

Measuring PBO

KERRY KINSLOW: Welcome to the following training presentation on measuring performance-based objectives. My name is Kerry Kinslow and I'm an instructional systems specialist at the National Training Center in Phoenix, Arizona. Today, I wanna talk to you briefly about measuring performance-based objectives. Specifically, taking a performance-based objective and measuring whether or not the students have successfully achieved the performance stated in the objective. Now, why is this important to you? Well, if you don't determine if your students can't perform the task you're training them on before they leave the training environment, how are you gonna know if they can perform the task on the job when it really counts?

To support this statement, let's take a look at a quote from Robert Mager. According to Robert Mager, author of "Preparing Instructional Objectives," an objective is a description of a performance you want the learners to be able to exhibit before you consider them competent. The keyword in Mr. Mager's quote, exhibit. We want to see if the students can perform the task stated in the objective before they leave the training environment. Well, having said that, let's take a look at our purpose of this training presentation. The purpose of this training presentation is to illustrate how to measure performance-based objectives so NTC instructors--that's you--may evaluate student performance in the training environment. Well, now that you know what the purpose is, let's take a look at what we'll be covering. Today, we will be covering--we're first gonna look at a performance-based objective. And then what we're gonna do is, we're gonna take a look at some test items that we could use to measure that performance-based objective and then we're also gonna look at a scoring rubric. Well, now that you know what we'll be covering, let's take a look at an example of a performance-based objective that we could measure.

Now, as you can see, this performance-based objective has all of the required components in it. You'll notice that it has a condition, a performance and a criteria. Now, keep in mind, it is the actual performance that we want to focus on right here. Adjust the fair market value estimate of the mineral material. This is what we want to measure. However, we need to be mindful that we

Measuring PBO

will have to give the students what they need to perform the task. Now, in this case, it's the mineral material appraisal or the actual data.

Now, if we wanted, we could add other things like a calculator, for example, to the actual condition. And then we would say, "Given mineral material appraisal data and a calculator, do the following task." Well, now that we had a good performance-based example to work from, let's take a look at the steps required to perform this task.

Now, in the previous segment on developing performance-based objectives, we call these steps our enabling objectives. These are the steps a geologist or a mining engineer would take to adjust the fair market value estimate of the mineral material. Where am I going with all of this? Well, trust me. It will all come into play when we actually build a test item to measure student performance. Yes, I said test item, not exercises. You still want to have exercises during the lesson presentation that will allow your students the opportunity to practice the main performance-based objective and the enabling objectives. However, to measure student achievement of the performance-based objective, we want to build valid test items that will measure student performance of that performance-based objective.

The following test item is an example of how you could measure a performance-based example or a performance-based objective. Now, it's not important that you'll be able to read it, but notice right away that this is just not a question but a scenario that includes all the mineral material data that we said we would give to the student as stated in the condition portion of the performance-based objective. Meaning, the mineral material data is all in this particular scenario or the stem of this particular multiple-choice question. Now, keep in mind that the students will perform all of these enabling objectives to complete the task stated in the main performance-based objective. Meaning, they are inherent to the main task. There is no immediate to measure them individually. Now that you have seen a test item that measures the example performance-based objective, let's look an item that does not. The following-multiple choice test item is an example of a test item that measures knowledge need to complete the task. Notice, it is asking where something is located. Now, these types of test questions are okay as long as the actual performance is still

Measuring PBO

measured. However, a test with nothing but knowledge-based test items does not measure the intended performance stated in the performance-based objective. Moreover, it does not measure whether students can perform the skill they will need in the field or on the job. Furthermore, relying solely on knowledge-based test items will not allow the instructor to identify skills that the student may be deficient in. Now, keep in mind if the deficiencies are not corrected before the student leaves the training environment, the student may become frustrated when trying to accomplish this particular main task back on the job. More importantly, the bureau will have an employee on the job that cannot perform proficiently. Now, remember, assess the behavior and not just the knowledge.

Of course, some you might be thinking, "Well, what happens when the behavior is a physical skill?" Well, in the training world, we call this a psychomotor skill. A psychomotor skill is a physical activity required to accomplish the job. Some examples of psychomotor skills are inspecting an oil well, driving a truck or a car, taking a water sample, or in your particular case, delivering a lesson presentation. But how do you measure these physical skills? Well, let's see what Lou M. Carey has to say.

