

ADVANCED INSTRUCTIONAL TECHNIQUES

Part II

Instructional Systems Development

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Class Objectives (Part 2)

- ▣ Instructional Systems Development
- ▣ Upon completion of training students will be able to:
 - Use a performance assessment to determine if training is required, analyze task requirements
 - Develop a training needs assessment
 - Specify educational requirements
 - Using the dual channel approach, specify training prerequisites and training requirements
 - Write learning objectives and criterion referenced testing

Education and Training

- ▣ Education: Subject oriented development / learning processes designed to meet predetermined growth goals.

- ▣ Training: Task oriented discovery / learning designed to meet desired skill objectives.

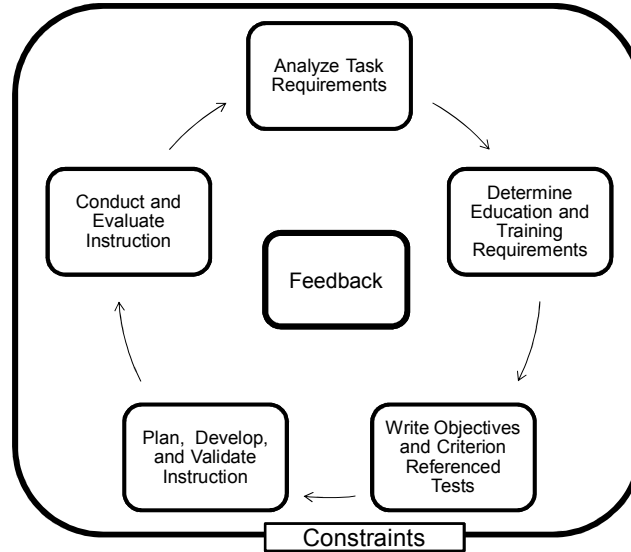
Define the Deficiency

- ▣ Can the specific deficiency be described?
 - What should they be doing that their not doing?
 - Is it important?
 - Can they do it?

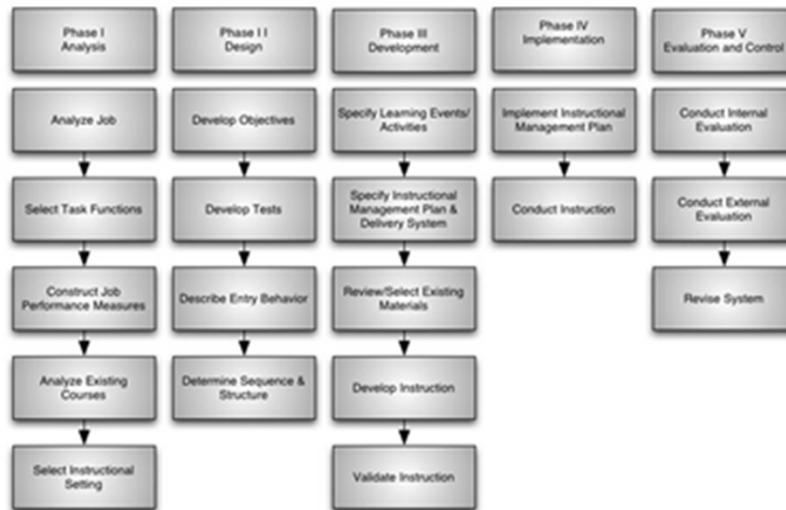
- ▣ Have they performed the task previously?

- ▣ Is this training request based on compliance?

ISD The Five Step Process



Other ISD Processes



Florida State University Five Phases of ISD (1975)

The Task Analysis

- ▣ All requirements of the task
 - Education
 - Ancillary Skills / Training
 - Background Knowledge
 - Performance Skills
 - Physical Requirements
 - Tools / Equipment / Soft-goods
 - Miscellaneous Requirements

The Task Analysis

- ▣ A review of the task analysis with:
 - The training requester
 - Subject matter expert, or;
 - Competent person (Mfg., engineer, etc.)
- ▣ Review for:
 - Performance Skills
 - Physical Requirements
 - Tools / Equipment / Soft-goods
 - Miscellaneous Requirements

Determine Education and Training Requirements

- ▣ Determine and list Education Requirements
 - Literacy
 - Basic Math – Geometry - Algebra
 - Basic Science, Physics, Chemistry
- ▣ Determine and list Training Requirements
- ▣ Determine Prerequisite Training
- ▣ Determine Core Training Topics
- ▣ Establish Preliminary Training Constraints

