

Task I.C: The Teaching Process

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Lesson Overview

Overview

The student should develop knowledge of the elements related to the teaching process as required in the CFI PTS.

References

- [FAA-H-8083-9A] - Aviation Instructors Handbook
- [Slide Presentation](#)
- [PDF Version](#)

Elements

1. Preparation of a Lesson
2. Organization of Material
3. Training Delivery Methods
4. Problem Based Learning
5. Instruction Aids and Training Technologies
6. Review and Evaluation

Schedule

1. Discuss lesson objectives
2. Present Lecture
3. Ask and Answer Questions
4. Assign homework

Equipment

1. White board and markers
2. References
3. iPad / Projection Device

IP Actions

1. Discuss lesson objectives
2. Present Lecture
3. Ask and Answer Questions
4. Assign homework

SP Actions

1. Participate in discussion
2. Take notes
3. Ask and respond to questions

Completion Standards

The student understands the preparation of a lesson, the different presentation methods, how

the student applies the knowledge, and the importance and use of a review and evaluation.

Instructor Notes

Attention

This is how one should structure a lesson in order to properly ensure the necessary knowledge is retained.

Overview

- Review Objectives and Elements/Key ideas.

What

The teaching process can be divided into steps; preparation, presentation, application, and review and evaluation.

Why

Effective teaching is necessary in order to provide a proper learning experience for students.

