leveraging know-how for performance!

PRH Consulting Inc.

Building Capability

VERIFYING CAPABILITY TO PERFORM

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Greetings!

Testing and Performance

During the 2007 ISPI conference, I presented a session on performance testing. We have been doing projects including performance tests (and presenting on the topic as well at ISPI and ASTD forums) for many years. But I was surprised at the interest and reactions to the session this year. As a result, I decided to focus this issue of our newsletter on performance testing.

The basic idea is that most certifications and end-of-course tests are knowledge tests. That is, they measure what people can remember. But as we all know from our school years, just because you can remember something doesn't mean you can do it. (It actually doesn't even mean that you can remember it over an extended period...that depends on a number of factors.)

Businesses need people who can do specific work—perform tasks, make decisions, create outputs, etc. Remembering information and rules is fine but you really need employees who are able to do the whole task in context and use the information and rules where needed. Performance tests measure just that.

I believe that performance tests have several advantages over knowledge tests. They are a better measure of what is important, easier to administer, and faster (and cost less) to develop. They are directly linked to the job so they are inherently more likely to be valid. Read on and if you don't agree (or if you do) please let me know what you think.

I hope you enjoy this issue!

Pete

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Testing Performance Beats Testing Knowledge

It Only Counts if You Can Do the Job

There are a lot of certifications today and the vast majority of them rely on passing a knowledge test. Often a very difficult and lengthy test but, still, a knowledge test.

The problem is that very few performance situations require you to answer a knowledge question. Fewer still offer you four or five choices from which to select your answer.

When we design and build qualification systems for our clients, we strive to make them performance-based. That is, we want employees who can really do the job to be qualified. And, if they can't, we want to know which parts of their performance need further work (or if they should find something else to do for a living).

We feel that performance tests provide a better test because they have more fidelity to the actual performance situation. But they also offer a number of other benefits to the business.

Performance Tests:

- Eliminate excess training by letting skilled participants "test out" of training they don't need.
- Support on-the-job coaching—the performance test is a tool that describes performance expectations and criteria
- Standardize performance and qualify employees in specific tasks by providing standard "checkpoints"
- Provide the basis for an employee "capability inventory" by tracking and managing information on who is qualified to perform specific tasks (if this is designed into the overall system).
- Reduce administrative effort—there is no need to "hide the answers" or create extra versions of the test

Inside this issue:

Testing Performance Beats Testing Knowledge, continued

- Are reliable and fair with minimal variability from one evaluator to the next.

What is a Performance Test?

There are three key characteristics of performance tests. Performance tests:

- Are based on observing a performance or evaluating an output using standard objective criteria.
- Verify actual work or a simulation of it instead of just the enabling knowledge or skills. (If someone can perform the work, then they must by definition also possess any necessary enabling knowledge or skills. But it doesn't necessarily work the other way.)
- Replicate real-world conditions, including the use of job tools and resources available in the typical work environment.

"Performance tests...replicate real-world conditions, including the use of job tools and resources available in the typical work environment."

Upfront Planning and Organization

The first step is deciding you need/want to test performance. Typically, this is part of a qualification effort but not always. If the performance test is a "stand-alone" though, it will need to be connected to something that is tracked and managed, such as a training course. As part of qualification, performance tests can serve as a great way to level the playing field and to accelerate the qualification process. Anyone who can do the task gets qualified. They may or may not need to complete any training.

Once you have identified the work to be tested, usually a complete role, process, or logical set of "duties," you need to define the "chunks" of performance to be tested. Creating the "chunks" is not as easy as it sounds but it isn't really rocket science either. The driver is usually the way the work is cut up and assigned to individuals. If something takes two shifts to complete or if some people do Task A and B while others only perform Task B, then it you will need two separate tests. If you combine them, it will take too long to get anyone qualified on the entire performance and it creates administration problems as well (i.e., keeping track who is "half-finished").

The sequencing of the "chunks" is a similar set of decisions—tests should be completed in the order a person would be assigned the work (which is usually the learning order, as opposed to the work process sequence...which is not always the same).

How to Design a Performance Test

We always design before we develop anything—for performance tests we create specifications describing the characteristics of each test. At the simplest level there are two key design choices.

- *What* will be assessed—will *actual* work tasks be observed or will the *output* of the work be reviewed
- *How* it will be assessed—will it be *real work* or a *simulation* of real work

See the charts below for a description of the key decision parameters.

