**Defense Acquisition University**

**FPD 200 Participant Guide**

**Module 2, Case Study 3 (Assessment Strategy)**

***February 3, 2012***

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What We Learned in the Previous Case Study

In the previous case study, we examined the process for developing learning objectives and distinguished between terminal learning objectives (TLOs) and enabling learning objectives (ELOs). We discussed how the development of objectives is a direct result of the analysis phase of the ADDIE model. After an organizational learning goal has been established in ADDIE, each step that follows is informed by what came before it and is designed to support what comes after it.

Candace created objectives based on the findings of the task analysis outcomes. During the task analysis, Victor identified desired performance competencies that would eliminate the observed performance gaps identified in the needs analysis. They first looked at the subject area of contracts within FAR and DFARS. When it came to the topic of contract planning in this subject area, in particular, they identified the following desired competencies:

* + **Understand the policies pertaining to types of contracts that may be used in acquisition.**
* **Understand the policies pertaining to selecting contract types.**
* **Understand the policies pertaining to fixed-price contracts.**
* **Understand the policies pertaining to cost reimbursement contracts.**
* **Understand the procedures for selecting contract types.**

Lilly and Candace then identified broad content that would support the desired competencies. This content included the following items:

* + - **Contracting policies**
    - **Contracting and non-contracting methods for satisfying FAR requirements**
    - **Acquisition methods and appropriate applications**

From this list of broad content, Candace developed a list of TLOs:

* + **The learner will be able to explain contracting policies that pertain to Federal Acquisition Regulations.**
  + **The learner will be able to summarize methods that satisfy FAR requirements relative to contracting and non-contracting methods.**
  + **The learner will be able to complete a graphical representation of appropriate acquisition procedures, including non-contracting alternatives.**

Once Victor and the other members of the FIPT have validated all of the objectives for the learning asset, they are ready for inclusion in the Course Design Document (CDD). Now Candace is ready to move on to developing an assessment strategy – the next step in the Design phase.

Logic might suggest that the next step after developing learning objectives would be to develop the content for the learning asset, but this isn’t the case. Why? Because a cardinal rule of instructional design is that assessment drives instruction. You need to know where you are taking learners before you can figure out how to get them there. Assessment methods are the sole means by which learning objectives are measured. Therefore, these methods provide the end goal of the instructional strategies that will enable desired performance.

Case Study 2: Developing an Assessment Strategy

The Case

Now that they have validated all the learning objectives for their learning asset, Candace, Victor, and the other members of the Functional Integrated Process Team (FIPT) review the objectives they have developed. They first look at the terminal learning objectives (TLOs) for the various units and lessons of their learning asset. These TLOs will indicate the ultimate performance outcomes for each of the units or lessons and will be the basis for learner assessment. Then they look at the enabling learning objectives (ELOs) for each of the TLOs. These indicate the performance outcomes that learners will need to be assessed on before they are able to achieve each TLO. At this point, their job is to use their analysis of the objectives as a basis for selecting the most appropriate assessment methods for measuring learners’ performance in the learning asset, in alignment with the TLOs and ELOs. Their goal at this step is to produce a general statement describing the methods that will be employed to assess learners’ performance as well as how that performance will be measured. This statement is called an *assessment strategy*.

Looking at the TLOs for Contract Planning in particular, Candace and Victor refer back to the table that they highlighted in the previous case (Table 2.3.1), which reflects the alignment between the cognitive and knowledge dimensions for specific learning objectives.

* The learner will be able to explain contracting policies that pertain to Federal Acquisition Regulations.
* The learner will be able to summarize methods that satisfy FAR requirements relative to contracting and non-contracting methods.
* The learner will be able to complete a graphical representation of appropriate acquisition procedures, including non-contracting alternatives.

**Table 2.3.1**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **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 |

This table helps them get a good sense of the specific types of performance that will be expected of learners in demonstrating mastery of all or part of a learning asset. This insight will help them develop assessment strategies appropriate for the learning asset. In particular, Candace sees that the TLOs for the three lessons on contract planning in the proposed learning asset all target the cognitive process dimension of *understanding*, which is the second lowest cognitive process level in Bloom’s Taxonomy, after *remembering*. This means that whatever assessments they create require learners to perform at a level of thinking above basic recall, but lower than the level of thinking involved in application, analysis, evaluation, and creation.

In other words, the assessment for each lesson in the contract planning unit or section of the FAR and DFARS learning asset will be at a very basic level of assessing learners’ *understanding*. Additionally, based on the knowledge dimensions highlighted in the table, whatever assessment they design will need to target conceptual and procedural understanding, in particular.

Candace now reviews five things they must consider before selecting an assessment strategy:

* The cognitive process 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

Since they have already looked at how their TLOs for contract planning align with specific cognitive process dimensions and knowledge dimensions, the next step is to consider the four main categories of assessment methods available to them:

* Objective written assessment items
* Subjective written assessment items
* Case studies and critical incidents
* Practical exercises and simulations

Given that the all of the TLOs for contract planning are at the relatively low cognitive level of *understanding* in Bloom’s Taxonomy, Candace and Victor determine that they can be demonstrated using a basic examination method. In particular, Candace and Victor agree that a subjective written assessment will be the most efficient method for measuring performance on each of these TLOs. In making this determination, they contrast this method with other possible methods. On one hand, they both agree that objective written assessment items – such as multiple choice, true/false, and fill-in-the-blank – tend to be too basic for learners to adequately demonstrate conceptual and procedural understanding. On the other hand, while more elaborate methods of assessment, such as case studies and practical exercises, can assess understanding on some level, they tend to be more effective at measuring higher-level cognitive functions, such as application, analysis, and evaluation.

