Write Performance Objectives

Objective

- Write performance objectives that are learner-oriented and result-oriented.

The Five Phases of ISD
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Design Phase

- Writing objectives
- Develop test items based on objectives
- Determining the sequence of instruction
- Determine strategies for instruction

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Development Phase

- Training materials:
  - instructor guides (including lesson plans and a rundown of resources)
  - training participants’ guides
  - textbooks, manuals, workbooks, and handouts
  - non-print media (computer software, audio- and videotapes, equipment mock-ups, models, etc.)
  - trainee evaluation materials (such as tests, lab exercises, or assessment checklists)

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- Program evaluation materials
  - training program evaluation plan (when and how to distribute/collect course evaluation forms, what to say before they’re distributed, and so on)
  - course evaluation forms
  - supervisors’ forms for evaluation of course participants’ post-training job performance

- Training documentation
  - training participants’ records system (class attendance forms, evaluation forms, lists of
  - participants’ completed education/training)
  - course documentation (written objectives, authorship/responsibility for course material, lists of instructors/facilitators, and their qualifications)
Another way to look at it . . .

- Develop Instructor Materials
- Develop Student Materials
- Develop Evaluation Materials
- Develop the Management Plan

The Main Guideline to all this is the . . .

Performance Objective

The Three Functions of Performance Objectives

- Provide a focus of attention for learner and instructor
- Serve as a guide for selecting content and instructional methods
- Provide the criteria for evaluating the learner’s performance
Remember . . . Performance Objectives

- Written with the learner in mind.
- State what the learner should be able to do as a result of the learning experience.
- Benefit both the learner and the instructor.
  - Help the learner focus on what is important.
  - Help the instructor select methods and media for instructional use.
- Provide the criteria for evaluating learner performance.

Three Component of an Objective

- **Performance** (task or behavior)
- **Conditions** of performance
- **Standards** (criteria) of performance

- Building blocks of a well-constructed objective.

The key to a well-written objective

- Choosing an appropriate **action verb**.
- Must give the user a clear indication of what performance is expected. Look at this example:
  - **Assemble** a prefinished furniture kit, given the hardware, plans, a screwdriver and hammer, according to the technical specifications in the kit plans.
The following example is brief, but much less clear:

• Understand fundamental concepts, units, and laws of electricity.

Active Verbs

• Use – Very Clear
  – State
  – Identify
  – List
  – Calculate
  – Compare
  – Decide
  – Operate
  – Demonstrate

• Don’t Use – Not Clear
  – Understand
  – Know
  – Appreciate
  – Grasp
  – Learn
  – Become familiar with
  – Comprehend

The Conditions Component of Performance Objectives
Conditions Component

- The **conditions component** describes circumstances under which a task must be performed, such as:
  - environment the task is performed in
  - materials used
  - formulas supplied.

Conditions may refer to:

- Circumstances under which the task must be performed
- The availability of informational aids such as diagrams, technical specifications, operating manuals, handbooks, formulas, and instructor input
- Types of equipment and materials that are provided

Circumstances

- Check the status of a client's account **in the case of a computer malfunction**.
- Demonstrate runged electric pole climbing techniques **in wet conditions**.
**Informational Aids**

Documents or instructor input may also appear as a condition.

- **Given the equation** determine the acceleration of a train that takes 10 seconds to slow down from 60 mph to 30 mph, of a without error.

**Equipment and Materials**

May be necessary to perform the task.

- **Using a hospital computer**, produce a hard copy of the complete medical record of a particular patient who is being admitted early for an emergency delivery.

**Using them together...**

- **Given a garden tractor, the manufacturer’s service manual, and a mechanic’s tools**, adjust the chain drive in final drive until the tension is set to the technical specifications listed on page 94 of the technical manual.
**Implied Conditions**

- Some objective writers leave out implied conditions, either entirely or in part.

- This is permissible in some organizations if the conditions are clearly implied or understood.