The Training Requirements

Prerequisites

Core Curriculum

Topic 1

Topic 2

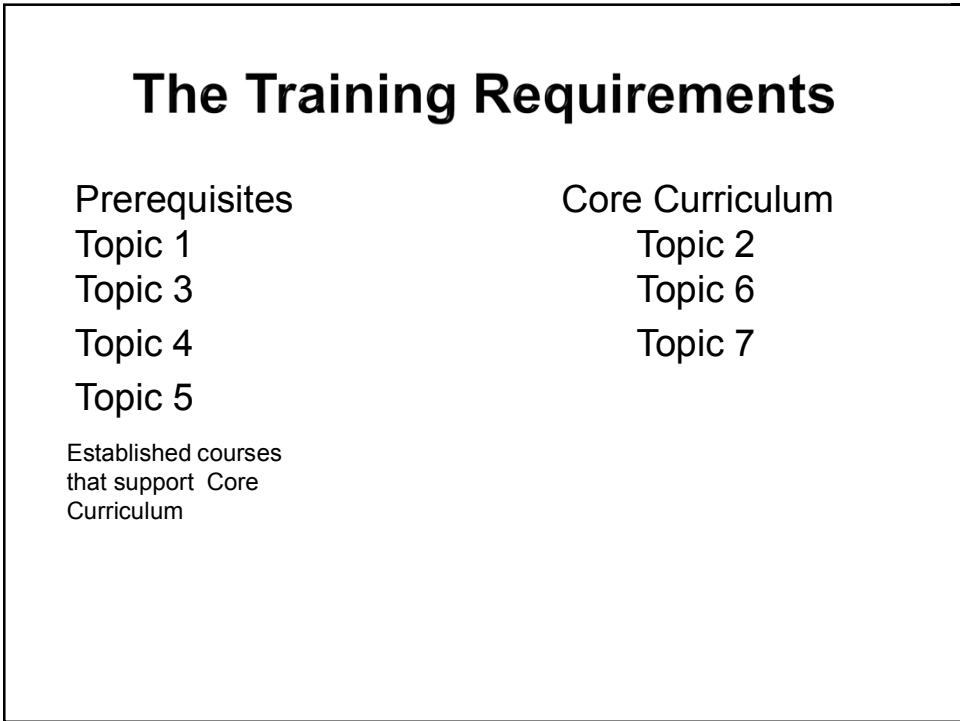
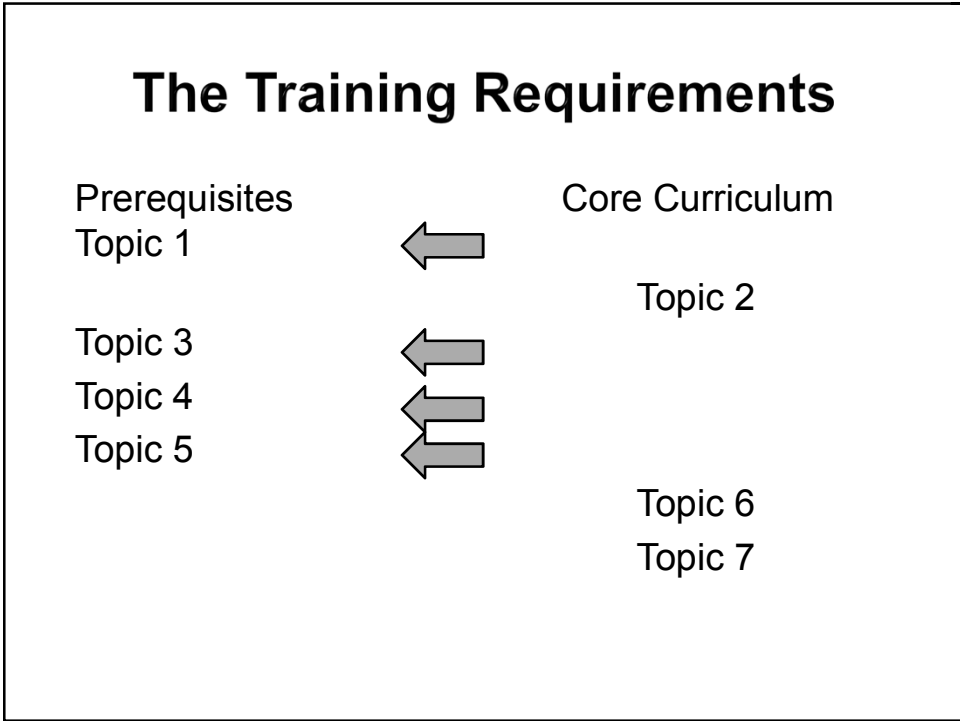
Topic 3

Topic 4

Topic 5

Topic 6

Topic 7



Write Objectives and Criterion Referenced Tests

- ▣ Learning objectives
 - Objectives must always be written *before* the course is designed
 - Expressed in clearly defined terms
 - Description of performance that you want the students to exhibit
 - Will state the expected *result* of instruction
 - Expected performance is not open to interpretations
 - Observable

Learning Objectives

▣ Parts of an Objective Statement

1. **Performance:** An objective always says what a learner is expected to be able to do; the objective sometimes describes the product or the result of doing.
2. **Conditions:** An objective always describes the important conditions (if any) under which the performance is to occur.
3. **Criterion: (sometimes called the Standard)** whenever possible an objective states the criteria of acceptable performance by describing how well the learner must perform in order to be considered competent.

