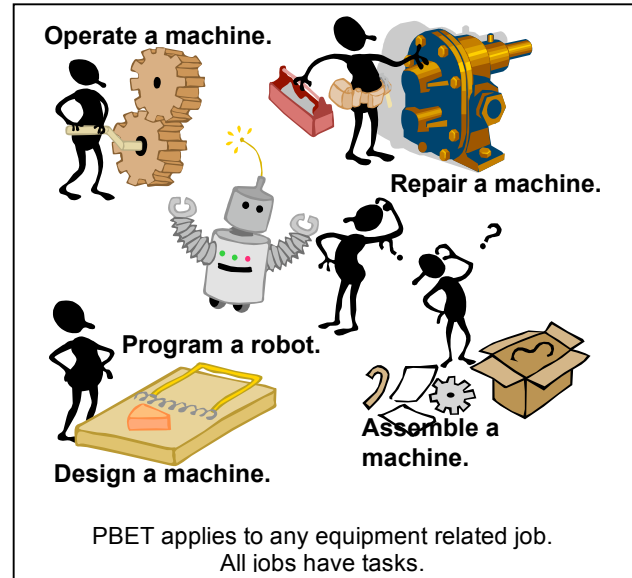## To Whom Does PBET Apply

Performance-based training can apply to any job. In fact, it has been used to improve human performance in just about every field of human endeavor. (To get an idea of this, got to www.ispi.org and click on the "Awards" link on the left side menu. Then note where it says "Award of Excellence Recipients." Click on any of the years displayed and scan the recipients and the related industries.)

Performance-based *equipment* training (PBET) applies to any who work on equipment. That includes jobs like:

- Equipment operator
- Maintenance technician or engineer
- Service engineer
- Final test technician or engineer
- Assembler
- Process technician or engineer
- Equipment engineer

Operate a machine.
Repair a machine.
Program a robot.
Assemble a machine.
Design a machine.

PBET applies to any equipment related job.
All jobs have tasks.

All jobs, including equipment jobs, can be broken down into tasks, and the tasks into steps. This is part of the "Analyze" step in PBET. Having done that, a PBET practitioner would take a look at which tasks could benefit from one or more interventions designed to improve the worker's performance of that task. Interventions include all types of training, as well as improved supervision, improved communication, many types of job aids, and more.

But Really, What About Training for Process Engineers?

As stated already, performance-based equipment training (PBET) applies to any who work on equipment, including process engineers. Creating a software program for a tester or a recipe for an ion implanter are both examples of equipment related tasks for process engineers. Nevertheless, some mistakenly believe that while maintenance trainers need to learn about PBET, process/application trainers do not.

Certainly the tasks of a maintenance engineer and a process engineer are different. Still, both jobs consist of a series of equipment related tasks. It is true that

- the tasks of a maintenance engineer (e.g., clean, drain, disassemble, calibrate, adjust, etc) are *generally* more physical, and thus more visible.
- the tasks of a process engineer (e.g., create a recipe, or set of parameters, or a software program) are *generally* more mental and less visible.
- maintenance engineers perform *some* "mental" tasks (e.g., troubleshoot failures, develop procedures)
- process engineers perform *some* "physical" tasks (e.g., operate the machine, inspect product).

All such tasks can be subjected to task analysis. Most physical tasks and many mental tasks can be considered "procedure-type" tasks; that is, the tasks can be broken down into steps and thus can be

reduced to step-by-step tables, flow charts, or similar aids.   On the other hand, for tasks that cannot be considered "procedure-type" tasks, the goal of the task analysis is to identify the relevant knowledge used by the performer to make the mental decisions, interpretations, etc.

So why do some believe that while maintenance trainers need to learn about PBET, process/application trainers do not? They may have misunderstood the scope of PBET. Some people have mistakenly assumed that

- PBET is *only* about maximizing hands-on practice, and thus not applicable to process training [they get focused on *one* of the PBET characteristics to the exclusion of the others], or
- PBET is *only* about procedure-type tasks [they get focused on *one* type of task to the exclusion of the others].

