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**Defense Acquisition University**

**FPD 200: Participant Guide**

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

**Script**

**January 20, 2012**

Lesson 2: Learning Objectives 3

Section 1: Introduction 4

Section 2: What Is a Learning Objective? 4

Section 3: How Does the Analysis Phase Inform the Development of Learning Objectives? 6

Section 4: How Do I Define What Learners Should Do in a Learning Objective? 8

Section 5: How Do I Define What Learners Should Know in a Learning Objective? 12

Section 6: How Do I Validate a Learning Objective? 14

Section 7: How Are Learning Objectives Classified? 16

Section 8: Where Do Learning Objectives Fit into a DAU Plan of Instruction (POI)? 18

Lesson 3: Instructional Strategies

Topics for this Lesson

* Learning Objectives
* Revised Bloom’s Taxonomy
* Cognitive Processes
* Observable and Measurable Learning Behaviors
* Knowledge Dimensions
* Terminal Learning Objectives (TLOs)
* Enabling Learning Objectives (ELOs)

What You Will Be Able to Do

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

1. Explain the sequence and context of instructional strategy development in the design phase.
2. Define the elements of instructional strategy.
3. Describe a procedure for developing an instructional sequence for a learning asset.
4. Identify common means of sequencing instruction in a learning asset.
5. Identify Gagne’s “Nine Events of Instruction.”
6. Explain how Gagne’s “Nine Events” inform instructional sequencing.
7. Identify potential instructional methods.
8. Describe key considerations in defining instructional methods.

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 a an instructional strategy for a selected learning asset, including an instructional sequence and set of methods, with an accompanying explanation of your strategic choices.

Section 1: Introduction

ELOs for this section

1. Explain the sequence and context of instructional strategy development in the design phase.

Effective instruction requires planning; and that planning starts at the end. This is what is termed *backward design.* Backward designbegins with the design process by deciding first on outcomes that in turn guide everything else. At first glance, that seems to be counter-intuitive, but when you think about it, it makes sense that before you can know *what* you are going to include in your instruction and or *how* you are going to plan it, you need to know where you want to end up. This is really no different than the way you arrange a vacation…you plan backwards; first you decide where you want to go and what you want to do when you get there. Only with this decided can you make arrangements for your transportation and lodging, and pack appropriately. In everyday life we plan like this without thinking, because it makes sense, and it makes sense in designing instruction also. Before we can plan appropriate instruction, we need to know what we want the learner to know/be able to do at the completion of the learning and how we will assess whether the learner knows/can do what we expect. To have successful outcomes, the objectives and assessments must be tightly linked to the instruction.

In the lesson two we learned how to develop observable objectives that delineate what learners will be expected to demonstrate as a result of their learning, and in lesson three we learned how to develop an assessment strategy that describes how the learner’s demonstration of the objectives will be measured. So the groundwork is laid for our backward design. What we now must consider is an instructional *strategy* that will begin to define the lessons and/or instructional methods within the learning asset.

This lesson will discuss the elements of an instructional strategy and the practices involved in its development.

Section 2: What are the Elements of Instructional Strategy?

ELOs for this section

1. Define the elements of instructional strategy.

*Instructional strategy* is a term that describes two distinct elements of instructional design:

* *Instructional sequence:* the order in which the learning objectives are presented in the learning asset in order to support learners’ mastery.
* *Instructional methods:* the specific instructional activities that will deliver content and present opportunities for learners to practice and assimilate the learning objectives contained in the instructional sequence.

The following sections of this lesson discuss these elements in detail.

Section 3: How Do I Develop an Instructional Sequence for a Learning Asset?

ELOs for this section

1. Describe a procedure for developing an instructional sequence for a learning asset.
2. Identify common means of sequencing instruction in a learning asset.

There is no “one size fits all” approach to sequencing instruction, but there are rules of thumb to guide you. One such rule is that of *articulation.* Articulation is how the content segments relate to one another within the lesson. This articulation should make sense. For instance it would make sense to teach introduce new skiers to the equipment they will need, how that equipment works, before explaining to them the process for how to navigate gates in a race course. A hierarchical analysis of the content will help you make sequencing decisions by organizing concepts and skills in an order of simple to complex or from first to last. At each point, the designer needs to ask if there are related subskills/subconcepts the learner must have/be able to complete to process the next point of instruction. Simply put, the instructional sequence must be logical and make sense to the learner.

