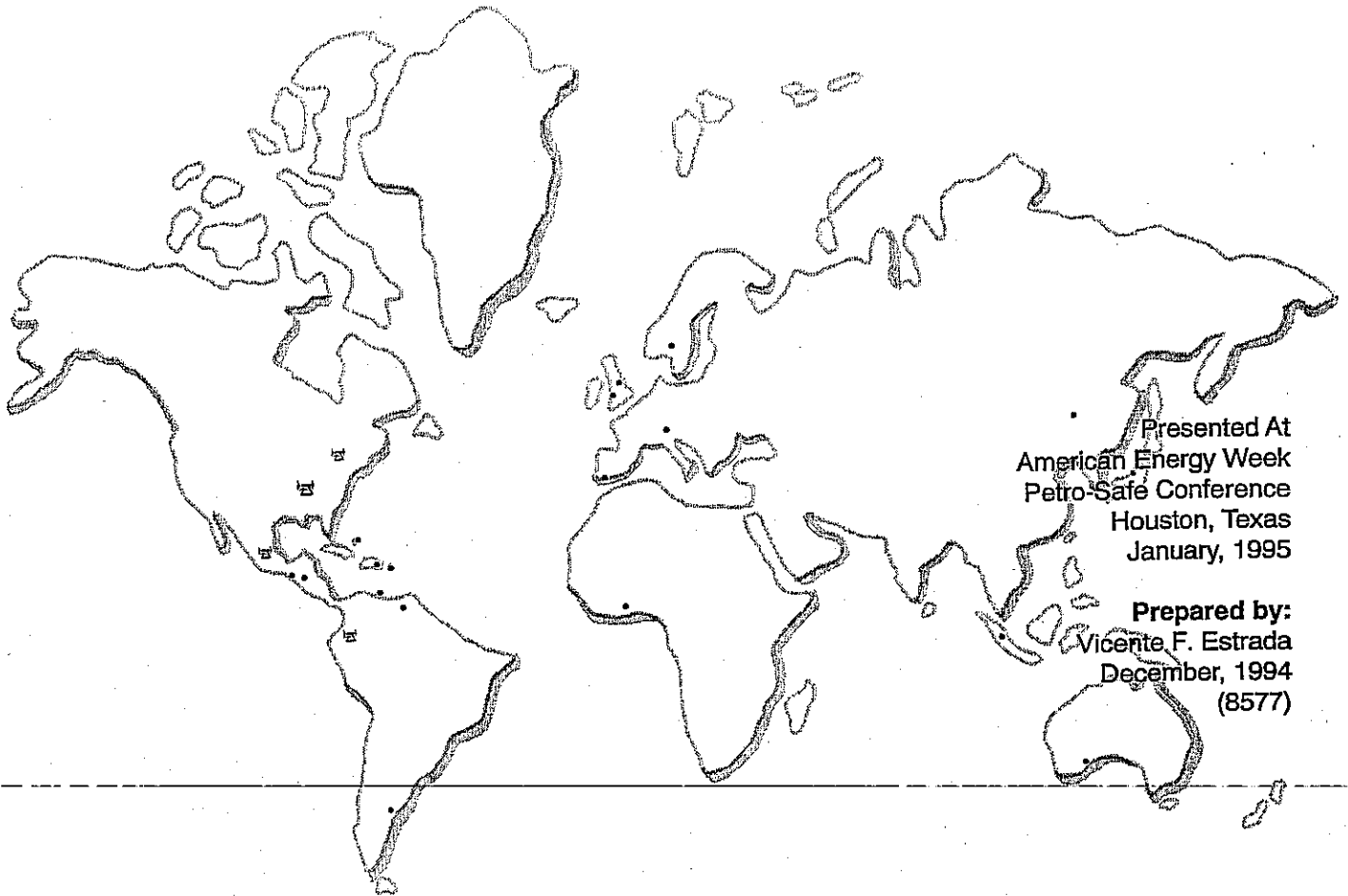


# PA72

## Strategies For Structured Workplace Learning



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## **1:00** **INTRODUCTION**

The rapid advance of technology and the need to compete globally has put special demands on the technical training of people in industry. The previously popular classroom training and on the job training no longer give us the speed of learning we need. The rate of technological advance and other organizational changes is higher than our ability to learn by conventional methods.

It is not feasible to create a "learning organization", an imperative of the 90's and beyond, unless and until we put the learner at the center of, and able to influence his/her learning process. This in turn requires two things: a) a structured, well resourced workplace learning scheme and b) learners who know how to learn.

