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**Defense Acquisition University**

**FPD 200: Participant Guide**

**Module 2: Lesson 4 – Instructional Strategies**

**Script**

**January 20, 2012**

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Lesson 3: Assessment Strategies

Topics for this Lesson

* Assessment strategy
* Learning objectives
* Cognitive and knowledge dimensions
* Assessment methods
* Course Student Assessment Plan (CSAP)

What You Will Be Able to Do

* Lesson TLO: Produce an assessment strategy for a selected learning asset based on defined learning objectives.
* Participant Guide ELOs:

1. Recall the definition of assessment strategy.
2. Summarize the rationale for determining an assessment strategy prior to the subsequent design and development of a learning asset.
3. Describe how learning objectives inform an assessment strategy according to their respective cognitive dimensions and knowledge dimensions.
4. Recognize assessment methods that are available to an instructional designer.
5. Describe various assessment methods.
6. Select appropriate assessment methods according to the respective cognitive dimensions and knowledge dimensions of learning objectives.
7. Summarize the elements of a Course Student Assessment Plan (CSAP) in a Plan of Instruction (POI).

Assessment

The assessment for this lesson will consist of:

* A lesson quiz in which you will be expected to demonstrate all of the stated ELOs for this lesson.
* A writing assignment in which you will be expected to produce an assessment strategy for a selected learning asset, including a full set of selected assessment methods, with an accompanying explanation of your strategic choices.

Section 1: Introduction

Once the instructional designer has developed a set of valid learning objectives for a learning asset, he or she has a full list of specific behaviors that can be observed and measured in one or more assessments. It may be tempting at this point to begin developing content from the learning objectives with the idea that and you will eventually pull questions out of the content for the assessment. However, that method provides no assurance that the assessments will fully align with the learning objectives.

Since the purpose of learning objectives is to describe particular learning outcomes that can be observed and measured – specifically on assessments – it is neither efficient nor effective to select assessment methods at the end of the design and development process. Instead, the instructional designer must first identify the methods that he or she will use to assess learners’ performance of the objectives.

The process of selecting assessment methods to align with the defined objectives of a learning asset is called defining an *assessment strategy*. This lesson will discuss the elements of assessment strategy and the practices involved in assuring that learning objectives and assessments are adequately aligned.

Section 2: What are the Elements of Instructional Strategy?

ELOs for this section

1. Recall the definition of assessment strategy.
2. Summarize the rationale for determining an assessment strategy prior to the subsequent design and development of a learning asset.

First, how might one define an assessment strategy?

* **Assessment Strategy:** A summary of the methods that will be used to assess and measure learners’ mastery of the objectives covered in a learning asset.

In defining an assessment strategy, the instructional designer must figure out the most efficient method or methods for adequately measuring learners’ mastery of the learning objectives. In the process, he or she must take into account logistical and resource constraints that may be associated with the implementation of the learning asset.

The process of defining an assessment strategy occurs before the instructional designer defines an instructional strategy and content for a learning asset. Why? Because it is essential to make sure that all assessments fully align with the objectives specified for the learning asset, and that the instructional methods and content subsequently align with the assessments. The fact of the matter is that the assessments are the primary means of measuring learners’ performance of the objectives, which serve as the primary blueprint for the learning asset. Only after an instructional designer has determined that he or she has sufficient methods for assessing and measuring learners’ performance of the learning objectives can he or she design and develop instruction to support that performance. The instructional designer has no way to ensure that the instructional methods and concepts in a learning asset will support the specific performance outcomes expected of learners without first understanding the assessment strategy. In other words, it pays to know where learners need to go before drawing a map of how to get them there.

At the end of this stage, the assessment strategy that the instructional designer generates at the end of this stage is a general statement describing the methods that will be employed to assess learners’ performance in the learning asset, as well as how that performance will be measured. With respect to the Functional Integrated Process Team’s (FIPT’s) learning asset development process at DAU, the instructional strategy description is including in the Course Student Assessment Plan (CSAP) section of the Plan of Instruction (POI) document. We will look at a sample assessment strategy statement later on in this lesson. Additionally, you will see an example of how one of these statements is developed in this lesson’s case study.

Section 3: How Do Learning Objectives Inform the Assessment Strategy?

ELOs for this section

1. Describe how learning objectives inform an assessment strategy according to their respective cognitive dimensions and knowledge dimensions.