**Here is an example of an objective where all the conditions are implied:**

- List the parts of a hydraulic pump according to Technical Manual 132-1.

- If all the implied conditions were to appear, the objective might look like this:
  - Using a pen and paper, list the parts of a hydraulic pump according to Technical Manual 132-1.

**Common Errors Writing Condition Statements**

- Sometimes conditions in an objective are clearly implied but other times missing conditions need to be added. Consider the following objective:

  - Perform troubleshooting, repair, and calibration of radiation survey instruments.
Even though you may assume that all necessary tools and test equipment will be available, several other conditions may need to be specified:

- Is the trainee to be told the nature of the malfunction or any of its symptoms, or must the fault be diagnosed?
- Is it clear whether a manual of procedures is to be provided?
- Is it clear whether the technical specifications of performance are available, or whether they must be committed to memory?

Conditions included in an instructional objective refer to task performance only

- **Given three hours of on-line training and practice**, demonstrate the use of the terminal to cancel customer orders.
  - The condition in the above example does not refer to conditions during learner assessment but to the instructional time. That is a NO-NO!

Take a look at these examples.

- Move an unconscious person from the scene of a motor vehicle accident to the ambulance, using no handbook or procedures manual, according to Standing Procedure 14.

- After a two-hour lab, use a strobe display and circular shift register according to the packaged instruction sheet.

- Happy with them?
• The first objective has an added unnecessary condition: “using no handbook or procedures manual.”
  – This condition can be assumed by the user because the situation implies the need for speed, which would make the use of informational aids difficult.

• The second objective is an example of a false condition.
  – "After a two-hour lab" reflects a state in training, not a condition under which a trainee must perform.

The Standards Component in Performance Objectives

Standards Component

• The standards component describes the minimum level of acceptable performance in terms of
  – time allowed
  – accuracy
  – specific rules or procedures that must be followed.
**Types of Standards**

- Standards may be measures of:
  - speed or accuracy
  - specifications about how a task should be performed
  - consequences that should be avoided or brought about through action.

**The Speed Standard**

- As in the example below of an emergency room laboratory technician:
  - Placed in an emergency room, analyze a blood sample for type and white blood cell count within 7 minutes.

**Accuracy as a Standard**

- Expressed as a specified range of values or as a percent deviation from an accepted or "true" value.
  - Align the valves in a seal water system, under factory conditions, to provide 18-20 psi at the pump seal.
**Precision Standard**

- Calculate to three decimal places the specific gravity of the three given samples.

**Specifications Standard**

- Specifications can refer to:
  - the sequence in which a task must be done
  - to a manufacturers’ technical specifications for the operation or repair of equipment.

**Specifications Standard**

- State in chronological order the normal procedures for startup of the main power distribution system.
Specifications Standard

• Given a mechanics tool kit, repair a Corning Model 5 pH meter, with a specified malfunction, so that it operates within technical specifications as stated on page 5 of the technical manual.

Consequences Standard

• Placed in a manufacturing facility control room, report abnormal operating conditions to a supervisor in sufficient detail so that appropriate actions can be taken immediately.

Subject to More than One Standard

• Given a sample from a liquid poison tank, measure all the quantities listed below within 30 minutes. Each result should be no further than specified from the value below:
  – Specific gravity, within 0.001
  – pH, within 0.1
  – Volume of NaOH titrate, within 0.5 ml.
Implied Standards

• Some training organizations accept objectives without a stated standard when performance of a task is itself an adequate measure of success.

Implied Standards

• Consider the following objective:
  – Identify the standards component of a performance objective.

• In this case, the learner either can or cannot perform the task. There is no need to specify a standard here.

Implied Standards

• However, in OTED 400/500 students should be very careful about not having a standard. The implied standard must be very clear.
Example Implied Standards

• Write the standards component of a performance objective.

Implied Standards

• Look at this alternative:
  – Write the standards component of a performance objective so that there is an observable, measurable criteria which will help one to judge success.

So . . .