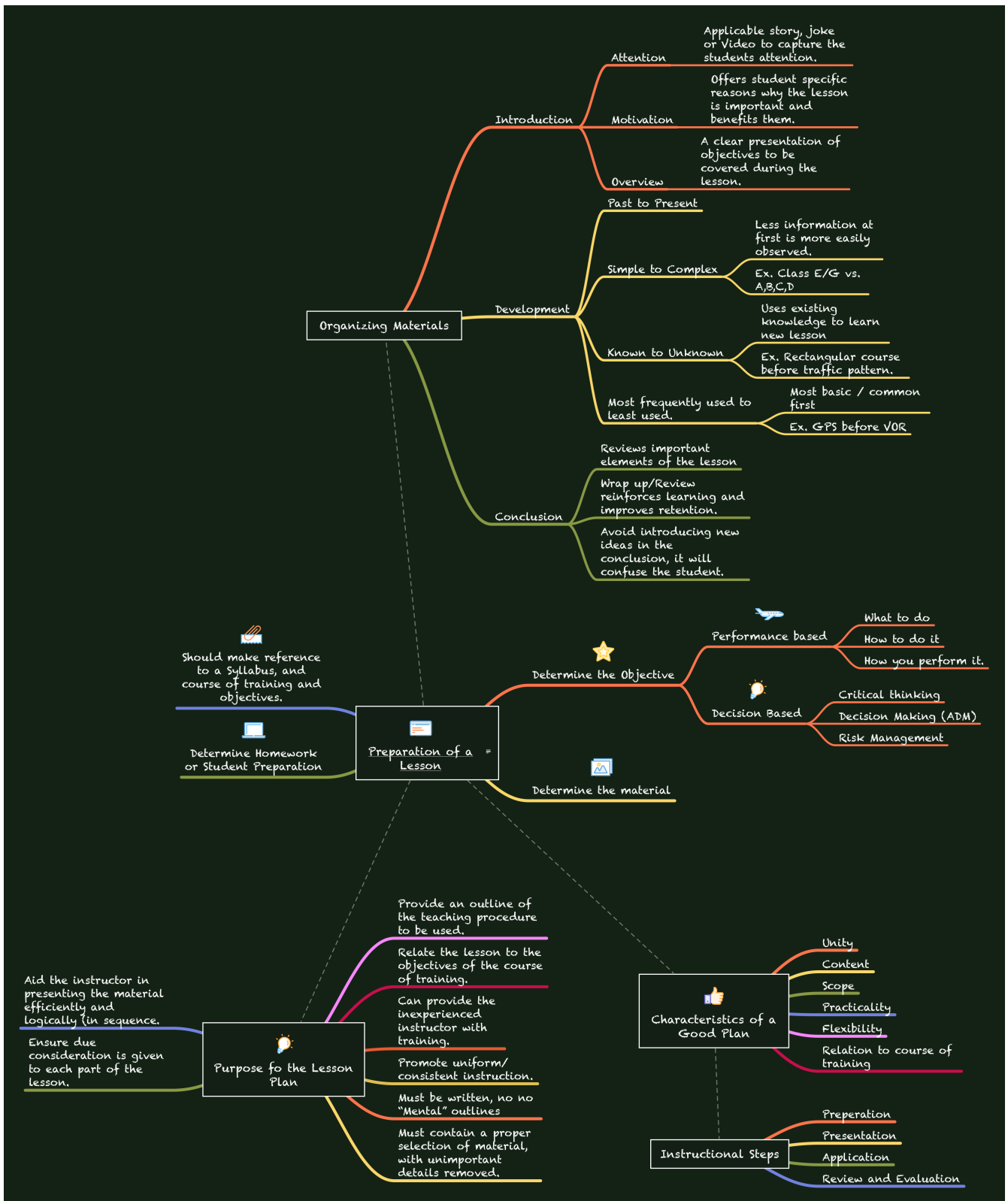
Lesson Details

The teaching process is broken down into four steps: Preparation, Presentation, Application, Review/Evaluation. These steps can include numerous aspects, such as how to organize material, techniques for presentation of material, use of scenario based training, collaborative problem solving, evaluating of case studies, and use of instructional aids.

Preperation of a Lesson

Lessons must be planned with objectives, procedures and facilities, goals to be attained, and at the end a review/evaluation component. For evaluation to be effective (or even reasonably possible) there must be performance based objectives identified. The instructor should set measurable reasonable standards that describe the desired performance. These standards should be clear and repeatable. These standards can be drawn from the PTS or other syllabus and should include three parts: a description of the skill/behavior, conditions under which the skill/behavior is to be demonstrated, and a criteria for success. The PTS provides specific performance criteria for all desired learning components expected by the FAA.

Another dimension of evaluation are decision based objectives which demonstrate a higher level of learning and application. b. By using dynamic and meaningful scenarios, the instructor teaches the student how to gather information and make informed, safe, and timely decisions.



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The Teaching Process

Essential Skills

P A M S

- **P** eople skills
- **A** sessment skills
- **M** anagement skills
- **S** ubject matter expertise.

Basic Steps of Teaching Process

- **Preparation** — determining the scope of the lesson, the objectives, and the goals to be attained, and ensuring that the necessary supplies are available.
- **Presentation** — consists of delivering information or demonstrating the skills that make up the lesson.
- **Delivery** could be through: Lecture, guided discussion, demonstration-performance, etc.
- **Application** — the student performs the procedure or demonstrates the knowledge required in the lesson.
- **Review and evaluation** — consists of a review of all material and an evaluation of the student's performance.

Preparation of a lesson

1. Determine the objective of the lesson.
2. Research the subject as defined by the objective.
3. Determine the method of instruction and lesson plan format.
4. Decide how to organize the lesson and select suitable supporting material.
5. Assemble training aids.
6. Write the lesson plan outline.

Organization of material

1. Introduction

- a. *Attention* - the instructor gains the student's attention and focuses it on the subject.
- b. *Motivation* - the instructor offers the student specific reasons why the lesson content is important.
- c. *Overview* - the instructor gives a clear concise presentation of what is to be covered during the lesson.