Learning Objectives Performance

Words Open To Interpretations

- to know
- to understand
- to really understand
- to appreciate
- to grasp the significance
- to enjoy
- to believe
- to have faith in
- to internalize

Words With Fewer Interpretations

- to write
- to recite
- to sort
- to solve
- to construct
- to select
- to describe
- to compare
- to contrast

Learning Objectives Performance

1. Be able to write a proposal
2. Be able to develop a critical understanding of effective management
3. Be able to select a respirator
4. Be able to understand mathematics
5. Be able to describe a procedure
6. Be able to appreciate instructional media
7. Be able to list the components
8. Be able to see the results of learning
9. Be able to don, use, and doff an air pack

Learning Objectives Conditions

- ▣ Conditions imposed on the student when demonstrating performance
 - What will the learner be allowed to use
 - What will the learner be denied
 - What conditions will you expect the desired performance to occur
 - Should emulate normal working conditions

Learning Objectives Conditions

- ▣ Be able to write a news story
- ▣ Given an outline of recent stock-market activity be able to write a news story about the market events.
- ▣ Given an outline of recent stock-market activity be able to write a news story about the market events, between 75 to 100 words long.
- ▣ False Conditions
 - *Given three days of instruction on . . .*
 - *Given adequate practice in . . .*

Learning Objectives Conditions

- ▣ Examples of conditions used in learning objectives:
 - Given a list of . . .
 - Given references and standard tools . . .
 - Given a circuit with a malfunction . . .
 - Without reference . . .
 - Committing from memory . . .
 - Without assistance . . .
 - Under simulated emergency conditions . . .

Learning Objectives Standards

- ▣ Often an assumed or implied standard
 - Match (*correctly*) the colors with the types of respirator cartridges
- ▣ Time Standard
 - Without reference, don the Scott Air Pack (*implied correctly*) *in less than one minute*

Learning Objectives Standards

- ▣ Accuracy Standard
 - Be able to state the time shown *to within one minute of accuracy*. {Shows accuracy alone}
 - Given the proper torque wrench, torque the cover plate bolts *to within 10% of the specified torque*, within five minutes. {Shows accuracy and time}
- ▣ Quality
 - Words that may indicate the degree of quality
 - *without error, properly, correctly, prudently, with no deviation*

Learning Objectives Standards

- ▣ Quality
 - Quality standards may used by incorporation
 - Using technical data standards
 - Using procedures.
 - Be able to don the respirator in accordance with the manufacturer's procedures. {quality by incorporation}
 - Be able to don the respirator correctly. {quality determined by someone other than the student (usually the quality standard here is expressed in the instruction itself)}

Objectives and Sub-Objectives:

- ▣ Where the main objective covers a vast amount of information, use sub-objectives
- ▣ **A sub-objective must always support only the main objective of the instruction.**
 - For the objective of "Be able to select and use torque wrenches."

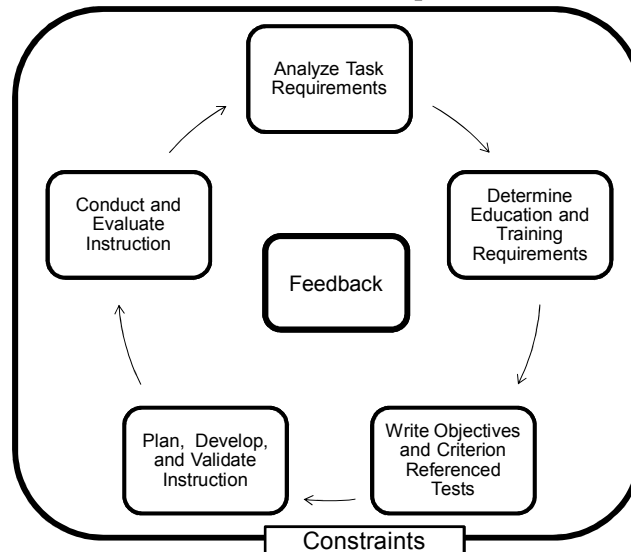
Objectives and Sub-Objectives:

- For the objective of "Be able to select and use torque wrenches."
 - ▣ Be able to . . .
 1. Select torque wrench by type, range or drive, given the requirement of the job.
 2. Calculate torque wrench setting when using an extension, given the effective length of the wrench and extension, and the desired torque.
 3. Demonstrate correct torquing techniques using the Sturtevant Torquing Manual as a reference.
 4. Determine the correct cross torquing sequence of an eight bolt round cover plate.
 5. Describe the corrosion resistance properties of various hardware alloys.

Criterion Referenced Tests

This Subject will be covered in
Part 4 of this series

ISD The Five Step Process



The Legal Ease

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