Your instructional objectives provide a good starting point and provide you with the means to develop a logical sequential progression for your instruction.

Generally speaking, a simple procedure for developing a high-level sequential outline includes the following steps:

1. Compile all the learning objectives that you have identified into a list. Be sure to group all ELOs under their respective TLOs.
2. Remember that each ELOs must support the ELO that succeeds it and collectively the ELOs support the TLO with which they are associated.

TLO

ELO 1

ELO 2

ELO 3

ELO 4

Simple

Complex

Subordinate

Superordinate

Begin to think about what the objectives tell you about how the asset may be organized.

* Do the TLOs lend themselves to unit or lesson objectives in a training program? If so, you may begin to define units and/or lessons to be sequenced. For instance, once you have the TLOs in front of you, you can sort them out by the extensiveness of their scope. For instance if a TLO was to undertake a field trial, that would require a greater support structure of ELOs than a TLO that was to create items to test a student performance. Here you would make the instructional decision of whether to situate the TLO of undertaking a field study in a chapter or a unit.
* Another consideration you must make concerning your TLOs is whether they lend themselves to a training program or whether it makes more sense to treat them as a more discrete skill. For instance you may have a TLO that is to create a podcast. After considering the objectives needed that to support the TLO of creating a podcast you may decide that this TLO does not seem to lend itself to the training program in which it is embedded and it makes more sense to removed this TLO from the training and treat it as a discrete learning asset.
* Can you reasonably expect learners to master all the ELOs listed under the TLO within the proposed unit, lesson, or learning object? If not, it may make sense to divide the ELOs into more manageable units, lessons, or objects.
* Once you have made your determinations about how you will organize your TLOs, you can more easily sequence the TLOs and their related ELOs into logical sequences of units and/or lessons in a training program or objectives for a learning object. Objectives may naturally lend themselves to being sequenced by:
  + - Chronology
    - Procedural order
    - Problem/solution
    - Categories
    - General to specific
    - Simple to complex
    - Less risky to more risky
    - Known to unknown

Here is where your learner analysis from chapter one becomes extremely helpful; if you have a good understanding of your learner, it can help you make informed decisions on how to sequence your instruction. Knowing your learner gives you information that will allow you to make sequencing decisions that are customized to fit your learners ‘existing knowledge/skill sets.

In the case study for this lesson, you will read an example of how instructional designers at DAU use this general procedure to arrange learning objectives into a sequential outline for a training program.

Section 4: What are Gagne’s “Nine Events of Instruction” and What Do They Say About Instructional Sequence?

ELOs for this section

1. Identify Gagne’s “Nine Events of Instruction.”
2. Explain how Gagne’s “Nine Events” inform instructional sequencing.

Robert Gagne was an educational psychologist who was best known for developing what he referred to as “conditions for learning,” which delineated the types of instruction that are most appropriate for specific types of learning. The purpose of developing the conditions of learning was to provide a structure for those who design instruction to be more successful.

His “Nine Events of Instruction” taxonomy provides a useful framework for defining actions that support learning within a discrete instructional experience, such as a lesson.

Gagne’s “Nine Events,” in order, are:

* Gain learners’ attention.
* Share the learning objectives of the session.
* Get learners to recall prior knowledge of the subject.
* Present the content.
* Provide learner guidance to enhance understanding.
* Give learners an opportunity to practice and demonstrate what they know.
* Provide feedback.
* Assess performance.
* Provide job aids or references to ensure that learners retain and transfer what they have learned.

Gagne distinguished between two types of conditions; internal and external. Internal conditions can be thought of as “states” that happen within the learner. Internal conditions include constructs such as motivation, recall, and attention. External conditions can be thought of as those things that occur outside of the learner and affect the learner’s behavior, for example the arrangement and timing of events used in the learning experience. Each of the nine events of instruction are external conditions since they involve actions imposed on the learning environment in an effort to affect the learner’s behavior; however, Gagne purposefully related each of these events to identified internal learning processes. He sequenced the events of instruction to coincide with a sequence of internal conditions of the learner that have been shown to enhance learning.

