Re-tool your workers

You upgraded your technology, but what about your people?

BY BILL STETAR

One methodology born in the late 1900s and an early candidate for the "dominant" technology of the 21st century is human performance technology (HPT). It's a science that is emerging from the need to more successfully integrate human performance with advancements in manufacturing science and technology.

Here's what I've seen on more than one occasion: the engineers launch a new technology project. But engineers are often measured only on their ability to meet milestones and deadlines. In the vernacular, it is known as "throwing the technology over the wall" and getting on with the next project.

The operations and production sides of a company often don't want to know what's going on until it smacks them in the face. Then when problems arise, the people-versus-machine finger pointing begins. Too often, we forget all about the people side of the technology equation. But if the people part is done completely and correctly, the results are impressive, and you can achieve measurable benefits.

One company, a durable goods manufacturer, was able to get the second shift to reach production quotas and meet the requisite quality within two weeks. Another company reported no downtime due to "operator error" during a new plant start-up. Other companies have found the training time (the time it takes an individual to reach contributing level) shrank anywhere between 30 and 60 percent.

One of the main benefits in each of these examples is that the companies can greatly reduce the nagging questions about the capabilities of their workers. These manufacturers achieved great results by using a systematic approach to engineering human performance. This enabled them to focus their attention where it needed to be — on improving the technology to meet the demands of their customers.

ILLUSTRATION BY ED SCHNURR

DEFINING HUMAN PERFORMANCE TECHNOLOGY

Simply put, HPT is a systematic approach to improving human performance. It is a scientific method for determining what you want — instead of what you are getting — from the performance of people. It transcends traditional human resource development and training functions.

Instead, HPT encompasses a number of disciplines including organizational development, instructional systems, quality systems, process analysis, problem solving, human-machine interfacing, and information technology.

Typically, HPT is used to help resolve an existing conundrum. But the principles, practices, and techniques of HPT can also be used as a type of preventive medicine, especially when introducing new technology to a workforce. The "performance wheel" in Figure 2 illustrates the components of a HPT approach.

As we examine each spoke of the

wheel, we will look at that element in context of a new technology introduction. Progress on these items should be initiated as soon as (and sometimes before) you place the equipment order.

SELECTION METHODS

Selection involves the processes or procedures associated with hiring new people, making promotions, or accommodating internal transfers. If you select people with the wrong skill sets and competencies, you will be fighting an uphill battle. Long before you begin bolting down the hardware, you can make significant inroads to ensuring that the new technology will be a success.

Here are some actions to take:

- make a list of the core skills that the new technology or process will require;
- make these skill statements performance-oriented (state what a person must be able to do), not knowledge-oriented (what a person must know);
- perform a make-versus-buy decision, that is, figure out if you are going to train incumbent workers or recruit people who already have those skills;
- develop instruments that enable you to verify an individual's competence in critical skills. Use devices that say "show me how to do this" instead of questions that say "tell me how you would do this".

The strength of the selection component, however, will be dependent on whether you have compiled a list of tasks associated with the new technology or process. If you do not know what people will be doing, you will not be able to accurately specify what skills you want people to bring with them and what equipment-specific skills you will teach once they have the job.

FIGURE 1: The secret of success? Get more from your people.

JOB DUTIES AND TASKS

Job analysis usually looks at the performance requirements of a specific job classification. With new technology, you really won't know what the specific jobs and job responsibilities will be until the process has been debugged. But don't postpone activity in this area. Instead, focus on process analysis, that is, examine what it is that people must be able to do to operate, maintain, and ensure quality in this new technology.

By examining what the process will require, you can begin to organize a list of tasks that have to be done (and learned) by someone at some point in time. Core to any job or process analysis is a consistent and defensible definition of the term "task." Among other things, a task must be:

- a discrete unit of work that has a distinct beginning and end;
- an observable and measurable behaviour performed by a person;
- an activity that can broken into a step-by-step procedure;
- an activity that can be completed in seconds, minutes or hours, but rarely — if

ever — needs days or weeks to complete;
■ something for which an employer will pay.

Job-process analysis requires a three-tiered hierarchical mapping:

■ **Level 1** (or the grandparent) is the process being examined;

■ **Level 2** (the parent) consists of "duty areas", which represent collections of closely related tasks within a specific area of competency associated with the target technology;

■ **Level 3** (the child) consists of the tasks themselves, the discrete units of work that comprise the area of competency.

To use an analogy, the automobile would be Level 1. The various sub-systems — such as suspension system, exhaust system, and brake system — would comprise Level 2. Tasks in Level 3 would include actions like "adjust toe-in," "inspect exhaust system," and "replace disc pads" and are linked to their respective Level 2 parent.

You can derive tasks in a number of ways. One way, of course, is to compare existing technology to the new technology. If the process technology is completely different, then work with the equipment vendors to determine what tasks are associated with the various components and subsystems that make up the new technology.