2. Development - the main part of the lesson. Logically organized to show the relationships of main points in one of the following ways:

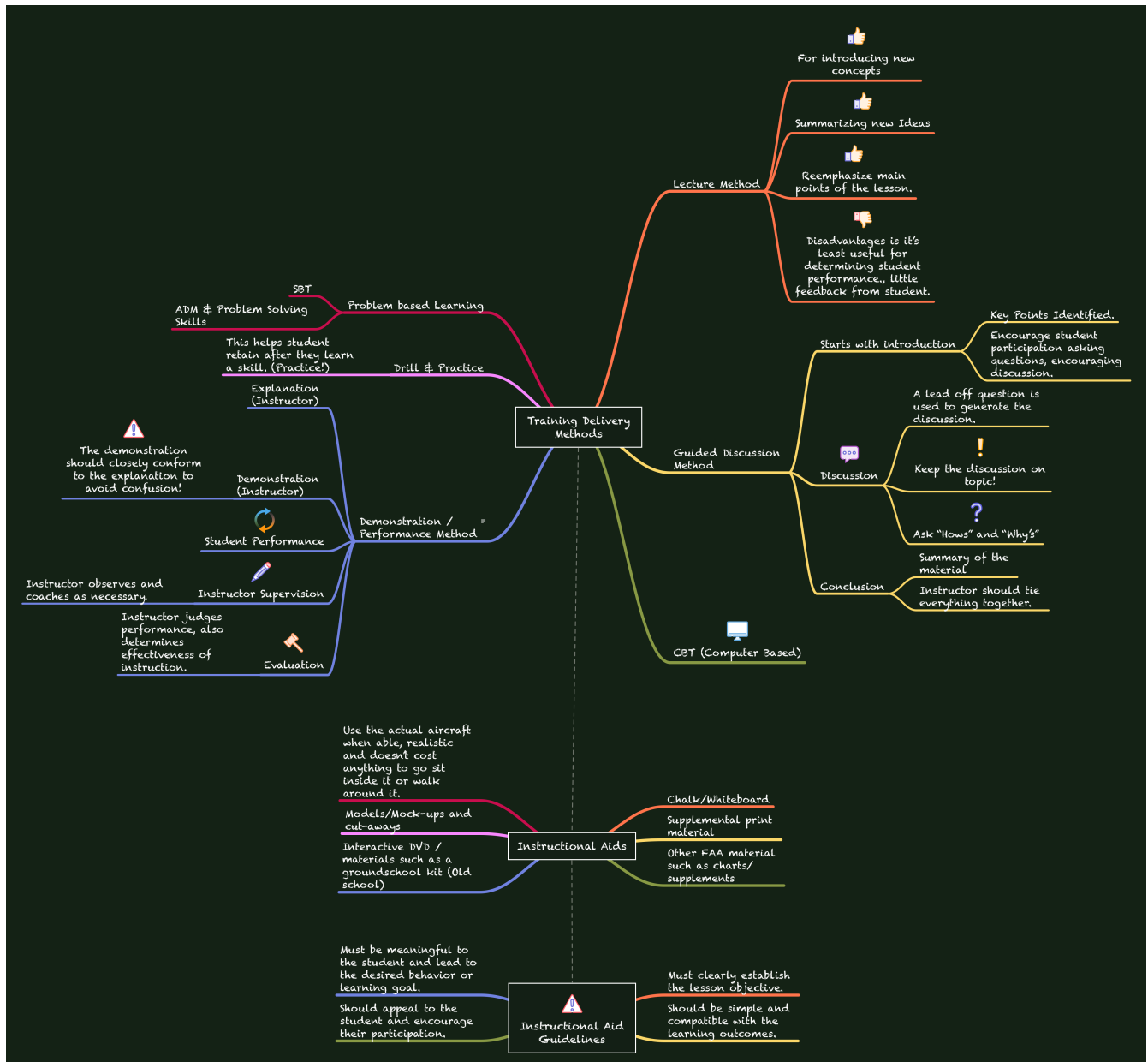
- a. *From past to present*
- b. *Simple to complex*

c. *Known to unknown*

d. *Most-frequently used to least-frequently used*

3. **Conclusion** - retraces the important elements of the lesson and relates them to the objective. No new ideas should be introduced.