• Some standards can be implied
  BUT . . .
• They must be clearly implied!
Common Errors: Standards

- The standards should reflect the level of performance required on the job.

- A common error in performance objectives is the use of *false standards* that do not reflect standards of job performance.

The False Standard

- Compare these examples of true and false standards:
  
  – Given the material and tools, apply insulation to the interior surface of a piece of sheet metal to the instructor’s satisfaction.

Repairing the False Standard

- Given the material and tools, apply insulation to the interior surface of a piece of sheet metal so that there will be no overlap or loose pins and the exterior is free of holes.
Another example -- False Standard

- File a proof of claim in bankruptcy court using the proof of debt form, ledger card, loan papers, and sales finance contract for information. **The claim form must be 80% correct.**
- On the job there would be **no room for error** in a court form.

Use of words "correct" and "proper"

- Given the tools, parts, and a blueprint with specifications, install five electric outlets in the designated room **in the proper locations.**
- What's proper?

Fixing the “proper” standard

- The objective might have been written so that the learner’s task is more specifically defined:
  - Given the tools, parts and a blueprint with specifications, install five electric outlets in the designated room **according to NEC electrical code specifications.**
Standards Component Checklist

• Key time factors included?
• Applicable standards of accuracy or precision included?
• Applicable specifications included?

Standards Component Checklist (Cont)

• Consequences that can be used to determine successful performance included?
• Standards concise and clear, observable and measurable?
• Standards job-related?

False standard????

• Clean tape drives and card readers per specifications from the operator maintenance checklists and vendor requirements.

• NO!, this is a good standard
**False standard??**

- Given the tools, props, and merchandise, construct a merchandise display to the instructor's satisfaction.

- Yes, False -- the instructor's satisfaction (BAD, BAD, BAD!)

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**False Standard??**

- Given the tools, remove and reinstall a carburetor diaphragm so that the diaphragm meters the fuel to the engine in such a way that it runs and accelerates smoothly.

- No, good standard

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**False Condition??**

- Affix correct postage to five packages using a postage scale, rate book, and postage meter. Postage must be calculated to within 10% of the true value.

- Yes, This is bad -- not to workplace standard (BAD, BAD)
**Good or Bad Objective -- Why?**

- Given a photograph enlarger, expose black and white paper for an enlargement of a negative.

- Unacceptable - Can't determine how the work is to be assessed. No size or quality standards are given. The job demands quality precision performance also.

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**Good or Bad Objective -- Why?**

- State the precautions to be observed when working with insulators and insulating materials as listed on page 45 of the assembly manual.

- **Acceptable** - learner either knows the precautions or does not.

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**Good or Bad Objective -- Why?**

- When given ten checks, distinguish between checks that are acceptable from those that are not.

- **Acceptable** - This learner makes a choice between two possibilities and requires perfect accuracy because bad checks result in a loss of revenue.
Good or Bad Objective -- Why?

- Adjust the audio intensity of an audio circuit with given tools and equipment. The adjustment must be within the tolerances outlined in the equipment technical manual, pages 34-35.

- **Acceptable** - The users of the objective cannot determine "how" the audio circuit is to be adjusted without plainly stated standards.

Good or Bad Objective -- Why?

- Given twelve open-to-buy problems and the formula for computing open-to-buy, calculate open-to-buy. At least 80% of the problems must have the right answer.

- **Unacceptable** - Percentage standards must work out exactly. In this case 80% of 12 is equal to 9.6 answers.

You have learned that P O s

- Define what the learner should be able to do after instruction.
- Consist of three components:
  - Task or performance component, including both action verb and content
  - Conditions component
  - Standards component
Writing POs: The Starting Point

• The starting point for writing performance objectives for training or education purposes is always the job for which the learner is being trained.

• Objectives are based on analysis of the tasks performed on the job.

Writing POs: The next step

• Construct the performance component. The performance component is made up of an action verb and content.

