Creating the Lesson Plan
OTS 402/502

April 29, 2010

Objectives

- List the advantages of using a lesson plan.
- Write a lesson plan.

What is a Lesson Plan?

- It is a written document that outlines the lesson objective, content included in the lesson, guidelines for teaching the content, and tells how to measure the learning.

- The road map to successful instruction. It reminds you where you want to go and how you are going to get there.

- The lesson plan tells you:
  - Where are your learners going?
  - How are they going to get there?
  - How will you know when they’ve arrived?
Advantages of a Lesson Plan

- Reminds you of the content of the session, helping you to keep on course.
- Reminds you of the techniques to use in the session; for example, questions, summaries.
- Shows you where to pick up and continue the session if you deviate from the planned session.
- Helps you to time the session -- and to finish on time.
- Indicates what visual aids and other aids you need to present a particular point and when you need them.

How to Write a Lesson Plan

1. Decide what content is relevant to the stated objective(s).
2. Grade the session content into must know, should know, could know.
3. Arrange the content in logical order.
4. Select basic resources.
5. Select training techniques.
6. Estimate segment times.

Step 1: Decide Relevant Content

- You should first have specified performance objective the learners need to learn.
- It may help to have another look at the Task List data.
- At this initial stage, simply include everything you can think of that relates to the objective(s).
  - Information
  - Skills
  - Attitudes and Behaviors

Be creative, and don't worry about the amount of material -- you will refine it in the next step.
Step 2: Grade the Content

- What the trainees must know:
  - Material essential to the achievement of the objective(s).
    (Sometimes listed as key points.)

- What the trainee should know:
  - Material that gives the trainee a clear understanding
    (reasons for doing). It fills in the gaps and answers a
    fairly wide range of questions.

- What the trainee could know:
  - Material that is interesting and relevant but not essential
    for a clear understanding.

Step 3: Arrange the Content

Logically so that the learners can easily assimilate it

- This logical order is achieved by:
  - Identifying the current knowledge of the trainees.
  - Presenting the new information in easily digested
    steps.
  - Moving from the "known" to the "unknown." When
    the unknown becomes known, move on to the next
    unknown.

Step 4: Select Resources

- Select basic resources, such as
  - the classroom
  - training aids
  - video
  - projector
  - flip charts.
Step 5: Select Training Techniques

- Decide which general instructional technique is best for representing each point within each logical step.

- For example:
  - Telling
  - Questioning
  - Role-playing
  - Demonstrating (Showing how)
  - Discovery

  Think in terms of what the instructor will need to do and what the learner will need to do.

Step 6: Estimate Time

- Estimate how much time each part of your presentation will need.
  - Make sure that the sum of these times does not exceed the total time allowed for the session.
  - If it does, cut out some of the content of the session.
  - Eliminate the could know first and then the should know.
  - Don’t cut down the time for activities that you have designed for checking the trainees’ understanding.

  You can revise the estimated times after a dry run and/or each actual presentation of the session.

What does it look like?

- There are many formats for lesson plans.

- Some are better for lab classes, others for lecture classes.

- Some are easy formats for writing but hard to teach from.
Narrative Format

April 29, 2010

Integrated Technology Lesson Plan

April 29, 2010

Sample Lesson Plan Format

No Content Lesson Plan

April 29, 2010
Most have the following information

- Title
- Performance Objective
- Introduction (Anticipatory Set)
- Content (Skill Process, Information, or Behavior)
- Activities (Tips for teaching the lesson)
- Summary
- Evaluation (Measuring Learning)
- Conclusion
- References

What we will use

Plan Ahead

- Don’t wait to the last minute to plan.
- Do write the lesson plan as you plan.
- Don’t wait and write it after you have prepared.
- Give yourself time to plan . . . At least a week.
- You will want to practice after you plan.
Writing the Skill Lesson Plan

- Lesson Organization
  - Introduction
  - Body
  - Evaluation
  - Conclusion

- The Introduction (The Anticipatory Set)
  - State the PO
  - Check for understanding
  - Explain WHY?
  - Check for prior knowledge or skill

- Body --
  - Content
  - S, S/T, C, P Segments
    - (Show, Show/Tell, Check, Practice)

Where does the content come from?