| **Gagne’s Instructional Event** | **Relation to Internal Learning Process** |
| --- | --- |
| Gain the learner’s attention | ***Reception of patterns of neural impulses*** (Stimulates electrical impulses in the learner’s brain to make learner receptive to stimuli)  This helps to contextualize lesson and to motivate learner |
| Share the learning objectives of the session. | ***Activating a process of executive control*** (Executive control is an umbrella term for internal processes that allow an individual to focus on goal-directed actions when the environment offers endless possibilities that compete for the learner’s attention)  Allows student to frame out the instruction |
| Get the learners to recall prior knowledge of the subject | ***Retrieval of prior learning from long-term memory and placing it in working memory*** (Brings important information to the forefront of consciousness getting the learner ready to receive and process new information)  Gets learners on the same page as the instructor. |
| Presenting the content | ***Emphasizing material for selective perception*** (Selective perception is the personal filtering of what we see and hear. We are bombarded with too much stimuli every day to pay equal attention to everything so we pick and choose according to our own needs.)  Keeps the learner from having to guess what’s relevant and what’s not. |
| Provide learner guidance to enhance understanding. | ***Semantic encoding*** (This helps the learner store information in a way that allows for deep processing, and optimal retrieval of information at a later time.) |
| Give learners an opportunity to practice and demonstrate what they know. | ***Activating response organization*.** (The learner now has the opportunity to combine the events of learning and apply what they have learned) |
| Provide feedback. | ***Reinforcement*** (The process of establishing a belief or pattern of behavior. By providing feedback to the learner, the instructor helps validate behaviors which the learner can then internalize.)  The instructor helps the learner recognize what is correct and incorrect in his/her practice so that the correct behaviors can be recognized and remembered.. |
| Assess performance. | ***Activating retrieval making reinforcement possible.***  The learner must retrieve the information learned to communicate what he/she has learned. After student responses are offered, the feedback on assessment provides for validation and/or correction. |
| Provide job aids or references to ensure that learners retain and transfer what they have learned. | ***Provide cues and strategies for information retrieval***  Strategies that support information retrieval are shared with the learner enhancing long-term learning. |

If your learning asset necessitates that you develop lessons, the order of Gagne’s “Nine Events” provides an excellent instructional sequence for a lesson plan. Let’s look at a simple example of Gagne’s nine events of instruction applied to a learning situation.