In this paper we will describe a different approach to training which incorporates the advantages of classroom and OJT while at the same time minimizing its disadvantages and adding some unique features. This method of **structured learning in the workplace** we will call **at-the-job learning (AJL)**.



Revision Approved By: \_\_\_\_\_

Date Approved: \_\_\_\_\_



**2:00**

## **WHAT YOU WILL LEARN**

As a result of this paper you will learn:

1. The differences between, and the advantages and disadvantages of, classroom training, on the job training (OJT) and how they compare to at-the-job learning (AJL).
2. The 10 steps needed to install the AJL process.
3. The resources required by AJL and how the learners use them.
4. The essential adult learning concepts needed for AJL to work.
5. The 5 functions of the supervisors (or trainers, or coaches, or mentors...) in the AJL process.



**3:00**

## **CLASSROOM TRAINING AND ON-THE-JOB TRAINING**

First, let's briefly review these two well known methods and explore their respective advantages and disadvantages.

### **3:10 CLASSROOM TRAINING**

This type of training is usually done with a group of learners who are taken off the job and located in a classroom, often remote from the workplace. An instructor, knowledgeable of the subject matter is given the responsibility for running the training session. The session is run classroom style, with the instructor being the "subject matter expert". The instructor usually works from some form of lesson plan. There is also typically some documentation available to the learners. This documentation can take the form of vendor materials, a text of some kind, some engineering information, etc. More often than not, the documentation used in classroom training is what happens to be available, rather than exactly what's needed.



Classroom training has its advantages and disadvantages. Let's look at them:

### **3:11 ADVANTAGES OF CLASSROOM TRAINING**

- The content of the training is, at least partially, identified in the documentation and the lesson plan.
- The learners are not alone. They can work together.
- The instructor knows what training is to be done.
- The learners can get their questions answered easily.
- The instructor can determine if the learners have learned what they were taught.
- Training time is controlled and relatively short.
- Records of the training are usually kept by the instructor.
- Test results provide some measure of learning.
- The learners learn some basics and are somewhat prepared for further learning back on the job.

### **3:12 DISADVANTAGES OF CLASSROOM TRAINING**

- Can be difficult to organize and schedule.
- It takes the instructor and the learners away from productive work. Therefore, it tends to be costly.
- Learners rely too much on the instructor. They do not learn how to learn for themselves.
- Documentation is not prepared with learner in mind.
- Little to no "hands on" experiences during the training.
- Requires considerable expertise on the part of the instructor.
- Requires considerable preparation time by the instructor.

- The transfer between classroom learning and the application on the job is not strong enough.
- The learning only partially prepares the learners to do the job.
- Training does not start "where the learner is...". All learners are assumed to be equal.

### **3:20 ON-THE-JOB TRAINING**

In the OJT approach to training, the learner is teamed up with an experienced person who is supposed to help the learner learn the job, while he, the experienced person, does the job. The learner learns by himself by first observing what is being done and as opportunities arise, is given the chance to do the work under the guidance of the experienced person. As the learner shows he is becoming proficient, he is allowed to do more of the work, still under the guidance of the experienced hand. After some period of time, when the learner is judged to be competent enough to do the job on his own, the experienced person leaves and the learner is allowed to do the work on his own.

### **3:21 ADVANTAGES OF ON-THE-JOB TRAINING**

- The learner only needs to learn what he has to in order to do the work.
- No formal training manuals need to be prepared.
- Cost of training is relatively low and often absorbed by operating costs.
- Requires little input from the learner's boss (supervisor).
- Could develop good teamwork between learner and mentor.

### **3:22 DISADVANTAGES OF OJT**

- The learner only learns to do the job. May not develop an understanding of the why's of the work.
- Content of the training vaguely defined and highly dependent on the experienced mentor.
- The mentor may not know how to train.

- Takes a long time.
- Often, when "really important work" comes up, the learner is not allowed to participate.
- It may not be possible to experience all aspects of the job during the training period.
- Mentor may have some bad practices that are passed on to the learner.
- Mentor may hold back some crucial information which he considers "tricks of the trade".
- Difficult to manage since results are usually not defined and therefore not documented.
- Learner's supervisor often left out of the loop, which makes follow up very difficult.





4:00

## A STRUCTURED WORKPLACE LEARNING CALLED "AT-THE-JOB" (AJL)

Let's begin with an "operational definition" of AJL.

