

# Instructional System Design

A **systems approach to training** is a concept that affords us a method to determine the who, what, when, where, why, and how of training. There are various names besides ISD for training systems that offer this systematic method.

I have two examples for you to review:

The ADDIE (Analyze, Design, Development, Implement, and Evaluate) process and the PPP (Personnel Performance Profile) approach.

These methods, no matter what they are called, use a step-by-step process to solve problems. An overall view of the training process must be obtained in this systems approach. It is distinguished by an orderly process for gathering and analyzing collective and individual performance requirements and by the ability to respond to identified training needs. The application of a systems approach to training insures that training programs and the required support materials are continually developed in an effective and efficient manner to match the variety of needs in an ever rapidly changing environment.

Being able to break an organization into systems and processes will help you in your training development. By identifying a process within a system, you will be able to concentrate on a small chunk of a very large piece.

## A brief description of the ADDIE process:

1. **Analyze**
  - Analyze system (department, job, etc.) to gain a complete understanding of it.
  - Compile a task inventory of all tasks associated with each job (if needed).
  - Select tasks that need to be trained (needs analysis).
  - Build performance measures for the tasks to be trained.
  - Choose instructional setting for the tasks to be trained, e.g. classroom, on-the-job, self study, etc.
  - Estimate what is going to cost to train the tasks.
2. **Design**
  - Develop the learning objectives for each task, to include both terminal and enabling objectives.
  - Identify and list the learning steps required to perform the task.
  - Develop the performance tests to show mastery of the tasks to be trained, e.g. written, hands on, etc.
  - List the entry behaviors that the learner must demonstrate prior to training.
  - Sequence and structure the learning objectives, e.g. easy tasks first.
3. **Develop**
  - List activities that will help the students learn the task.
  - Select the delivery method such as tapes, handouts, etc.
  - Review existing material so that you do not reinvent the wheel.
  - Develop the instructional courseware.
  - Synthesize the courseware into a viable training program.
  - Validate the instruction to ensure it accomplishes all goals and objectives.
4. **Implement**
  - Create a management plan for conducting the training.
  - Conduct the training.
5. **Evaluate**
  - Review and evaluate each phase (analyze, design, develop, implement) to ensure it is accomplishing what it is supposed to.
  - Perform external evaluations, e.g. observe that the tasks that were trained can actually be performed by the learner on the job.
  - Revise training system to make it better.

The phases do not end once a training program is implemented. The five phases are ongoing activities that continue throughout the life of the training program. The phases are continually repeated on a regular basis to see if further improvements can be made.

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## A brief description of the PPP approach:

The PPP approach to curriculum development is broken into 7 steps vice the 5 steps in the ADDIE approach.

### 1. **Planning**

Planning identifies resource requirements and the sequence of events in the development process. The product is the Training Project Plan (TPP). The TPP is submitted to the Curriculum Control Authority (CCA) for review and approval. When approved, the TPP becomes the authorization to undertake the course development project and initiate resource procurement.

### 2. **Stage One**

Stage One consists of determining job tasks, supporting skills and knowledge, and level of performance. The products are the Personnel Performance Profile (PPP) Table and the Training Path System (TPS). The PPP Tables and the TPS are submitted to the CCA for review and approval. Approval of the PPP Tables and TPS provides authorization to develop the Training Course Control Document and all of its Annexes.

### 3. **Stage Two**

Stage Two determines the skills and knowledge that must be taught and produces the course learning objectives and an instructional sequence. The product is the Training Course Control Document (TCCD). The preliminary TCCD is submitted to the CCA for approval. Preliminary approval of the TCCD provides authorization to develop the Curriculum materials (Lesson Plan and Trainee Guide).

### 4. **Stage Three**

Stage Three produces the instructional materials for the instructor and the trainee. The products are the Lesson Plan (LP) and the Trainee Guide (TG). The developing agency will submit a Ready for Pilot letter to the CCA when Stage Three is completed. The CCA can request an instructional materials cross section for review.

### 5. **Stage Four**

Stage Four begins when the Curriculum Control Authority (CCA) has approved the Stage Three materials for pilot and ends with the submittal of the Pilot Course Monitoring Report.

### 6. **Stage Five**

Stage Five begins after the incorporation of the results of the pilot course ("red-line") into smooth management materials and curriculum, and ends with the Curriculum Control Authority's Letter of Promulgation that approves the material for use in support of training. The product is approved management materials (PPP Tables, TPS, and TCCD) and approved Curriculum (LP and TG) which is authorized for distribution.

### 7. **Evaluation**

Evaluation is the surveillance, evaluation, change and revision of the training materials and the performance of the graduates.

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## Terminal Learning Objectives vs Enabling Objectives

1. The **Terminal Learning Objectives** (TLO) is a statement of the teacher's expectations of student performance at the end a specific lesson or unit. The TLO is written from the perspective of what the student will do -- not what the teacher will do.
  - TLO consists of three parts: Condition, Task, and Standard.
  - TLOs are precise, observable, and measurable.
  - TLOs are stated in active terms.
  - A TLO may represent a fairly large block of instruction, but would only rarely range beyond a single lesson.
2. **Enabling Objectives** (EOs) are concise statements of the teacher's expectations of student performance and might be considered STEPS in accomplishing the TLO. The EOs are written from the perspective of the student and what he/she must do to accomplish the TLO.
  - They typically provide only tasks.
  - They are observable and measurable but often do not include the standard or condition.
  - Each one involves a single step within a TLO.

### 3. Purposes:

The Terminal Learning Objective provides direction for a lesson. It forces the teacher to think through three questions:

- What will the student be able to do as a result of completing the lesson?
- Under what conditions (setting, supplies, equipment, etc.) will the student be required to perform the task?
- How well must the student perform the task to PASS?

Enabling Objectives specify a detailed sequence of student activities. They force the teacher to think through the steps involved in completing the task in the TLO. The EOs usually form the outline for the instruction phase of the lesson plan. They force the teacher to think through a cycle of questions:

- What is the first thing the student must be able to do (know)?
- When that is complete, what must he/she do (know) next?
- etc....

### 4. Examples:

Terminal Learning Objective:

- Given the appropriate tools, manual, and a spark plug, the student will be able to gap the plug within specifications in less than five minutes.

Enabling Objectives:

- Look up the gap in the manual
- Select the appropriate wire to set gap
- etc...