**SAMPLE**

|  |  |  |
| --- | --- | --- |
| Goal: Students will discriminate between symptoms that signal heart attack in men and women  ELO 1: The students will list symptoms of heart attacks that are often seen in both men and women  ELO 2: The students will list symptoms of heart attack that present uniquely in women.  ELO 3: The students will recognize the unique symptoms of heart attack that manifest in women  ELO 4: The student will construct a ven diagram that organizes the unique symptoms found in males and females experiencing a heart attack and the shared symptoms of males and females experiencing a heart attack.  ELO 5: The students will compare and contrast presenting heart attack symptoms of men and women  I | | |
| **Event** | **Implementation of Event** | **Internal Process** |
| Gain learners attention | The instructor shows a 15 second video clip of a woman approximately 40 years of age clearly in distress, gasping for air, gagging, and pressing her hands to lower back. The screen fades to black and a message appears: “Is this indigestion or a heart attack?” | The instructor presents stimuli to the learners that attracts their attention engaging them in the learning endeavor |
| Share the learning objectives of the session. | Instructor informs the learner that today the class will focus on five factors that not universally recognized as symptoms in females when experiencing a heart attack  Instructor informs the learners that the goal of the instruction is prepare them in to discriminate between symptoms that signal heart attack in men and women  The goal and each ELO are displayed on the smartboard. | The instructor sorts out and presents important stimuli cueing the student on important stimuli of focus. |
| Stimulate recall of prerequisite learning | The instructor will review previously covered material that addressed common symptoms that males experience when having a heart attack, and how to recognize these symptoms. | The instructor reminds learners of relevant information that they have already addressed that relates to the current topic. Explicitly bringing this to the forefront allows the learner to make immediate connections between what they know and what they are about to learn, and to contextualize the learning experience |
| Presenting the content | The instructor explains that symptoms of heart attack in men may also be seen in women.  The instructor presents information on symptoms of heart attacks that are generally considered to be unique to women.  The instructor presents material explaining how to recognize symptoms unique to women experiencing a heart attack. This includes video examples.  The instruction will compare symptoms that may be shared between males and females experiencing a heart attack and contrast symptoms that are unique to females with the previously learned male symptoms using video, pictures and verbal descriptions | The instructor presents the lesson so that the content supports the ELOs. The ELOs are sequenced to move from the lower level of Blooms (i.e., remembering) to |
| Provide learner guidance to enhance understanding. | The instructor will present video examples of a male and a female demonstrating physical symptoms of a heart attack, and demonstrate how to record observations of the event.  The instructor will provide additional examples and guide students through their observations using questioning techniques that will support making critical observations. |  |
| Give learners an opportunity to practice and demonstrate what they know. | Students will be asked to make a list of symptoms that present in both males and females and then another list of symptoms unique to females experiencing a heart attack. They are instructed to use these lists to help them when considering the video clips that will be shown  Students will be given several video clips of women displaying various examples and non-examples of heart attack symptoms. Students will be asked to view each video. Record their observations and identify those women displaying symptoms that are suggestive of a heart attack. At the end of students’ independent practice, the instructor will reconvene the class and poll the class for decisions on each clip. The instructor will then engage the class in a discussion of the clips asking students to explain (based on their observations) which clips are consistent with symptoms of a female having a heart attack and why and which clips are not consistent and why.  Learners are asked to construct a ven diagram that organizes unique and common symptoms that present in male and female patients experiencing a heart attack. Students are instructed to use this diagram when considering video clips along with an observation log.  The instructor gives the learners video examples and non-examples of both women and men displaying symptoms of heart attack. Students are asked to view each clip independently, identify both men and women displaying symptoms consistent with a heart attack based on their observations and the use of their Venn diagram.. The instructor will again poll the class for decisions on each clip and then engage the class in a discussion of the clips asking students explaining which clips are consistent with symptoms of both males and female having a heart attack. Students will be asked to compare and contrast the examples of males and females presenting with symptoms of heart attack based on their observations. | The student is given the opportunity to cognitively organize the material through application. |
| Provide feedback. | The instructor provides feedback to the students correcting misconceptions and reinforcing correct responses. | Correct learning is confirmed and incorrect learning is addressed. |
| Assessing performance | Students are tested on material using a similar format to that used in practice. Students are given feedback. | The learner is called upon to demonstrate his/her learning after which correct learning is confirmed and incorrect learning is addressed. |
| Provide job aids or references to ensure that learners retain and transfer what they have learned | Students are taught a mnemonic accompanied to help recall symptoms that are common to men and may appear in women, and a mnemonic that helps recall symptoms generally unique to women. The symptoms unique to women are presented in a laminated card that contains a pictorial representation of each of the symptoms and a one word description of the symptom | Mnemonic devices are provided  Learning guides and other reference aids will be presented. |

When preparing enabling learning objectives according to Gagne’s sequence it is important to move from the simple to the complex, being sure that each ELO supports the next. This movement should parallel Bloom’s cognitive processing model; moving from lower levels cognitive functions (e.g., remembering, understanding) to progressively higher levels of cognitive functioning (e.g., applying, analyzing, evaluating and creating)

Let’s examine the ELOs from the example above.

* ELO 1: The students will list symptoms of heart attacks that are often seen in both men and women.
* ELO 2: The students will list symptoms of heart attack that present uniquely in women.
* ELO 3: The students will recognize the unique symptoms of heart attack that manifest in women.
* ELO 4: The student will construct a ven diagram that organizes the unique symptoms found in males and females experiencing a heart attack and the shared symptoms of males and females experiencing a heart attack.
* ELO 5: The students will compare and contrast presenting heart attack symptoms of men and women.

The goal of the instruction is to have the students discriminate between symptoms that signal heart attack in men and women. This goal is at the ***analysis*** level of Bloom’s taxonomy; thus the ELOs should be coordinated to achieve this goal. In our example that is exactly what has been done. The ELOs move from the ***remembering*** level of Blooms (ELO 1 and ELO2) to the ***understanding*** level (ELO 3) to the ***application*** level (ELO 4) to the ***analysis*** level (ELO 5). Each ELO supports the subsequent ELO and all of the ELOs taken together support student attainment of the goal. The sequencing of the ELOs defines how the content will be ordered and distributed throughout Gagne’s events of instruction.

Section 5: How Do I Select Appropriate Instructional Methods for My Learning Asset?

ELOs for this section

1. Identify potential instructional methods.
2. Describe key considerations in defining instructional methods.

Regardless of whether your learning asset is a traditional training program or a discrete learning object – or a combination of both – you will need to define instructional methods that will support acquisition of the learning objectives contained in the instructional sequence for your asset.