Developing a Performance Test

Developing the actual test instrument is usually a fairly quick process, depending on the task involved. In most cases, it starts with a review of any existing procedure or reference information and then, sometimes, even an initial draft. We prefer, if possible, to observe the actual performance and quiz the performer about their thinking and decisions at each step. Ultimately, we are going for specific, objective criteria by which each task can be evaluated as performed correctly or not.

What About Knowledge?

Sometimes you do need to test knowledge in the context of performance. If possible, we incorporate knowledge of "why's" and "what-if's directly in the performance test. That way you know performer's can execute in both normal and challenging situations.

What Will Be Assessed	Description	An Everyday Example	A Project Example
Real Work	Observing a candidate ***perform the task*** and/or produce the output in a real situation	Watching your teenager fill the car's gas tank and check the oil	Program and start up a piece of equipment in the field
Simulated Work	Observing a candidate ***perform an approximation*** of the task or produce a limited output in a situation similar to the real job	Watching your teenager change a tire in the driveway instead of waiting until he or she has a flat tire on the road (this would include safely jacking the car up and loosening the lug nuts, etc.)	Creating *part* of a software control program for a typical system to run on a *stand-alone computer* instead of a *complete* program that would run on *actual equipment*

How It Will Be Assessed	Description	An Everyday Example	A Project Example
Reviewing the output	Evaluating the result or ***product*** of a work process or task based on defined criteria	Deciding if a turkey is cooked based on a temperature reading, the color of the skin, etc.	Reviewing a printout of a computer program
Observing the process	Observing the work as it occurs and evaluating the ***process*** steps according to defined criteria	Watching someone stuffing a turkey to ensure that they are using safe food-handling techniques	Observing the technician starting up a piece of equipment in the field

Top 5 aka "The List"—What's Great About Being in the Training Business

Last issue we had items that could have been uncharitably characterized as "whining." Here are our Top 5 positive things about working in the training business for balance…

☑ **Variety.** Working in the training and human performance field has enabled our consultants to gain exposure to a wide range of work processes, cultures, businesses, and challenges. Our methods and tools are effective in any situation where people perform work. That includes functions from engineering to marketing to IT to sales to ...you name it. And, solutions from recruiting to change management to training to qualification to knowledge management to competency modeling to...well, you name it again.

☑ **Influence**. Quite often, training people get to participate in teams that plan how to improve performance. In planning how to change a process or organization, you can put in your two cents worth and, hopefully, influence the outcome to some degree. Even influencing how performance requirements are communicated and documented can significantly impact performance.

☑ **End to end view of performance.** In the process of analyzing performance you usually have the opportunity to learn, not only the specific work in focus but also the up and downstream operations. You have the chance to learn "the big why's."

☑ **The leading edge.** Most new technology requires that someone figure out how it works and where it should be used. This enables you to learn about what is new, hip, and happening. Particularly in the area of information, there are endless opportunities for applying database, web, and presentation methods that keep you "in the know."

☑ **Applicable to any area of life.** Training involves breaking down tasks, creating effective ways of explaining them, determining how to measure effectiveness...all of which help you be a better employee, boss, parent...maybe even spouse.

Project Profile: Designing and Building a Library of Performance Tests

The Business Situation

This project was essentially an implementation of a corporate decision to qualify process operators in critical duties. They wanted valid assessments based on actual (not theoretical) performance. They wanted the tests to be easy to administer. They needed to manage operator capability over two different products, four different production lines, each running two shifts. And they wanted a coherent approach—an approach that would work for process operation, quality control inspection and lab testing, and batch documentation review duties. It would also have to be transportable to similar new lines and plants in the future.

Solution Concept

The first decision was to use performance tests as the cornerstone for qualification. The primary reason? The results would be credible—the tests would be both fair to all employees and a valid assessment of capability.

Process operators typically work on a single line or product. QC lab technicians, on the other hand, had to be able to test any product that comes in the door.

A general rule (unfortunately) is that if you need to be able to take something apart, you need design it in smaller pieces. So if a given operator would only need to work on one station, one product, performing one duty, and you need to be able to qualify for just that segment, then you need to make that a single test because if you combine it with others (for example to make one overall Line A Operator Qualification) nobody can do *anything* until they have qualified on *everything*. Ultimately, the configuration had to be driven by business needs, specifically, how people will be assigned to work.

We actually defined the architecture for the performance tests upfront working with supervisors and master performers. The architecture led to a specification for each test that defined its contents, who would need to complete it, the approach to be used, and primary contents.

Then, we used the existing procedures and one-on-one observation to create the first drafts of the tests. We reviewed the first draft with the master performers but then we tested the second draft by actually using them—we had a master performer that didn't participate in the development use each test to simulate qualifying another master performer. We flagged things that didn't match or were unclear for the final version. (The "final" version went to the Quality group for approval for use.)