Checklist for Performance Component

• The action verb should specify a task.
• The learner should be the one performing the action.
• The action performed should be the result of instruction.
• The content should be clearly stated.
Writing the Conditions Component

• When deciding what conditions to use in an objective, consider the conditions under which the trainee must function on the job.

Writing the Conditions Component

• Make sure that the stated conditions:
  – Are realistic?
  – Are clear to the users?
  – Are as concise as possible?

Writing the Standards Component

• Think of the trainees’ job and write down all applicable measures of:
  – speed
  – accuracy
  – precision
  – specifications
  – possible consequences.
Fourth Component:
Who is to perform the task.

- Many institutions have added a fourth component to their POs.
  - "the students will be able to" or "the trainee will be able to do"
- Purists feel that such words are redundant.
- (We don’t use them in OTED 400/500.)

REMEMBER!

- We don’t write these in POs:
  - "the students will be able to"
  - nor
  - "the trainee will be able to"

Component Order and Format

- Some organizations use a designated component order or format for objectives.
  - It may be desirable to follow a particular pattern.
  - Users will always find the same component in the same place.
- Bottom line: Format does not matter as long as you are consistent when you write objectives.
Typical Format

- Given a box of cake mix, eggs, bowl, mixer, spoon and placed in a fully equipped kitchen, bake a cake according to the recipe on the box.

Another Format

- Task: Bake a cake
- Condition: given a box of cake mix, eggs, bowl, mixer, spoon and placed in a fully equipped kitchen
- Standard: according to the recipe on the box.

Tips on Lesson Plans

- Use your Performance Objective to guide your:
  - Selection of content (information or process)
  - Choice of Activities or Practice
  - Writing your Evaluation (test or exam)
Use the Lesson Format on the Website if you don’t know how to use the Table Format on your word processor

- [http://www.lions.odu.edu/~dnethert/Courses/oted400/index.htm](http://www.lions.odu.edu/~dnethert/Courses/oted400/index.htm)

Make sure you use the right instructional process.

- Use knowledge instructional process when you write the Knowledge Lesson Plan
  - Explain, Activity, Summary

- Use skill instructional process when you write your Skill Lesson Plan.
  - Show, Show/Tell, Practice, Check Understanding, Summary

Make sure your Knowledge Lesson Plan has an Activity

- You have to do more than just talk about it.
- The test is not an activity.

- You need an activity AND a test.
Once you have written the PO . . .
You can write the test for it.

• The test item is based on the Performance Objective

Write a test question for this objective:

• Given a bicycle with a flat tire, a patch kit and an air pump, fix the flat tire so that it holds air when ridden.
  – Write an short essay on tire changing procedures.
  – List the steps for changing a flat tire.
  – Have them actually fix a flat tire.

• Which of the questions does the best job of measuring if the learner can do the task?

Why test?

• Assess entry-level problems or difficulties
• Motivate learners
• Identify problems with instructional materials, content, activities, and methods
• Assess learning
Considerations for tests . . .

• Coverage of the test (scope)
• Matters to be assessed (prerequisites or outcomes)
• Method
• Length
• Sequence of test items
• Test instructions
• Grading

Types of test items . . .

• True-False
• Multiple choice
• Essay
• Short Answer/Fill-in-the-Blank/Completion
• Matching
• Demonstration (performance)
• Oral response

Major Rule for Outcome Testing . . .

• Prepare test items based on what the performance objective says.

• Placed at an operating computer equipped with the Windows NT operating system, format a 3 1/2 inch disk so that it will hold data.

• What would the test be?
Another example . . .

• State the precautions to be observed when working with insulators and insulating materials as listed on page 45 of the assembly manual.

• What might this test item be?

When deciding the type of test

• Check to see what the objective requires the learner to do.

• Consider the time, resources, and capabilities you have for testing that action.

• Select the testing method that will come closest to measuring what the learner must do.

Assignment

• Do six Self-Paced Lessons of

  Self-Paced Lessons on Performance Objectives

• Read Assignment 2 before next class