The criteria by which you judge a learning strategy is the degree of success it promotes and its level of fit with the needs of the instruction; therefore, it is helpful to know the common types of learning strategies, when they are most effectively used, their advantages and considerations of use.

**Instructional Matrix**

| **Instructional Method** | **Appropriate Use** | **Advantages** | **Considerations** |
| --- | --- | --- | --- |
| Lecture | Direct instruction is required | * Provides a way to communicate large amounts of information to many listeners * Maximizes instructor control * Non-threatening to students | * Minimized feedback from the student * May assume unrealistic levels of student understanding & comprehension * Can disengage students from the learning process compromising retention |
| Case Studies | A forum for learners to apply learning to real life situations. | * Effective in disseminating and integrating knowledge * May come from a variety of sources including current events * May highlight fundamental dilemmas or critical issues * Provides format for understanding ambiguous or controversial issues * Engages student in active learning | * If not carefully structured to be consistent with learners placement on Bloom’s taxonomy learners will not benefit |
| Discussion | A forum to elaborate, clarify, validate, review learning | * Engages students is active learning * Can be structured to support higher levels of Bloom’s taxonomy * Sharing of student opinions, insights, etc. can help “level the playing field” in the learning environment * Provides a good means of eliciting multiple representations of concepts | * Involves planning * Requires preparation of students * Must be monitored to stay on topic * May be threatening to some students |
| Collaborative Learning | Provides a structure for learners to work together for a common goal | * Can be structured to support more efficient learning (e.g., jigsaw) * Encourages a wide range of learning situations such as developing learning communities, encouraging electronic exchanges, promoting ongoing discussions * Encourages instructor & learner involvement * Gives learners control and responsibly for much of their own learning | * Requires careful planning and preparation * Students must be instructed on the use of cooperative learning * Individual conflicts may arise within the group |
| Demonstrations/Modeling | Provides a format to present step by step visual examples of abstractions or ambiguous material particularly in procedural learning | * Engages the learner with a concrete conceptual base for forming mental models * Clarifies excepted outcomes of instruction * Promotes faster learning of skill * Focuses on the specific rather than the general * Can be seamlessly used in conjunction with lecture format | * Should be planned and rehearsed by teacher * Room arrangement is critical (lighting, line of student sight |
| Drawing/illustrations | Provides a visual representation and organization of instructional material. | * Assists students in organizing information for long-term retrieval * Can be use to attract attention, aid retention, enhance understanding and create context * Is amenable to various media formats | * Requires planning and procurement of materials |
| Role playing/dramatization | Effective in providing a forum for the learner to mimic, demonstrate or illustrate specific concepts,  problems or situations | * Reflective * May require learner to reposition perspective * Requires learners to act spontaneously * Helps learners think hypothetically | * Requires considerable planning * Learner may easily stray off topic |

Given so many instructional methods, how do you choose the ones that will best suit the learners’ and the organization’s needs? A few things to consider:

* Your learning objectives and assessment strategy may indicate what kinds of methods you will need to use. For instance, most of your learning objectives may describe skills and procedures that learners must demonstrate, and you may plan to assess students in a practical exercise. In this case, the methods you select will probably include modeling/demonstrations, role-plays, case studies, or any other means of instruction that prepares students for performance.
* If you conducted a learner analysis you will have a grounded understanding of the learners’ experiential background, limitations, skill/knowledge sets, etc. These characteristics can inform your decision on the selection of methods that will be the most effective with the targeted learning group.
* If you are designing a lesson, you will want to select instructional methods that cover many or all of Gagne’s “Nine Events of Instruction.” A single method may be used to address several events in a lesson, such as a brief presentation to share objectives and present content, or a game to provide practice, offer feedback, and assess performance.
* An important responsibility of the instructor/trainer is to keep the learners engaged. It is important to remember that learners can tire, get bored, and cognitively disengage, so try to vary instructional methods in a learning experience enough to keep things interesting, but not so much as to interrupt the flow of the lesson.
* Finally, consider how practical it will be to execute your methods given the time, scope, budget, and other restrictions of the learning asset you are developing. In the following lesson, we will cover how you will develop instructional materials that deliver on the methods defined in your instructional strategy. Be sure that you can deliver on the methods you choose.

At DAU, instructional methods are identified in the course outline of the POI.

The case study for this lesson will demonstrate how an instructional designer selects instructional methods for her lessons and includes this information in her POI.