In fact, PBET is bigger than the misguided views above. There are *six* characteristics of PBET and a seven-step process.

Typically, those who deliver process engineer training start by trying to think of all that their students should know; they begin by creating slides to support their lectures. In doing this, they thwart the PBET steps (or process). Starting the creation of "content" before conducting a job analysis is a sure way to create irrelevant sections for the course.   Put it all another way, left to their own devices, process trainers very often try to imitate their college professors. The training ends up heavy on theory with limited time for demonstrations/examples and more importantly, limited time for implementation/practice. These trainers are exactly the ones who **need** to learn about PBET!

Left to their own device, process trainers duplicate their college professors.
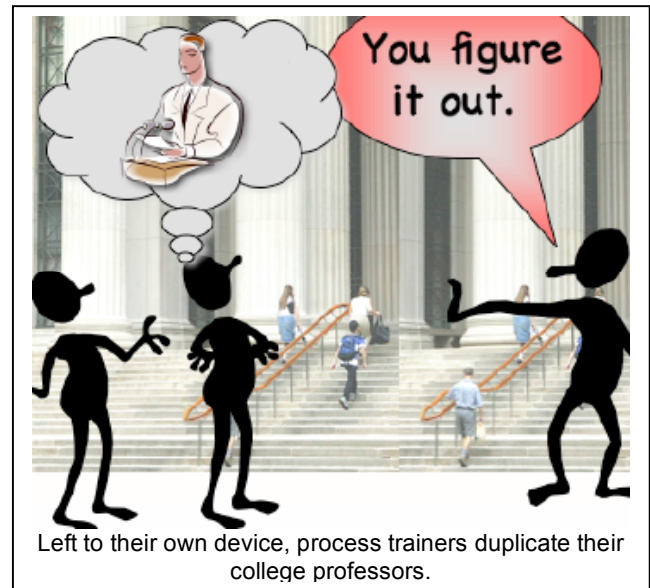
Everyone Associated with Training Needs to Learn PBET

The training team is made up of many people. There are those who develop training, those that deliver training, and those that administer training. In some cases, the same people develop and deliver the training. In other companies, these functions may be separated.

Does any of the following sound familiar?

- Software-trained experts who are deeply involved in creating e-learning with no training background.
- Field service engineers who conduct training though they have no background in training.
- Technical writers who create manuals with no clue how they integrate with training needs.
- Technical experts who are asked to provide training with no background in training.
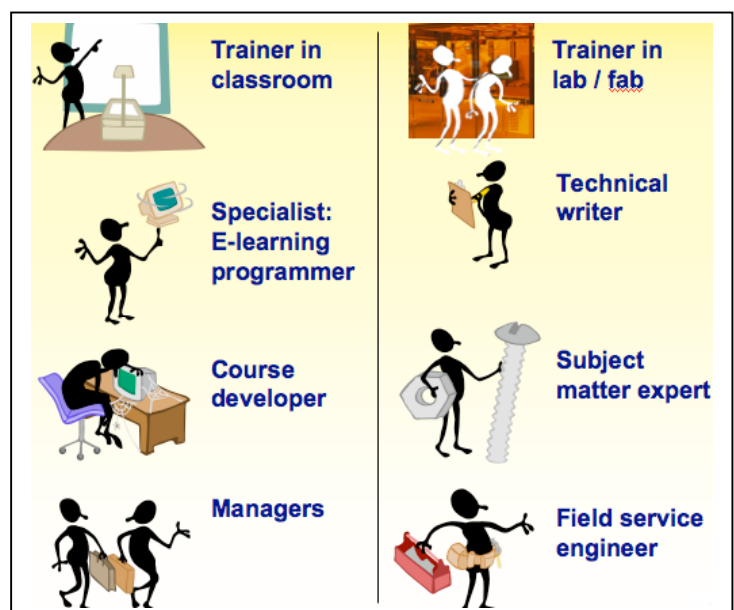
- Managers who supervise or "support" training with no understanding of the training process or how to communicate about training with customers, both external and internal.
- Course developers with differing backgrounds using differing vocabularies that may or may not mean the same thing to everyone.
- Course trainers who do not use training materials as designed because they do not understand the purpose for their creation.