"The *(performance test)* results would be credible—the tests would be both fair to all employees and a valid assessment of capability."

Of Note

The real process varied from the procedure. Documents can never describe everything. And, quite often, procedures are limited. (For example, too many pictures may slow down printing on the floor. Or the original was created before the days of digital cameras so instead of pictures, there are lengthy, convoluted verbal descriptions of manual operations.) Changing a procedure required review and approval by lots of people—sometimes this has been deferred. And master performers invent shortcuts—they may perform all the steps in a procedure but skip ahead and start a later step and then come back to finish and early one.

Any time you have an inspection-type duty, it is a challenge to developing a performance test. The reason? The result of an inspection is the identification of defects. But, in most inspection situations, in manufacturing at least, defects are rare. Though we prefer to test real work, you could watch people doing the real inspections and see them not finding defects—but you wouldn't necessarily know if they would find one if it were there! For these situations, we identified known defects and had learners inspect a number of devices in which some had defects intentionally added. This ensured they could actually find the bad ones (and categorize the defects correctly). We also included a real-work test just to

Project Profile, continued

be sure they could do other things like keeping up with the pace of the process.

For part of the test we also required them to describe what they were looking for and what they would do if they found it as they inspected. This was a way of testing their underlying knowledge about the process and criteria.

Performance happens fast. When the tasks are going by quickly, and there are more than one criteria per task, it can be a challenge for the evaluator to keep up. One option is to slow down the performance (which may not be possible or desirable). Instead, we kept the test tool simple and easy to use. There are also places where the evaluator can "time out" the performance and catch up on their notes. These pauses can also be opportunities to insert knowledge questions.

Modularity works! During the course of the project there were some procedural changes that we had to accommodate in the performance tests. As we have seen in previous projects, the architecture allowed us to easily identify the changes and the formatting allowed us to quickly identify and make the changes. This was good news (though not really surprising to us)...the one thing you can be sure of is that there will be changes in the future. Any effective solution will need to be maintainable over the long term.

News and Events...

The big news on the marketing front is that we've updated our website. Our resident web expert Danita Morgan put together a simple flash intro page and we restructured the internal pages to make it easier to navigate using tabs, narrower columns, and other improvements. We think the changes will make it easier for individuals browsing to find what they are looking for. And the changes to the project area should make project team coordination work more easily and effectively.

Performance Testing

We've been asked to contribute a chapter on performance testing and test strategies planning to an upcoming book on testing being published by ISPI and Jossey Bass. Of course, we agreed—now we have to actually write it!

Since this is a topic we believe in, the writing shouldn't be difficult but since the book will be a collection of chapters by different authors, we wonder how the editorial process will work. The good news is that book publishing apparently takes awhile—they are forecasting release in late 2008.

Check Out Our Blog!

We're still publishing new information on our blog so it might be worth your time to visit www.prhconsulting.com/blog occasionally just to see if we're saying anything really crazy.

2008 Conferences

We've submitted proposals for a few different conferences in 2008. We will keep you posted when/if we get accepted to present.

Visit "the library" on our website for past presentation hand-outs and related articles!

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For Fun—Ride The Train

Lately we have been thinking about the underuse of public transportation in the US. Probably due to paying $3.50 or so a gallon for gasoline and the unavoidable aggravation of air travel. But riding on the highway with all those other cars, most with only one person inside, does make you think about ways to get from point A to point B that are better for the planet.

On a recent trip to Washington DC, we were delighted to rediscover the Metro. Easy to use, clean, felt safe. In Chicago you have the "El" which is pretty good too, (except for the occasional unpleasant odor). Within the past year, Pete has used Amtrak to get to Milwaukee, WI and Bloomington, IL. In both cases, the trip was actually pleasant and very inexpensive. For example, $15 to go from Chicago to Bloomington—approximately a three hour trip! Compare that to air travel where you spend several hundred and risk delays for overbooking or weather or mechanical problems or crew scheduling issues...

So why isn't the train system used more? One reason is that it is really hard to find a train that goes where you need to go and when you need to go there. For travel between Indianapolis and Chicago, you can drive (3.5 hours and no time to work or "zone out"), fly (at least four hours for 30 minutes of actual flying time), or train (which either arrives after midnight or requires you to travel part of the trip on a bus!).

So if the train system were better—maybe some high-speed trains between cities, maybe more accessible subway routes that go between suburbs—more people would use it. Too bad...we'll probably just end up with electric cars. Hopefully, they will at least have autopilot so we can get some work done while we drive.

De-Icing!! :(