

Why test: To Measure Intellectual Capital

Perhaps a few quotes from the preface of *Intellectual Capital* by Thomas Stewart say it best:

“ Generally accepted accounting principles generally do an unacceptable job of accounting for the principal activities of knowledge-intensive businesses.”

“ We ... need to know how to value intellectual assets, which is to say we need to know how to price a wealth of knowledge.”

“ Intellectual capital is intellectual material ...that can be put to use to create wealth.”

Note in this last that intellectual capital isn't measured by knowledge able to be articulated by the holder; instead it is knowledge that can be put to use, that can be applied to the problems of creating utility for people. Only when it can be applied does it become capital.

Multiple-Choice testing measures knowledge inside people's heads. Performance testing measures knowledge that can be applied.

Why test: To Predict How People Will Perform

Conventional multiple-choice testing measures the examinee's ability to articulate knowledge – specifically what can be called declarative knowledge. Declarative knowledge is largely the recitation of facts and information. Performance Testing is designed to see whether an examinee can put that knowledge to use.

Some examples:

- Working through a solution is the trial-and-error process that most of us engage in while doing conventional tasks.
- Most of us don't memorize the steps for doing a problem.
- In doing a task on a Mac or Windows computer, we try one menu – only to determine the necessary feature is on another menu. We open a tab in a dialog box, then find the parameter we want on another tab. These probes and restarts are the natural part of working through a solution – and they are specifically what *can't* be done in a multiple-choice environment.

Here's a more detailed example, that of solving a problem by looking up reference information. Using reference materials requires multiple stages to assess:

- What trigger event or association makes the connection between the problem and reference materials?
- How can the solution to the problem be accessed?
- How can the reference materials be translated into action and applied to resolve the issue?

- How can the applied solution be evaluated?

By breaking a reference problem down into its components, multiple-choice testing does the most complex part of the problem for the examinee. Problem-solving is a complex process of using a repertoire of tools and techniques to solve a problem that doesn't have a defined, procedural solution. Because the person approaching the problem can't be expected to know in advance which tool or technique will solve the problem, a multiple-choice question cannot ask the person which technique to use (without cueing the answer). A complex problem requires multiple stages to pose and evaluate solutions – a situation which multiple-choice questions cannot address.

Why test: To Measure the Need for Training

Businesses need to measure what people can do in addition to what they 'know'.

A few illustrations may suffice to clarify this point.

How many people 'know' how to diet? How many of us actually diet successfully?

How many people 'know' how to save money? How many actually do it?

How many people 'know' the speed limit? How many drive it?

There can be a large disparity between 'knowing' how to do something and actually performing the action effectively. This disparity is delightfully documented in the book *The Knowing-Doing Gap*.

By measuring performance, the assessing organization or program can find out what the prospective trainee cannot do – then remediate only that capability. Obviously, this saves time that the trainee can then spend being productive.

Why test: To Assess the Effectiveness of Training

A Wind Tunnel for Skills

In 1901 the Wright brothers left Kitty Hawk in despair. Their kites crashed. They couldn't control them. And the kites didn't have enough lift to carry a man a substantial distance, let alone a man and a motor.

A short two years later, they flew!

What happened in the intervening years?

The Wrights built a simple wind tunnel – the first to be used to measure lift. With it they could control the direction and the speed of the wind. In the controlled measurement

conditions of the wind tunnel, they experimented with over 100 miniature wing shapes and found the best curvature and aspect ratio for their wings.

Armed with these results, they dramatically redesigned their wings and in 1902 returned to Kitty Hawk with a glider that soared gracefully. To achieve manned flight a year later, they enlarged the glider slightly and added a motor and propeller.

The wind tunnel was the key to the Wright brothers achieving manned flight.

For almost 80 years we've tried to use multiple choice tests to measure learning. Like the erratic, gusty winds of Kitty Hawk, multiple choice items are subject to many extraneous factors that can confound efforts to measure well. Factors like:

- General intelligence
- Vocabulary level
- Cheating
- Logical elimination and
- Luck

It's time we created a wind tunnel for learning – one that will remove our training treatments from the vicissitudes of multiple guess testing. By creating tests that:

- Eliminate guessing
- Eradicate the possibility of logical elimination
- Provide environments that require the demonstration of actual skills
- Require low vocabulary, and
- Minimize the role of general intelligence

we can begin to fathom the true factors that underlie learning.

Without a wind tunnel for learning, we cannot achieve success at analyzing the components of learning... we will be left to the erratic success of classrooms, multiple choice tests, and a plethora of variables we cannot measure.

With a performance wind tunnel for training, who knows the limits of what can be achieved?