*"When learning takes place in the real workplace environment, against learning objectives that derive from and contribute to plant performance objectives, using a documented structure that conforms to the adult learning process, in which the learner is expected and encouraged learn by direct confrontation with what's being studied (as opposed to being 'taught'), the conditions necessary for effective At-The-Job learning are present."*

### 4:10 THE AJL PROCESS

AJL is a process. It is more than just taking the person and putting him with a mentor, and more than just being taught by a knowledgeable instructor in a classroom setting. AJL contains some of the good features of these two approaches, except that it contains more than both of those combined. In addition, it overcomes the poorer features of both of them while adding some new, better features.

The main feature of AJL is that it is a managed process. There are principles, tools and techniques that allow the learner to do a lot of self-directed learning and his/her supervisor to manage the process. The supervisor of the learner(s) gets involved in:

- Determining what his people need to do, know and use in order to do the job to the needed standards.
- Assessing the training needed against those standards.
- Developing a plan to get the training done.
- Monitoring the progress of the learning and taking part in some of the actual training.
- Measuring the results of the training and keeping track of those results.

Viewed as a process, AJL has a number of related steps. ♦Figure 1 "At-The-Job Learning Process" shows a 10-step AJL process as it is practiced by several organizations. These 10 steps are:

1. Orient management on the principles and practices of adult learning as applied to AJL.
2. Train supervisors (and/or others) on how to manage the AJL process, including setting goals.
3. Determine the needs of each job in the department (or plant, or unit).
4. Determining the learning needs of the work group.
5. Explain the AJL process to the work group(s).
6. Develop AJL learning plan for each individual.
7. Prepare schedules, budgets and manning.
8. Learn at-the-job (several options available, as shown in Fig. 1 "The At-The-Job Learning Process")
9. Measure the learning results
10. Review learning results against business performance objectives and set new AJL goals.



## 4:20 RESOURCES NEEDED FOR AJL

An essential component of AJL is the placing of the learner at the center of, and in a strategic position to influence, his/her learning process. All good adult-based training is learner-centered. AJL is especially so.

At the center of the learning process, our hero, the learner, ought to reign supreme; and other factors, both things and people should be viewed as learning resources. One of the things the learner needs to learn is how to effectively utilize those resources. Put in other words, **the learner needs to learn how to learn.**

Following is a list of the resources needed for effective structured workplace learning.

- Task analysis
- Learning documentation
- Learning aids
- An understanding of the learning process
- The learner's supervisor (or leader)
- Peers (other learners and "experts")
- The workplace itself

Let's look at these resources briefly.

### 4:21 TASK ANALYSIS

Recall in the AJL operational definition presented earlier a reference to "learning objectives and plant performance objectives". Task analysis help make those objectives visible and administratively feasible. Task analysis also makes visible to the learner the connection between his/her job and the training. This in turn addresses one of the fundamental "laws of learning", the law of **relevance**. Tending to this law produces the fuel that sustains self-directed workplace learning: motivation. Procedurally, task analysis is a matrix of the plant's technology (processes and/or equipment) that is operated and maintained, versus the requisite skills to operate and maintain that technology. See Fig. 2 "Example Task Analysis". The skills are spelled out in the form of what the learner needs to become able to **do**, what he needs to **use** to do it, and what he needs to

**know** to do it with understanding. Each applicable intersection of do-use-know is a performance task to be learned and mastered, and a yardstick with which to measure training success. In this fashion, a second law of learning, the law of **readiness** is addressed; the learner knows what's expected and how the score is going to be kept.

### 4:22 LEARNING DOCUMENTATION

A properly prepared task analysis provides the basis for developing the training documentation - the training manual, if you will. What gets documented are the applicable intersections in the task analysis; nothing more, nothing less. This defines the content of the training anchored on the technology of the plant. But there is an equally important consideration besides content, and that is how the training is structured -- how the content is packaged. The structure of the training documentation needs to have two important characteristics. It must be the same from module to module so that the user knows where to find what's needed, independently of which module he's trying to learn. And the structured must be such that it conforms to the natural adult learning process. Contrary to what some people think, learning is not a logical process wherein learning moves from the simple to the complex in discrete, linear increments. Learning is a psychological process wherein the learning proceeds from the crude whole, to its parts and their relationships, and back to the detailed whole. This cycle of increasing but relational detail makes manifest the functional relationship of the parts to each other and to the whole. This concept is known as **gestalt structured learning**. Good training documentation ought to have that kind of structure. Although the concept may seem complex as explained, it really isn't. There is compelling evidence suggesting that this is in fact the way we learn. Another important consideration of this structure is that people in industry -- the operator, the mechanic -- deal day-to-day with true functional entities, with "gestalts", whose functional relationships need to be made visible in the training and its documentation. In addition to the obvious advantage of providing a lasting reference for the learner to use as he learns, a properly formatted training document makes uniquely visible the structure -- the essence -- of what's being learned,