The learning objectives for a learning asset are the most important basis for the assessment strategy. The instructional designer must be completely confident that the assessment methods that are selected for a learning asset fully align with that asset’s defined learning objectives. If those methods are not aligned with the objectives, it is likely that the assessments will not provide learners’ with sufficient opportunities to achieve mastery of the learning asset and instructors with sufficient opportunities to observe and measure learners’ achievement.

In order to align the learning asset’s assessment strategy with the objectives, the instructional designer first needs to understand the thinking and knowledge demanded in performing objectives. This will give the designer better insight into the most appropriate means for allowing learners to demonstrate the requisite thought and knowledge for the objective. In the previous lesson we examined how the alignment between the cognitive and knowledge dimensions in a learning objective help us better understand intent and meaning of the objective. At this point in the design process we will return to those dimensions to provide us with insight into the types of performance that will be expected of learners as an outcome of a learning asset. Recall the following table, which reflects the alignment between the following table, which represents the alignment between the cognitive and knowledge dimensions for specific learning objectives.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Knowledge Dimension** | **Cognitive Process Dimension** | | | | | |
|  | *Remember* | *Understand* | *Apply* | *Analyze* | *Evaluate* | *Create* |
| *Factual Knowledge* | A1 | A2 | A3 | A4 | A5 | A6 |
| *Conceptual Knowledge* | B1 | B2 | B3 | B4 | B5 | B6 |
| *Procedural Knowledge* | C1 | C2 | C3 | C4 | C5 | C6 |
| *Metacognitive Knowledge* | D1 | D2 | D3 | D4 | D5 | D6 |

As you may recall from the previous lesson, specific learning objectives correlate to specific cells in the table, depending how their respective cognitive dimensions and knowledge dimensions align. For example, an objective that aligns in cell C1 would expect the learner to remember a piece of procedural knowledge, such as the steps for replacing a lighting fixture. On the other hand, an objective in cell A5 would require the learner to evaluate some type of factual knowledge, such as the validity of job statistics cited in a political debate.

This table can help the instructional designer get a better sense of the specific types for performance that will be expected of learners in demonstrating mastery of all or part of a learning asset. This understanding can subsequently inform the assessment strategy that he or she develops for the learning asset. To understand how an instructional designer might use this table as a basis for an assessment strategy, let’s correlate the ELOs for the current lesson of FPD 200 to their respective cells in this table and see where they align.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Knowledge Dimension** | **Cognitive Process Dimension** | | | | | |
|  | *Remember* | *Understand* | *Apply* | *Analyze* | *Evaluate* | *Create* |
| *Factual Knowledge* |  |  |  |  |  |  |
| *Conceptual Knowledge* | ELOs 1, 4 | ELOs 2, 3, 5, 7 | ELO 6 |  |  |  |
| *Procedural Knowledge* |  |  |  |  |  |  |
| *Metacognitive Knowledge* |  |  |  |  |  |  |

What can we tell by looking at the objectives for this lesson as they are correlated to their respective cells in the table? For one we notice that the majority of objectives for this lesson appear in the first two columns of the table, under the “Cognitive Process Dimension” headers *Remember* and *Understand*, respectively. We will recall from the previous lesson that these are the lowest level cognitive processes in Bloom’s Taxonomy. And, when you think about it, this makes sense – this Participant Guide is designed to present basic, introductory knowledge about the ADDIE process to an audience of non-instructional design practitioners. The idea is that getting you – an FPD 200 participant – to remember and understand basic knowledge about ADDIE in this guide will eventually enable you to apply, analyze, and evaluate instructional design processes elsewhere in this course. Only one of the objectives in this lesson of the Participant Guide correlates to a higher cognitive function: *application*.

Also, notice that the all of the objectives fall into the *conceptual knowledge* dimension. This also makes sense, since the majority of our content for this lesson – and this Participant Guide in general – is composed of basic facts and concepts relating to a particular part of the ADDIE model.

So, what does this tell us about the types of assessments that we may think of developing for this course? In particular, it points to the fact that whatever assessment method or methods we select to measure learning objectives will call on learners to *remember or understand basic concepts*. Generally speaking, these are fairly basic performance outcomes that can be measured using similarly basic assessment methods that allow learners to demonstrate conceptual knowledge. However, one of these objectives – ELO 6 – requires learners to actually *apply* cognitive knowledge. This may or may not require a separate method of assessment than the other objectives. In order to make this determination, we will need to get a better idea of the particular methods that we can employ.