The analysis will go more smoothly if you focus on what someone has to be able do, rather than trying to compartmentalize the tasks along traditional job definitions.

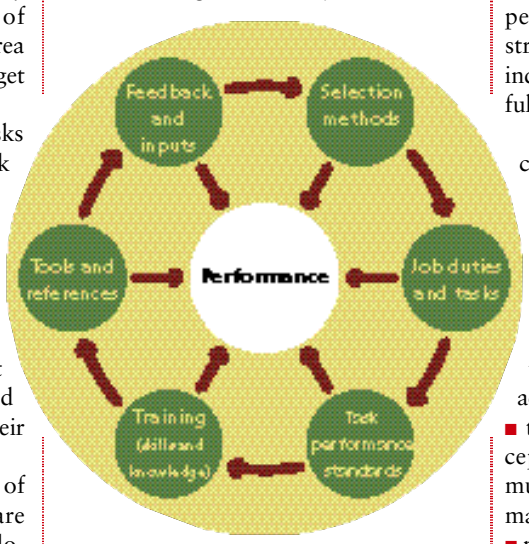

FIGURE 2: Each spoke represents a tool for improved performance

SOURCE: PERFORMANCE TECHNOLOGY GROUP INC.

TASK PERFORMANCE STANDARDS

One of the most powerful steps a company can take is to establish measurable, observable criteria whereby a competent individual can determine if a specific, critical task has been done correctly and completely. If individuals have no formal, structured means to evaluate their own performance, supervisors will have no structured, formal means to evaluate an individual performance and provide useful feedback.

Measurable task standards can encompass all or some of the following elements:

■ quantity / output: what is the minimum acceptable output per task within a specified period of time?;

■ quality of work: what are zero defects? What determines that a specific task has been performed to minimum acceptable quality standards?;

■ timeliness: what is the minimum acceptable task delay tolerance, i.e., how much time can elapse before task performance starts;

■ precision of performance: is it a "go" or a "no go?" How accurate was the task?;

These established standards — a defi-

nition of what constitutes correct task performance — become the foundation of any training to be designed, developed, and delivered.

TRAINING

Training can only address skill deficiencies, that is, the "can't do" versus "won't do" behaviours. Nonetheless, training can have a dramatic impact by increasing productivity, decreasing unplanned downtime, reducing the learning curve, and reducing trial-and-error learning.

The thrust here is to approach "training" as part of a system for continuous improvement. Training practices do not have to be centralized; they just need to be systematized. A systematic approach to job training will ensure that the right skills get to the right people at the right time.

A structured on the job training system will mean less time spent in the classroom and more time spent on the equipment getting hands-on experience and individual tutoring. It will mean less time spent on costly trial-and-error learning and more time spent on relevant practice.

TOOLS AND REFERENCES

A deficiency that companies must often overcome is the lack of standard operating procedures (SOPs), job aids, and other visual tools that can be used to minimize or mitigate process variations introduced by people.

For example, operators can use items such as "if-and-then" charts or flowcharts to do first tier troubleshooting, rather than waiting on a mechanic. Expanded views of the equipment, with components and parts labelled, will allow the operator to communicate more clearly, with proper terminology, when attempting to describe a problem with the equipment. The use of such job aids can dramatically reduce training time and structured on the job training development costs.

FEEDBACK AND INPUTS

The processes, systems, or methods whereby information is conveyed to job incumbents individually and as a group are integral to the total technology plan. Give the workforce early and frequent information. Give all ranks of employees plenty of advance information regarding the impending technological changes. Help them to understand — in clear and simple terms— project objectives. Educate them as to why these technological upgrades are necessary and how they present opportunities for changes in the way things are done.

Let workers know that concurrent with your commitment to technology upgrades is an equal commitment to employee development. Assure them that you will provide them with adequate and timely training support.

If you are in a union environment, look at work rule options not work rule changes. In this context, management and union don't bargain over specific work rule changes but rather discuss work rule options available for coping with the impact of the technology on the human infrastructure.

Finally, set up a structure to harvest process improvement ideas during the debugging and trial run stages. The methods can be as simple as setting up flip charts for people to log problems, solutions, and ideas or you can gravitate toward a more formal arrangement such as a Kaizen team.

Whatever you do, be sure to capture suggestions and provide constructive feedback in a timely and meaningful manner. Leave out the feedback mechanism and you will get a drought of ideas.

Keep in mind that HPT is not a cookie-cutter approach. You must adjust the scope of each element and tailor the interventions to fit circumstances. Some situations may require more emphasis on feedback and inputs, for example, than on selection. Other situations may benefit by concentrating effort on instituting structured on-the-job training (OJT).

Implementing any new manufacturing process or a technology upgrade requires some degree of training. But HPT goes beyond training, and examines the systems and factors that impact upon human performance. In fact, HPT will look for ways other than training to produce the intended results.

Training is an effective tool, but it is also an expensive one. Don't make training the first (or only) bullet you fire. AM

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