in a way that makes possible the self-learning of other processes and equipment that have the same or similar structure. As Dr. Jerome Bruner notes in his landmark book *The Process of Education* "learning should not only take us somewhere; it should allow us later to go further more easily..."

#### 4:23 LEARNING AIDS

In addition to the "paperware" discussed above, there are other types of learning aids of the "hardware" and "software" variety that can be most useful to the workplace learner. Hardware learning aids are things like demonstrators or simulators involving small scale equipment. Software aids are those using computers. In either case, these aids must be selected to help deliver specific learning points derived from the task analysis. In the selection of learning aids, we must be constantly guarded against "hardware hypnosis and software seduction". The prescription to minimize this risk is simple: use a learning aid to deliver a learning point (or a group of related learning points) that can best be delivered -- or perhaps can only be delivered -- by the learning aid in question. It is also important that the learning aids be of the kind that the learner can use on his own, without the need for on going intervention of "experts". Properly selected learning aids are especially powerful in connection with **inductive** learning. This type of learning makes possible the self-directed acquisition of concepts or principles. Thoughtfully designed experiences using learning aids enable the learner to "induce" from the specific experience the fundamental concept or principle involved. This "guided discovery" addresses a third law of learning. The law of **impact**. Nothing can be more impacting in learning than what one discovers by himself.

#### 4:24 THE LEARNING PROCESS

The one intangible resource the learner needs for effective workplace learning is an understanding of the learning process -- an awareness of how he learns. This awareness begins with the realization that learning is a process; that it has inputs and outputs and that it has processing stages which process the inputs to produce the outputs. To this extent we all learn the same way. Yet we seem to have different preferences for our approach to learning. We

have different **learning styles**. The workplace learner and those helping him to learn -- primarily his supervisor -- need to be aware of these concepts. They need to know the essence of the learning process as well as its four styles: Concrete, Reflective, Abstract and Active Experimentation. Again, the effective workplace learner needs to learn how to learn.

#### 4:25 THE SUPERVISOR

Self-directed workplace learning (AJL) tends to imply that there is no need for an "instructor". No and yes. No instructor is needed in the sense of a traditional "teacher". But yes, in a sense of a "supervisor of the learning process". Preferably, this "learning supervisor" should be the real supervisor of the workplace learner. Why? Because this supervisor is strategically positioned to help and, when everything is said and done, the learner will naturally turn to his supervisor for real life work direction; and remember, we are talking about workplace learning - as we do the real work. So, in a structured workplace learning scheme the supervisor needs to be trained to: how to make available to the learner the needed resources, how to develop task analysis, the learning process and the learning styles; the key adult learning concepts such as the laws of learning, gestalt structure, inductive learning. Without interfering with the workplace, self-directed learning, the supervisor needs to learn how to manage learning in the feedback mode (he does this by defining the learning objectives, providing the needed resources, defining the "fences" that cannot be crossed, participating in the measurement of results and helping in the corrective actions needed if the results do not match the objectives. To recap: the effective AJL leader:

- Helps define what needs to be learned.
- Arranges to have learning take place.
- Makes sure that the right things are being learned.
- If learning is not taking place or if wrong things are being learned, takes action to remedy.



- Does what he can so that learning takes place safely, economically and with learner satisfaction.

#### **4:26 PEERS**

An important and even inevitable resource of workplace learning are the learner's peers. Experienced peers in particular have potentially a lot to offer to the workplace self-directed learner. The trick is to know how much of what the experienced peers have to offer is appropriate. The answer lies in some of the other resources we have mentioned. If the learner is clear on what he's supposed to learn (the task analysis/performance objective resource), on what the model -- both content and structure is (the gestalt structure and inductive learning concepts), on the way he can and should learn (the learning process and learning style ideas), then and only then can the workplace learner selectively and effectively use the peers' experience as a resource.