Therefore, we now have general insight into the common types of performance outcomes that our learners will be expected to demonstrate for this lesson. Generalizing the expected outcomes in this way narrows down the types of assessment methods that we will want to consider for this part of the learning asset. At this point, then, we can consider which assessment methods that will best align with the desired performance outcomes.

Section 4: How Do I Select Assessment Methods?

ELOs for this section

1. Recognize assessment methods that are available to an instructional designer.
2. Describe various assessment methods.
3. Select appropriate assessment methods according to the respective cognitive dimensions and knowledge dimensions of learning objectives.

Before an instructional designer can identify an instructional strategy, he or she should have a general sense of the variety the assessment methods available. Although there is a vast array of particular types of learning assessments according to the specific types of media they employ or the nature of the learner’s challenge (individual, collaborative, etc.), what follows is a list of general assessment categories:

* *Objective Written Assessment Items:* These are any assessment items that consist of a limited number of answer choices for the learner to select from. Examples include:
* Multiple choice
* True/false
* Matching questions.

These assessment items are typically found on written examinations or in online quiz templates, such as those found in Blackboard. These assessment items are the simplest to assess, allowing instructors to employ a basic answer key. Additionally, online quiz templates are capable of doing the assessment work for the instructor. However, they are extremely limited in the level of knowledge and understanding that they allow a learner to demonstrate. As a result, these items are best suited for measuring learners’ recall and understanding of content.

* *Subjective Written Assessment Items:* These assessment items require learners to write a response without the opportunity to select from a set of prescribed answer choices. Examples include:
* Fill-in/completion/short answer response questions
* Essays
* Research papers and reports
* Journals
* Creative writing samples

While fill-in/completion/short answer response questions and even essays are often included on written exams in a single class session, the other examples of subjective written assessment items usually require students to develop the item for assessment over time. And, while fill-in/completion/short answer response questions may be *convergent* assessment items that allow the use of an answer key, all of the other examples are divergent, necessitating that holistic criteria be employed to measure performance, such as rubrics and/or peer assessments. Generally speaking, fill-in/completion/short answer response questions are best suited to assessing learners’ basic recall and understanding of content. On the other hand, the other examples can be ostensibly employed to assess any of the higher order cognitive processes, depending on the nature of the assignment.

* *Case Studies and Critical Incidents:* These assessment items present real-world examples of content for learners to respond to. They may be presented as written items or through demonstrative media such as videos, illustrations, or animations. They typically target two cognitive processes in particular: *analysis* and *evaluation*. Specifically, these assessment items call on learners to review a real-world case or problem, analyze the conditions of this situation, and potentially evaluate measures for addressing the problem. Their responses may be delivered in writing or delivered in an oral and/or media presentation. Performance on these assessments is best measured using holistic assessments such as rubrics and/or peer assessments.
* *Practical Exercises and Simulations:* These assessment items call on learners to demonstrate practical knowledge of the learning objectives in a physical or virtual environment that simulates the conditions under which learning will be applied. Examples of this assessment category include:
* Presentations
* Practical or procedural demonstrations
* Development of materials for practical use
* Role plays or dramatizations
* Games
* Simulations

All of these examples most strongly correlate to the *application* level of cognitive processing. However, instructional designers can design these assessments so that they involve other cognitive processes as well. For example, a simulation that calls on learners to present a debrief on their performance may prompt them to exercise *analytical* and *evaluative* cognitive functioning. Additionally, an assignment in which learners must develop materials for practical use requires *creative* cognition. These assessments generally demand holistic measures of performance, such as rubrics, instructor observation rubrics, and peer assessments.

Based on this list, we can begin to consider instructional methods that best align with the learning objectives for this lesson of FPD 200. Recall that most of the objectives for this lesson of the Participant Guide fell into the *remember* and *understand* cognitive processing categories, and that all of the objectives correlated to the *conceptual* knowledge dimension. This means that we need to select an assessment method that can measure our target audience’s basic recall and understanding of concepts.

Although basic recall and understanding can be employed in a practical exercise or a case study, these are not necessarily the most efficient methods for assessing these learning outcomes since it may be difficult for the instructor to isolate and measure recall and understanding among all the higher order cognitive behaviors demonstrated in these assessment methods. Instead, based on the description of assessment methods in the list above, it would seem that a combination of objective and subjective written exam items would be the best fit for assessing our audience’s performance of the objectives for this lesson of the Participant Guide – this assessment items allow the instructor to clearly observe and measure learners’ basic recall and understanding of specific concepts from the lesson.

