



The 7 PBET Steps, An Overview

Identify
Analyze
Design
Develop
Pilot
Implement
Evaluate



1) IDENTIFY the performance problem (need, issue) and the best solution. This is also called by some, performance analysis. The minimum elements of this step include the following:

- Identify the performance problem or the performance gap; that is, the difference between what is expected and what is actually taking place.
- Identify the cause of the performance problem (gap). Some possible causes include lack of information, lack of skill, lack of motivation, lack of feedback, and many more.
- Identify the best solution for closing the performance gap. Training is only one of the many possible performance solutions.
- Identify a way to measure (evaluate) the effectiveness of the performance solution.

2) ANALYZE the requirements for implementing the performance solution and state the requirements as performance objectives. The chief result of the analysis activities should be a list of performance objectives that become the basis of the design and development steps, along with a plan suggesting the best sequence for learning the performance objectives.

a) The analysis activities should include most or all of these:

- Job analysis: determine all of the tasks required of a specific performer (or targeted group of performers) for a particular piece of equipment (or for all equipment assigned to that individual or target group). A simplified end result of this analysis is a real world list of tasks. Example: What are all the tasks that a maintenance technician would be required to perform on an XYZ stepper?
- Business goal analysis: convert business goals into specific tasks as they relate to specific equipment and/or apply business goals to the existing list of tasks. Example: In what ways would the goal of increased tool availability impact the conditions and standards for the specific task, “perform load system maintenance”?
- Task analysis: determine all of the steps required to perform a single task. A simplified end result of this analysis would be a written procedure.
- Target performer (audience) analysis: determine how the intended group of performers impacts the required list of tasks to be supported, as well as the most appropriate training design.

b) The performance objectives should be “complete objectives”; that is, in addition to the task itself, each performance objective should include conditions and standards (criteria, measures) by which the task should be performed. The performance objectives should describe the tasks as they are to be performed by the performer(s) on the equipment back on the job; they should not include the conditions or activities of the training itself. Rather, the complete performance objectives should serve as the basis for determining the relevancy of all aspects of the performance solution design, whether that solution (product) is classroom training, e-learning, job aids, embedded support, or any other type of solution.

c) A learning hierarchy (skill hierarchy) should describe the best sequence for learning the performance objectives. This activity is specific to a training solution. The learning hierarchy provides a great deal of guidance for the design and development steps that follow analysis. Among many other advantages, it provides useful guidance for the specific assignment of tasks to various “levels” or courses.

3) DESIGN the elements of the performance solution product; in the case of training, design (plan) each element required for the training of each task (performance objective) required by the targeted performers. The elements listed below are true of all training products, whether classroom, distant, self-paced, or blended.

- These elements always include a lesson introduction, a demonstration of the task, a practice session with feedback to the learner, and a test of the task.
- The elements sometimes include an outline of content (theory or knowledge) to be mastered.
- All of these elements are strictly determined by the performance objectives written during the analysis step.
- The delivery methods selected for each of the design elements should facilitate and/or enhance the desired characteristics of performance-based training listed on a separate *SPS Bulletin*.

4) DEVELOP the performance solution product based on the design; in the case of training, develop the training product materials. This should include the following materials and equipment as indicated by the training design:

a) All performance-based equipment training solutions should include the development/preparation of the following materials/equipment:

- A means to record students' successful completion of the test for each required task. This can be done in various ways including paper-based "Sign-Off" sheets or electronic tracking in an e-learning course.
- Accurate and clearly written procedures for each task to be performed and/or accurate and clearly presented information that a performer would need in order to perform each task. Commonly, this information is provided in the equipment manual/documentation collection (e.g., maintenance and operation manuals, reference manuals); increasingly, this may take the form of electronic knowledge management systems. While none of these are considered "training" materials, performance-based training cannot be done without written procedures and supporting equipment reference information.
- The actual hardware, sample units, sample recipes or related materials needed to see a demonstration, allow for practice, and get tested on any task (or appropriate alternate materials [e.g., simulations] that closely resemble the actual hardware or other materials). Typically, use of actual equipment requires advance planning as well as careful arrangement with equipment purchasers since either a) equipment purchasers will have to provide for equipment access at their site(s), or b) equipment purchasers will have to provide travel to the equipment supplier's training center.

b) Additional materials/equipment that might need to be prepared could include student manuals (participant guides), classroom slides and/or other instructional aids, lab kits, e-learning programs on-line or on other media, student self-paced booklets/manuals, video packages, distance learning hardware and software, program mediated instructional slides or other materials.