Training delivery methods



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1. **Lecture method** - Delivered by an instructor to a group of students.
2. **Guided discussion method** - This method relies on student possession of a level of knowledge about the topic to be discussed, either through reading prior to class or a short lecture to set up the topic to be discussed. It employs instructor-guided discussion with the instructor maintaining control of the discussion. The goal of guided discussions is to draw out what the students know.
3. **Computer-assisted learning method** - Common online courses.

4. **Demonstration-performance method** - This method is based on the principle that people learn by doing. The instructor first shows the student the correct way to perform an activity and then has the student attempt the same activity. Monkey-See, Monkey-Do.
 - a. **Telling and Doing** - This technique is a variation of the demonstration-performance method and is very effective in teaching procedures and maneuvers.
 - i. *Instructor Tells — Instructor Does*
 - ii. *Student Tells — Instructor Does*
 - iii. *Student Tells — Student Does*
 - iv. *Instructor evaluates — Student Does*
5. **Drill and practice method** - Based on the learning principle of exercise, which holds that connections are strengthened with practice. It promotes learning through repetition because those things most often repeated are best remembered.

Problem based learning

Problem-based learning (PBL) presents lessons in a way that confronts students with problems that are encountered in real life, which forces them to reach real-world solutions. It starts with a carefully constructed problem for which there is no single solution. The benefit of PBL lies in helping learners gain a deeper understanding of the information and in improving their ability to recall the information.

- **Scenario based** - training that uses a highly structured script of real-world experiences to address aviation training objectives in an operational environment.
- **Collaborative problem-solving** - collaboration (two or more people working together) to solve problems.
- **Case study** - a written or oral account of a real-world situation that contains a message that educates the student.

Instruction aids and training technologies

- **Instructional aids** - devices that assist an instructor in the teaching-learning process. They are not self-supporting; they support, supplement, or reinforce what is being taught.
- **Training media** - any physical means that communicates an instructional message to students. Examples include printed text, interactive computer programs, flight training devices, etc.

Conclusion

Teaching is a complex process with numerous techniques available to achieve the desired goals. Understanding these techniques, tools, and practices can help ensure a successful outcome.

ACS Requirements

To determine that the applicant exhibits instructional knowledge of the teaching process by describing:

1. Preparation of a lesson.
2. Organization of material.
3. Training delivery methods:
4. Lecture method.
5. Guided discussion method.
6. Computer assisted learning method.
7. Demonstration-performance method.
8. Drill and practice method.
9. Problem based learning.
10. Instruction aids and training technologies. yeah

Memory Sheet

1. Preparation of a lesson

- a. A lesson must be planned – Objectives, procedures and facilities, goals to be attained, review/evaluation
- b. Performance Based Objectives
 - i. Set measurable, reasonable standards describing the learner's desired performance
 - ii. Begin writing a lesson with performance-based objectives
- iii. 3 Elements of Performance Based Objectives: Description of the Skill/Behavior, Conditions, Criteria
 - A. Description of the Skill or Behavior - Explains the desired outcome of the instruction as a change in knowledge, skill, or attitude
 - I. Should be in concrete and measurable terms
 - B. Conditions - Explain the rules for demonstration of the skill
 - I. Information such as equipment, tools, reference material, and limiting parameters should be included
 - C. Criteria - The standards that measure the accomplishment of the objective
 - I. Good criteria define performance so there can be no question whether the performance meets the objective
- iv. The PTS/ACS provides specific performance criteria to measure learner's actions
- v. Decision Based Objectives
 - A. Facilitate a higher level of learning and application
 - B. By using dynamic and meaningful scenarios, the instructor teaches the learner how to gather information and make informed, safe, and timely decisions

2. Organization of material.

- a. Intro – Sets the stage for everything to come. Consists of 3 elements:
- b. Development – Main body. The material should be organized logically, options include:
 - i. Past to present
 - ii. Simple to complex
 - iii. Known to unknown
 - iv. Most frequently used to least
- c. Conclusion - Retraces important elements and relates them to the objective

3. Training delivery methods: Lecture, Guided Discussion, Computer Assisted, Demonstration-Performance, Drill and Practice

a. Lecture method.