Isn't it better to get the whole team on one page?

Get everyone on the same page—the PBET page

## But the Course Developer Benefits Most, Right?

Some have thought that the trainer (the one that delivers the training) doesn't get much out of PBET training (like the PBET Workshop). They are better off with a broad Certified Technical Trainer certificate, they say.

I disagree. As the last person in the delivery line, the trainer is the one who can – and often does – destroy the planned PBET course, thus thwarting the work of the manager, the salesman, the technical writers, the training developers, the e-learning specialists, and the rest of the training team.

Put another way, trainers are key to PBET implementation. It is important to see that trainers need to do the many things differently than traditional trainers. I have a list of over 20 specific actions required of a PBET trainer *during* training. Without specific PBET training, most of these will not happen, even with a Certified Technical Trainer (or similar) certificate. Here is a summary of those items:

1. Be alert to the dangers of adding their own content to the lesson. It is not unusual, for example, for field service engineers that conduct training to explain more than might be required. In PBET maintenance courses, timing is critical to enable all participants the required time for practice. The PBET context for this would not be covered in a written-test-based certification program.

2. Conduct tests in a PBET way. Trainers must not add to or subtract from, or otherwise modify, tests that are faithful to the performance objective.

3. Must not subvert the intentions of alternate activities created for the course. The classic example is to take a good video demonstration of a task and show it to the entire class. When this happens, the opportunity to use it to maximize hands-on practice is wasted. This is "classic" because without the understanding of the need for hands on practice, and how to make that happen, such decisions are quite natural.
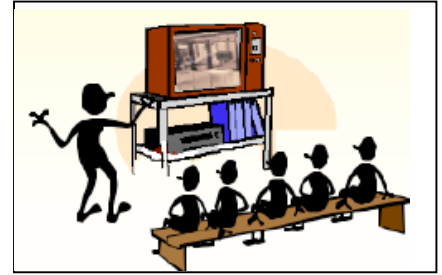
4. Must correctly use training aids, feedback, course sign-off sheets, lesson objectives, course maps, and much more correctly. The PBET Workshop models all these things. Also, it conducts "hands-on" experiences to provide practice in doing these things. Programs like the CTT certification provide neither of these things.

5. Must play a different role. A PBET trainer is more of a course manager than a presenter. Traditional trainer certification may or may not take this into account.
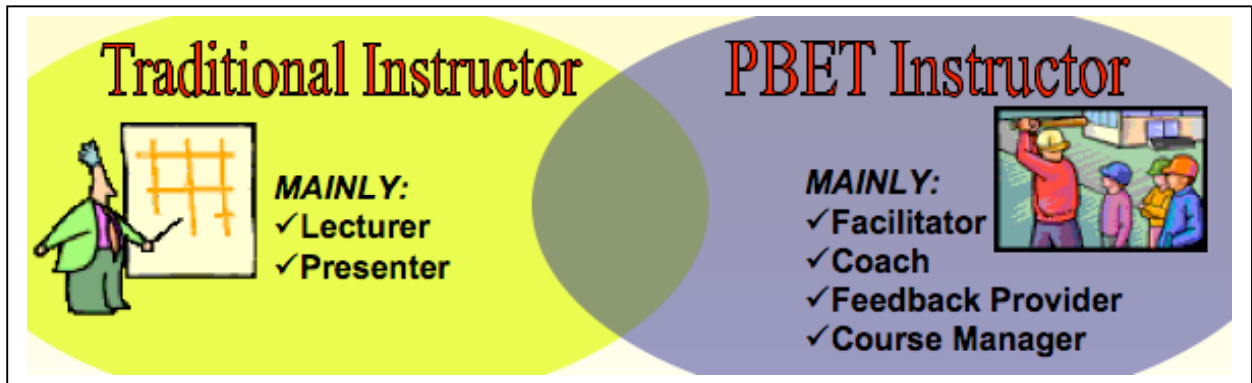
Bottom line: all members of the training team need to be PBET aware and PBET trained is PBET is to be implemented successfully.