In particular, Candace and Victor determine that the following objectives lend themselves to essay assignments, in which the learners will demonstrate their understanding of the lesson they have completed by developing thorough written explanations of the concepts covered in that lesson:

* The learner will be able to explain contracting policies that pertain to Federal Acquisition Regulations.
* The learner will be able to summarize methods that satisfy FAR requirements relative to contracting and non-contracting methods.

The third objective – “The learner will be able to complete a graphical representation of appropriate acquisition procedures including non-contracting alternatives” – describes a specific subjective written assessment that is not an essay. Instead, the final assessment for this lesson will prompt learners to develop a visual representation of acquisition procedures and non-contracting alternatives.

Candace and Victor previously determined that, since the TLOs for each lesson were only at the second level of cognitive processing in Bloom’s Taxonomy, the ELOs for each of these lessons would be primarily targeted at the lowest cognitive level: getting learners to *remember* the basic facts, concepts, and procedures that they will need to know in order to demonstrate the TLOs. Typically, basic recall of facts, concepts, and procedures is best assessed using objective written assessment items. Candace and Victor settle on examinations as their primary assessment method. They decided that these exams will include objective assessment items to measure basic recall and subjective written assessment items to measure understanding. They agree that this method will be adequate for measuring learners’ overall performance upon completing each of the lessons in the contract planning unit of the learning asset. Further, they determine that there are no logistical constraints or resource constraints that will prevent them from implementing these methods – whichever learning environment the FIPT ultimately decides is the most appropriate for implementing this learning asset, the assessment methods that Candace and Victor selected can be deployed either as paper-based assessments in a physical classroom or in an online environment such as Blackboard.

As Candace and Victor analyze the TLOs and ELOs for all the remaining lessons in the course, they discover that each lesson’s TLO calls on learners to demonstrate understanding of the overall lesson, and that the ELOs are primarily focused on basic recall of facts, concepts, and procedures. Of course, looking back at their Analysis phase data and how it informed the development of their learning objectives, this all makes complete sense to them – since their audience consisted of new hires with no presumed educational or experiential background in FAR or DFARS, they deliberately designed objectives that would instill basic knowledge and understanding of the content. As a result, they realize that they can apply the assessment methods they developed in the contract planning unit to the other units of this learning asset.

Their next step is to write an assessment strategy, which they will include in their CDD. Additionally, when they eventually develop their Plan of Instruction (POI) for this learning asset, their assessment strategy will be included in the Course Student Assessment Plan (CSAP) section of that document. This assessment strategy is a description of all the learning methods employed to measure learners’ performance of objectives in a learning asset, as well as how these methods align with the overall structure of the asset.

Candace reminds Victor that all DAU assessment strategies must include:

* 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.

Based on these criteria and the specific methods they identified for assessing learners for each of the lessons in their learning asset, Candace and Victor develop the following assessment strategy, which they will write into their CDD and, eventually, the CSAP in the POI for this learning asset:

* “Students will be assessed individually based on their demonstration of the learning objectives for each lesson. Each lesson will include a written examination consisting of objective assessment items that will test learners’ basic recall of the information presented in the lesson as well as at least one essay question or equivalent written assessment item that will measure learners’ understanding of the major concepts presented in the lesson.”

Focus of Analysis

How does the assessment strategy evolve from the learning objectives?

Analysis Prompts

* How do the learning objectives inform the development of an assessment strategy?
* How do you align the assessment to the learning objectives?

Analysis Guide

How do the learning objectives inform the development of an assessment strategy?

The first thing to remember is that assessment drives instruction. That is, we must make sure that we are assessing learners in a manner that will measure appropriate knowledge and skills as they proceed through the learning asset. If we are not measuring the correct knowledge and/or skills, the learner will not be prepared to demonstrate the desired performance competencies when they complete the learning asset. Since the learning asset’s sole purpose is to enable learners to develop the desired performance competencies, a failure to demonstrate some or all these competencies in their jobs after completing a learning asset is judged as a failure of the learning asset itself.

For example, if you were in a history class where the desired performance competency was **“understand battle strategies,”** yet the formative assessments (i.e., those assessments you took along the way) only tested you on the names of generals and the dates and places of the battles, then the formative assessments did not prepare you to meet the desired performance competency.

Also, recall that the desired performance competencies were developed during the job task analysis, which informed the terminal learning objectives. The objectives translated the desired performance competencies into observable, measurable behaviors. So, the TLO in our history example might actually read: “**The student will be able to compare and contrast battle strategies of the North and South in the Battle of the Wilderness.”**

Once we have developed this TLO, it is easy to see that quizzing learners on names and dates may help them on a quiz show, but will not help them meet the desired performance competencies. In this way, if we look to the objectives, we can appropriately align our assessments. In particular, the formative assessments in this course would not only call for learners to recall the facts and concepts relating to battle strategies employed in the Battle of the Wilderness, they would also call on learners to explain those specific strategies in order to demonstrate a sufficient understanding for analyzing how the North’s battle strategy compared to the South’s battle strategy. One can envision that an instructor might develop short essay questions in which learners could explain each individual strategy and a lengthier report assignment in which they could conduct their comparative analysis of the two strategies.

How do you align the assessment to the learning objectives?

Once you know what your objectives are, you can place them on a knowledge dimension/cognitive process dimension matrix. This table will give you insight into the cognitive level of Bloom’s Taxonomy for your objectives and what type of knowledge they require of learners. Knowing this will give you insight into the cognitive levels and knowledge levels that your assessment methods will need to measure.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Knowledge Dimension** | **Cognitive Process Dimension** | | | | | |
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| *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 |

Additional variables to consider when aligning your assessment strategy to your learning objectives include:

* 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