However, this does not take into account logistical or resource constraints that may preclude the use of certain assessment methods. For example, it may be preferable to have learners demonstrate understanding of a concept in a subjective written test item. In the case of this lesson, one can easily see how a learning objective such as “Summarize the rationale for determining an assessment strategy prior to the subsequent design and development of a learning asset” lends itself to a short answer response on a written exam.

However, an instructor must read and evaluate all divergent written responses because there is no online quiz template that can accurately measure them. At the same time, the logistics of delivering FPD 200 as a largely student-directed online course that requires minimal instructor involvement has necessitated that basic assessments of students’ recall and understanding be handled through programmatic online assessments, particularly Blackboard quizzes. The result in the case of this course was that all assessments of basic recall and understanding would need to be assessed through objective written assessment items that called on learners to select a description or summary that reflects their understanding from a limited set of choices. In this way, an instructional designer must always consider and conform to the logistical and resource constraints imposed on a learning asset in selecting specific assessment methods.

Therefore, we have settled on one assessment method to assess basic recall and understanding of concepts from this lesson: a Blackboard quiz that contains objective written assessment items. However, in the previous section we identified one learning objective that required learners to demonstrate application of one of the concepts from this lesson:

* “ELO 6: Select appropriate assessment methods according to the respective cognitive dimensions and knowledge dimensions of learning objectives.”

An objective written assessment item does not present the most efficient and effective means of assessing this objective. The fact is that selecting one answer choice from a limited set of choices does not reflect real application of this learning behavior. Since we intend to keep this objective, we need to find another means of assessment to measure it.

Of course, in this example we have only covered the lesson objectives for the Participant Guide. In the case of FPD 200, we did define higher level learning objectives that involve application, analysis, evaluation, and creation. In order to address these objectives, we developed a series of case studies and selected an instructional method of practical exercise, in which FPD 200 participants develop a full learning asset for assessment. We intended this to be the one assessment item that an instructor would assess. Since it is clear that practical exercises are well suited to assessing the application of learning objectives, we will assess this objective when the audience develops their assessment strategy as part of the practical exercise for this lesson.

Therefore, to sum up, here are some things to consider when selecting the assessment method or methods that best align with the objectives for a learning asset:

* The cognitive dimensions and knowledge dimensions of the respective objectives covered by all or part of a learning asset.
* The various assessment method categories.
* The most effective and efficient method for assessing the knowledge and thinking involved in performing a learning objective.
* Logistical and resource constraints that assessment methods must conform to.
* The ability of the methods selected to fully assess all of the objectives defined for a learning asset.

Section 4: How Do I Write an Assessment Strategy?

ELOs for this section

1. Summarize the elements of a Course Student Assessment Plan (CSAP) in a Plan of Instruction (POI).

In the example that we have been discussing for this lesson, our assessment strategy for FPD 200 consists of two distinct assessment methods:

* Objective written assessment items in Blackboard quizzes for assessing basic recall and understanding of facts and concepts from the course.
* Practical exercises in which FPD 200 participants incrementally develop parts of a learning asset in order to demonstrate application, analysis, evaluation, and creation.

At DAU, these assessment methods are recorded under the “Assessment Strategy” heading of the Course Student Assessment Plan (CSAP) in the Plan of Instruction (POI). A sample assessment strategy in a CSAP might be written as follows:

“Students will be evaluated individually using objective quizzes and examinations and practical exercises. Each lesson of the course will include a 20 question quiz on the lesson’s readings and case study. Each module will include a practical exercise in which learners produce one part of a selected learning asset for assessment.”

Notice that an assessment strategy in a CSAP contains the following elements:

* Identification of all the methods of assessment for a learning asset.
* A brief description of each of the specific methods of assessment.
* An explanation of how the assessment methods correlate to the module or lesson structure of the course.

In the case study for this lesson, you will see an example of how an ISD lead and a PLD on a FIPT collaborate to develop an assessment strategy for inclusion on the CSAP of their POI.

Once this strategy is in place, the instructional designer has a clear basis for selecting an *instructional strategy* that will full enable learners’ performance in the assessments. The development of a sequence of instruction and selection of instructional methods as part of the instructional strategy will be the subject of the next lesson in this module.