness. Needless to say, the accident rate improved still further. All concerned were satisfied that the approach used had adequately met the needs of the situation.

SUMMARY AND CONCLUSION

Unfortunate past experience indicates the need for a much more systematic, much more critical approach to the development of in-company training courses and programs.

More time needs to be allocated for investigating the problem that training is expected to solve or alleviate, before any decisions about training are made. When the problem has been identified, priorities for training improvement need to be established.

In developing the course itself, a systematic approach is needed to insure that the spectacular benefits obtained from programmed instruction in a relatively narrow training field, are also realized from conventional training courses. The checklist in the box should assist professional training personnel in progressing towards this target.

All too often, our training programs fail to realize their potential return on the money we have invested in them. The eight-phase Training Development Cycle provides the framework for systematically improving the profitability of all our in-company training courses. It provides a means of making worthwhile improvements in productivity through training.

4.6 Have the instructors been coached during a course try-out and modifications made as indicated by experience?

Phase 5: **Classify Candidates for Training.**

5.1 Have the trainees been properly briefed by their supervisors?

5.2 Have the trainees been screened to establish their individual training needs?

5.3 Will training be given specifically to meet the established needs of individual trainees?

5.4 Will preparatory training or coaching on-the-job be needed to supplement the formal training course?

Phase 6: **Provide the Training.**

6.1 Was the course presentation adjusted to meet the needs and difficulties of the trainees?

6.2 Have the trainees been checked and given regular feed-back on their progress?

6.3 Was assistance given to trainees that needed additional coaching?

6.4 Were the trainees' performance standards checked at the end of the course?

Phase 7: **Follow-up the Training.**

7.1 Were the trainees allowed to apply their learning immediately after the course?

7.2 Were the trainees briefed on the standards of performance expected of them as experienced workers?

7.3 Were the trainees given the additional training and coaching they needed to bring them up to the standard in the minimum time?

7.4 Were the trainees checked and given regular feed-back on their progress?

7.5 Were the trainees' performance standards checked as soon as they were thought to have reached the standard expected of an experienced worker?

Phase 8: **Evaluate and Improve the Training.**

8.1 Did the results of the test at the end of the course indicate that the trainees learned what was taught?

8.2 Did the trainees performance on the job during the follow-up period indicate that what was taught had helped them quickly to reach the standards expected of an experienced worker?

8.3 Have the results obtained helped to alleviate the original problem?

8.4 Could the same (or better) results of the training be obtained in the future at a lower cost?

8.5 What improvements in the training will be made for the future?