<table>
<thead>
<tr>
<th>Task Listing Service Station Attendant</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Clean or replace spark plugs.</td>
</tr>
<tr>
<td>2. Adjust and bleed brakes.</td>
</tr>
<tr>
<td>3. Replace wheel cylinders.</td>
</tr>
<tr>
<td>4. Inspect and flush radiators.</td>
</tr>
<tr>
<td>5. Test antifreeze.</td>
</tr>
<tr>
<td>6. Repair tube or tubeless tires.</td>
</tr>
<tr>
<td>7. Rotate tires.</td>
</tr>
<tr>
<td>8. Lubricate vehicles.</td>
</tr>
<tr>
<td>10. Replace air cleaners.</td>
</tr>
<tr>
<td>11. Clean or replace gas filters.</td>
</tr>
<tr>
<td>12. Wash and wax autos.</td>
</tr>
</tbody>
</table>

Task Detail: Clean or replace spark plugs

1. Note the plug location relative to the cylinder.
2. Remove all spark plugs.
3. Identify the type of plugs.
4. Decide whether to adjust or replace plugs.
5. Clean plugs, if necessary.
6. Replace spark plugs to engine.
7. Connect ignition wires to appropriate plugs.
8. Check for performance.
9. Clean tools and equipment.
The "Content" is:

Task Detail
Clean or replace spark plugs
1. Note the plug location relative to the cylinder.
2. Remove all spark plugs.
3. Identify the type of plugs.
4. Decide whether to adjust or replace plugs.
5. Clean plugs, if necessary.
6. Replace spark plugs in engine.
7. Connect ignition wires to appropriate plugs.
8. Check for performance.
9. Clean tools and equipment.

To help teach the "Content", you need some "Activities" the instructor can use.

- Activities:
  - The things that involve the teacher and the learner as the "content" is presented and practiced.

  - In math:
    - The teacher usually "shows" how to do the problem.
    - Then the students practice on some problems.

    These are "activities."

- Evaluation
  - Test to ensure that learning has taken place.
  - Make the test either:
    - oral or written
    - a performance activity that will show you that the level of learning has been achieved.

  - The test should be based on the performance objective and success should be based on meeting the stated standard.
• Conclusion
  - Review or recapitulate. Briefly go over the main items of your topic. Stress important or key points.
  - Link to subsequent sessions.
  - Clarify. Allow time for questions to clear up any misunderstandings or problems.
  - Finish. Leave your learners in no doubt that you are done. For example, ask the question, "Before I finish, what are your final questions?"

• References
  - Books
  - Journal articles
  - Films and other such media including Internet
  - People by name and where they can be contacted

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**The Whole Lesson Plan**

- It not only includes the Lesson Plan form, but also the following attachments:
  - PowerPoint Printout
  - Activity handouts
  - Information Sheets you plan to use
  - Test or Other Evaluation Sheet

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**Question:**
*Do we have to use the T-Form Lesson Plan Format?*

- **Answer . . .**
- **In this class . . . Yes!**

  **Why?**
  Because it is the one that requires the least information and is the easiest to teach from.
Let’s take a break!

Measuring Learning

OTS 402/502

Objectives

- Write effective assessment instruments.
- Measure outcomes to assess training impact.
- Analyze the testing situation.
- Explain how to grade a test.
Micro and Macro Measurement

- **Micro Measurement**
  - This is when you measure students’ learning during or at the end of a lesson.

- **Macro Measurement**
  - Measuring the effect of learning on organizational goals and objectives.

Kirkpatrick’s Model

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>ISSUE</th>
<th>QUESTION ANSWERED</th>
<th>TOOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Reaction</td>
<td>How well did they like the course?</td>
<td>Rating Sheets</td>
</tr>
<tr>
<td>2</td>
<td>Learning</td>
<td>How much did they learn?</td>
<td>Tests, Simulations</td>
</tr>
<tr>
<td>3</td>
<td>Behavior</td>
<td>How well did they apply it at work?</td>
<td>Performance Measures</td>
</tr>
<tr>
<td>4</td>
<td>Results</td>
<td>What return did the training investment yield?</td>
<td>Cost-benefit Analysis</td>
</tr>
</tbody>
</table>
Kirkpatrick’s Model --
Two Levels of Concern to Instructions

- Level 1: Reaction
  - Did they like it?

- Level 2: Learning
  - Did they learn it?