- i. Suitable for presenting new material, for summarizing ideas, and for showing relationships

ii. Most effective when combined with instructional aids and training devices

iii. Different Types of Lectures:

A. Illustrated Talk – Relies heavily on visual aids to convey ideas

B. Formal Lecture – Purpose is to inform, persuade, or entertain with little learner participation

C. Teaching Lecture (*Favored by Aviation Instructors*) – Delivered in a manner that allows some learner participation

b. **Guided discussion method.**

i. Goal is to draw out the knowledge of the learner

ii. The instructor acts as a facilitator – Ask skillful questions (open ended questions encourage more discussion and a better gauge of understanding than specific, use both as necessary)

iii. Helpful in areas where learners can use initiative and imagination in addressing problems

c. **Computer assisted learning method.**

i. Couples the computer with multimedia software to create a training device

d. **Demonstration-performance method.**

i. Best used for the mastery of mental or physical skills that require practice

ii. Five Phases: Explanation, Demonstration, Learner Performance, Instructor Supervision, Evaluation

iii. Many lessons can combine the lecture and demonstration-performance methods

A. The initial information is given in a classroom with a lecture

B. The information is demonstrated and then applied in the airplane

e. **Drill and practice method.**

i. Connections are strengthened with practice

ii. Learn by practicing and applying what they have been told and shown

4. **Problem based learning.**

a. A learning environment where lessons involve problems encountered in real life and ask learners to find real-world solutions

b. Effective Problems

i. Relate to the real world so learners want to solve them

ii. Require learners to make decisions

iii. Open ended, not limited to one answer

iv. Connected to previously learned knowledge and new knowledge

v. Reflect lesson objectives

vi. Challenge learners to think critically

vii. Put the learner in hypothetical emergency situations and have them talk through solving

the problem and getting the aircraft safely to the ground

c. Teaching HOTS (Higher Order Thinking Skills)

i. Basic Approach to Teaching HOTS:

- A. Set up the problem
- B. Determine learning outcomes for the problem
- C. Solve the Problem or Task
- D. Reflect on Problem solving process
- E. Consider additional solutions through guided discovery
- F. Reevaluate solution with additional options
- G. Reflect on this solution and why it is the best
- H. Consider what best means

d. Scenario Based Training

- i. Presents realistic scenarios that allow learners to mentally rehearse and explore practical applications of their knowledge
- ii. Good scenario:
 - A. Is not a test
 - B. Will not have one right answer
 - C. Does not offer an obvious answer
 - D. Should not promote errors
 - E. Should promote situational awareness and opportunities for decision making

e. Case Study Method

- i. A case study is a written or oral account of a real-world situation that contains a message that educates the learner
- ii. The instructor presents the case to the learners who then analyze it, come to conclusions, and offer possible solutions
 - A. Effective case studies require the learner to use critical thinking skills
- iii. The NTSB is a great place for case studies

5. Instruction aids and training technologies.

a. Instructional aids:

- i. Assist the instructor in the teaching-learning process
- ii. Clarify relationships between material objects and concepts
- iii. Help learners remember information
- iv. Hold their attention
- v. Can utilize multiple senses (help learning)
- vi. Help solve language barriers

- b. Guidelines for Use of Instructional Aids
 - i. Clearly establish the objective
 - ii. Gather necessary data
 - iii. Organize the material
 - iv. Select the ideas to be supported with aids
- c. Types of Aids
 - i. Chalk/Marker Board
 - ii. Supplemental Print Material
 - iii. Enhanced Training Materials
 - iv. Projected Material
 - v. Video
 - vi. Interactive Systems
 - vii. Computer Assisted Learning
 - viii. Models, Mockups, Cut-Aways