5) PILOT the performance solution product; in the case of training, have representative target performers test the training product. The purpose of the pilot is to find and correct any flaws in the training design and the training materials.

The pilot can indicate a need to change aspects of the learning hierarchy, the training design, or any of the developed/prepared materials. When this happens, the materials should be changed appropriately.

All types of training products should be piloted, including but not limited to: instructor led, classroom /lab training; self-paced training whether by paper booklets or by e-learning; and one-on-one training.

There are three inputs which should be sought in connection with a pilot, in order to determine possible changes:

- input from the target performers gathered through periodic interviews during the training;
- input noted by internal observers;
- a consideration of the success criteria identified during the first step in the performance improvement process, "Identify."

Sometimes more than one pilot of the training is indicated. Sometimes a preliminary pilot with rapidly developed prototype materials may be piloted, followed by another pilot when more of a "finished" training product is developed.

6) IMPLEMENT the performance solution product; in the case of training, a) prepare additional instructors/facilitators as needed, and b) deliver the training to the target performers as needed.

In cases where other instructors/facilitators will continue to deliver the training, materials for that purpose should be created. Without these materials, the goal of standardized training cannot be realized, and all of the efforts from the preceding steps of the performance improvement process can be lost. Examples:

- For classroom/lab trainers, instructor guides (or at the very least, detailed lesson plans) along with lab kit instructions should be prepared.
- For distance learning trainers, instructor/facilitator guides should be prepared.
- For e-learning or student learning center coordinators, facilitator guides should be prepared.

All personnel expected to deliver training (whether full-time trainers or field service engineers that are expected to conduct training) should be properly equipped to do so technically and professionally. At minimum, all those expected to deliver classroom/lab training should receive training in both presentation skills and performance-based equipment training (PBET) classroom management and theory. In addition, those who conduct distance learning should receive special training for the skills to manage that.

7) EVALUATE the performance solution product; in the case of training, evaluate the training. Training should be evaluated in multiple ways. For example, dependence solely on class reaction forms will lead to a misunderstood view of the value of the training product.

- Evaluation of training should include the views of the training participants. Example: provide trainees with reaction forms or other devices to obtain one view of what parts of the training should be kept or changed.
- Evaluation of training should include an assessment of what tasks the trainees mastered and which tasks require additional improvement. Example: provide each trainee with a test that matches the requirements of each task's objective.
- Evaluation of training should include some assessment of whether the training met the requirements performer's job. Example: Interview or survey trainees or trainee supervisors three months following the training.
- Evaluation of training should include some assessment of the impact of the training for the business organization. Example: use the original measures selected during step one, "Identify," and determine whether the measures have been met. Another example: look at the costs of the training solution to see whether the choice of a training solution during step one, "Identify," was in fact the best choice.

FINAL COMMENTS. *The performance improvement process should be understood in a balanced, reasonable way.* To be specific:

- A correct interpretation of this standard is to start at the beginning and continue through the steps that follow.
- A correct interpretation of this standard allows for progressing through design, develop, and pilot (steps 3-5) in an iterative way, if desired. Some people interpret training design as a "waterfall" process; for example, once you have completed step 3, design, and you "flow down the waterfall" to step 4, develop, you should not return to the design step. In many situations that is not reasonable. Therefore, this standard allows for an iterative interpretation.
- An incorrect interpretation of this standard is to begin with design and/or develop without having done the first two steps, identify and analyze.
- An incorrect interpretation of this standard is to conduct step 7, evaluate, without having established some evaluation criteria during the first two steps, identify and analyze.
- There is a lot of talk today about "Rapid Development" especially when applied to e-learning. When advocates for this approach suggest the elimination of the identify or analysis steps, there is substantial danger of creating a training product that fails to serve its purpose. It is possible to do any of these steps effectively and quickly when trained to do so.