According to Lou M. Carey, author of "Measuring and Evaluating School Learning," analytical scoring enables you to focus on separate aspects of the performance and gather information needed to evaluate the instruction and help the students understand their scores. Well, what Mr. Carey is trying to tell us is, is that we will need some type of scoring instrument when evaluating a psychomotor skill or a physical skill, if you will. This scoring instrument is commonly referred to as a scoring rubric. Now, a scoring rubric allows the instructor to evaluate the performance stated in that performance-based objective. It is basically an evaluation checklist, if you will, that is used by the instructor or the evaluator. It has the desired components to be measured and their scoring value. Quality, quantity, timeliness, speed, sequence and appearance are just some of the aspects of the performance that can be measured. The instrument itself can be very subjective, and so can the evaluator using it. However, if the instrument is well thought out in terms of objective scoring--meaning, detailed instructions and scoring measures, as well as weighted

Measuring PBO

scoring values for each of the components on the rubric--well, then the rubric should be quite useful and fair when measuring performance. This particular example is a section from a rubric designed to evaluate new instructors developing a lesson presentation. We'll talk more on the scoring rubric in just a moment. For now, let's take a look at performance-based objective that is focused on a physical skill. This is a performance-based objective that is focused on delivering a training presentation. Ironic, huh? Considering that this is why you're watching this presentation. The objective here is given a performance-based objective by an NTC coordinator--that is the condition--we want you to deliver a training presentation--that is the performance or the task that we're going to measure--in 30 minutes or less that follows the NTC training presentation scoring rubric. Now, you can't see that scoring rubric at the moment, but that is going to be our particular criteria. Now, in order to measure or evaluate performance, we will need a scoring rubric that will allow us, the evaluators, to measure all aspects of the performance that are important to us.

Take a look at the following rubric. Okay. This rubric is an example that focuses on just the introduction in the training presentation. The rubric dictates that each of the following elements be present: the credibility, the warm-up, the objectives, the route and the [INDISCERNIBLE]. The student gets two points, if you will, for each element that is present in the introduction. However, there are other very important standards associated with the elements in the introduction and that must be measured, but let's take a look.

Well, if you'll take a look, we also have things like the warm-up. Well, it should be--the credibility for the instructor, keep it short. It should be less than 30 seconds. If it is, well, then you're gonna get two points for that as an instructor. Well, the warm-up should be related to the content. If it is related to the content, the student gets two points. The actual objectives should be performance-based. Well, if they are, again, the student gets two points. And then when we're looking at the route, we're measuring to see whether or not all of the topics are presented and that's a sequencing thing. We could say that they need to be presented in order, that's part of the route--and if they are, they get two points. And then finally, when doing the [INDISCERNIBLE] when

Measuring PBO

we're trying to motivate the students, we're looking for factual or statistics-based information. And if that is the case, the student will get two points.

Well, now that you know what a scoring rubric is and what it looks like and how it's used, let's take a look at how to build one. So how do I build a scoring rubric? Well, according to Lou M. Carey, the first thing you need to do is define and analyze the expected performance. We have already accomplished this by developing the performance-based objective and identifying the steps that is the task to complete the main performance task.

Step two, select the components to be evaluated. Generally speaking, many of the components to be evaluated can be obtained from the task analysis.

Step three, developing a scoring form that's easy to use for the evaluators. Be sure to include instructions for use of the instrument as well as how to score. Formatively evaluate the form. What you're doing here is, is you wanna sit down with the instructors of the evaluators, if you will, who will use the rubric and discuss its proper use.

Finally, observe and rate student performance. Then make the necessary adjustments to the rubric. Now, don't forget to review the rubric with the students, so they know what is being used to evaluate their performance.

Well, now that you know how to build a rubric, let's summarize this lesson presentation. In summary, we first looked at our performance-based example that focused on a cognitive skill that require the students to perform a calculation, adjusting the fair market value of a mineral. In order to measure that skill, we looked at a performance-based multi-choice test item in which the needed mineral appraisal was given to the students. However, the actual calculation was required so the student could determine the answer.

Next, we looked at a scoring rubric and example performance-based objective that was focused on a physical skill, and that was delivering a training presentation. The rubric allows us to measure the critical components of the performance by listing them in the rubric and assigning scoring values for each. It serves as a checklist for the evaluator scoring the performance. Now, remember, rubrics can be very subjective if not well thought out in terms of the required detail

Measuring PBO

scoring measures and their associated scoring values. Now, don't forget to review the rubric with your students and the standards for training certification, preferably, before the actual assessment. This way, the students will know what the performance standards are to be successful.

Measuring performance-based objectives is a critical aspect of being an effective instructor in terms of making sure the students can perform the skills required on the job. Do yourself, the student and the BLM a favor by measuring the intended performance-based objective the right way by using performance-based test items and scoring rubrics. Trust me, everyone will thank you for it--why? Because when the students return to the field, they will be able to do the job.

What a concept.

[END AUDIO]