#### **4:27 THE WORKPLACE ITSELF**

When everything is said and done, it is the physical plant, the workplace itself, where all of the AJL resources converge. It is the physical plant and its processes that provide the content for the task analysis, it is the reality of the plant technology that gets documented in training modules, it is the plant that gets emulated in learning aids, it is the basis for the work that supervisors supervise and peers operate and/or maintain. Clearly, without access to the workplace itself, AJL is not possible.





5:00

## IMPLICATIONS OF WORKPLACE LEARNING FOR THE ORGANIZATION

Properly installed AJL produces life long learners. And when you have enough of a critical mass of this type of learners, you begin creating a learning organization. This does not come without a price. And we are not talking a financial price as much as the price of changing the culture of the organization. The reason is this. Effective workplace learners learn to become very self-directed as they become increasingly competent. These competent people require less direct supervision. They are more able to make more decisions directly pertaining to their work. To use phrases of the 90's, they have been "enabled" and need to be "empowered". A traditional, top down, pyramidal organization is not the best structure for the inclusion of an enabled and empowered workforce.

### 5:10 THE FOUR REASONS

A useful way to look at the organizational implications of effective structured workplace learning of the kind described in this paper under the banner of

At-The-Job Learning (AJL) is the model of the "four reasons". Let's look at it this way:

For things to go well in an organization, the people need to:

1. **Know** what to do
2. **Have** what they need
3. Be **allowed** to do it
4. **Want** to do it

The first reason has to do with **training**. The second with **logistics**. The third with **organizational support**. The fourth with **motivation**. Of these, motivation is the result of the first 3 factors being handled properly. Seldom, if ever, is motivation a factor that can be directly addressable; and yet, as we have mentioned, it is the fuel that triggers and sustains effective workplace learning, and all that implies.



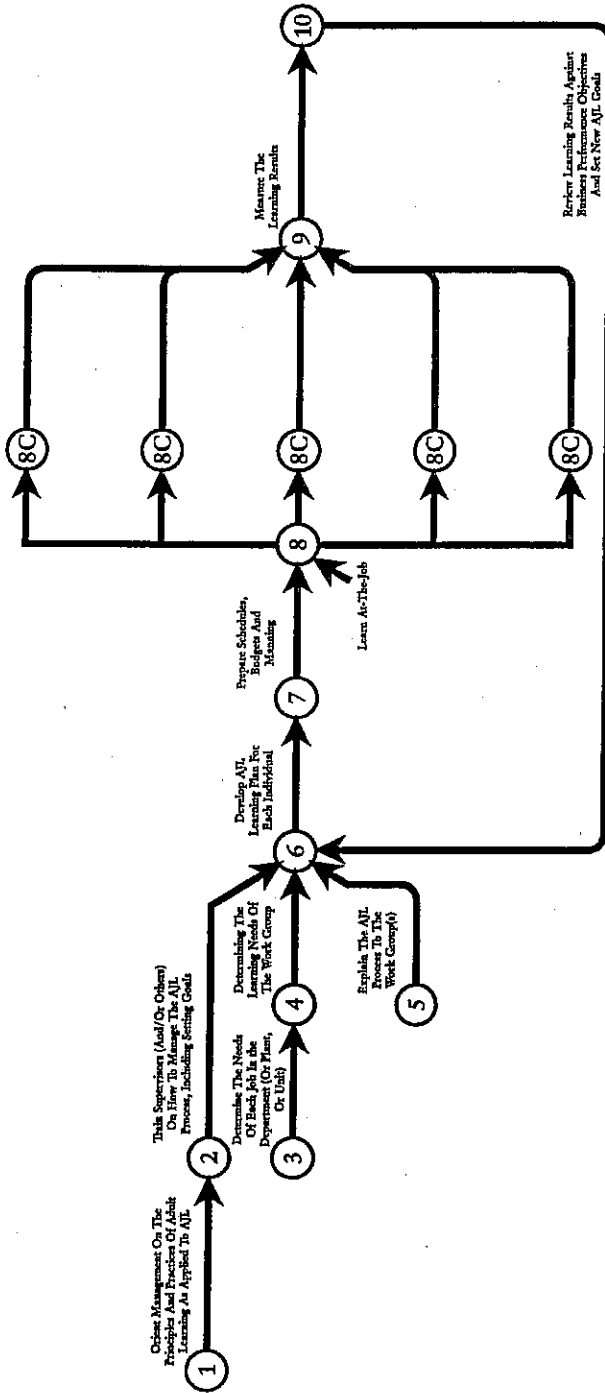


Fig. 1 At-The-Job Learning Process