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Level 1: Reaction

- This has to do with motivation to learn.
  - Did they feel like it met their needs?
  - Did they feel it was well delivered so they could understand it?
  - Were they given all the “tools” they needed to learn this?

Remember though . . . Just because they liked it does not mean they learned it.

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Level 1: Reaction

- This level often measures whether they enjoyed it.
  - They give high ratings if they find it entertaining, not whether it was useful to them.

Entertainment is OK, and motivating, but not everything you teach is going to be entertaining.
Level 1: Reaction

- You can do this informally by asking questions . . . But learners are likely to give you the answers they think you want.

- Better to survey them with a simple survey sheet that does not identify them personally.

How often?

- Your text says daily using a simple form that is specific to information you gathered that day informally.

- It also says you should consider a survey that covers a broader, more general scope at the end of the course or program.

Typical questions on a Reaction survey

- Content meet your needs?
- Presentation clear and understandable?
- Could you hear? See?
- Did I explain the terminology so you could understand it?
- Was the classroom comfortable?

If it is a workshop or conference . . .

- Parking
- Hotel rooms
- Food

Also, have a few open-ended questions.
Level 2: Learning

This is what teachers do every day... 
- Find out if the students learned the content taught.

Instructors find this out by:
- Pretesting
- Asking questions during instruction
- Observing classroom behavior
- Reviewing student work.
- End of lesson tests
- End of block tests
- Comprehensive course tests
Level 2: Learning

- You can use:
  - Teacher made classroom tests
  - Prepared standardized tests
  - “Textbook” author tests
- They can be:
  - Written tests
  - “On-line” tests
  - Oral tests
  - Projects
  - Portfolios or work

For this course . . .

- You will need to prepare your own tests for the lesson plans you write in your portfolio.

So long as the tests measure student’s ability to accomplish the performance objective, I will not be so hard on grading them as I am when I teach OTS 450/550.

OTS 450/550

- OTS 450/550 is specifically designed to teach evaluation.
- Students learn how to write good test questions and good tests.
- This course focuses on preparing for instruction, so I will not be teaching that in this course.
Types of test items . . .

Mostly used in Level 2 Evaluation -- Learning

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

Considerations for tests . . .

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

Major Rule for Outcome Testing . . .

- Lesson Plans usually test for outcomes of the lesson.
  - Prepare test items based on what the performance objective says.

  Placed at an operating computer equipped with the Windows XP operating system, format a 31/2 inch disk so that it will hold data.

  What would the test be for this performance objective?
What would your test question be?

- Placed at an operating computer equipped with the Windows XP operating system, format a 3 1/2 inch disk so that it will hold data.
- Here is a disk and a computer with Windows XP installed, format the disk.
- OR

  1. Place the disk in the floppy drive and type `format`, then hit the `ENTER` key.
  2. Put the disk in the floppy drive and type `Eject` and then hit the `ENTER` key.
  3. Put the disk in the floppy drive and type `format C:`, then hit the `ENTER` key.

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.

What format should I use?

<table>
<thead>
<tr>
<th>Performance Test</th>
<th>Oral Test</th>
<th>Written Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective</td>
<td>Repeat word True-False</td>
<td>Multiple-choice True-False Matching Completion Short answer</td>
</tr>
<tr>
<td>Subjective</td>
<td>Repeat its own words Interview</td>
<td>Short answer Essay</td>
</tr>
</tbody>
</table>
Characteristics of tests

- Performance tests:
  - Materials and equipment needed
  - Clear standards to measure
  - Time

- Oral Tests
  - Guard against unreliable, impressionistic, and prejudiced assessments
  - Time . . . Can only test one at a time

Characteristics of tests

- Essays
  - Easy to write, very hard to score
  - Use for analysis, synthesis, and evaluation levels of learning
  - Guard against bias toward learners when scoring

- Short answer
  - Essentially mini-essays
  - A few sentences or listing

Characteristics of tests

- Multiple-choice
  - Use to measure knowledge and comprehension
  - Easy to score . . . Hard to write
  - Take care in using instructor test guides from texts
  - Learners can guess right answers

- Matching
  - Another form of multiple-choice . . . But harder to write
  - Include more answers than matching items
  - All answers should be possibly right for matching items
Characteristics of tests

- True-false
  - Easy to guess (50% chance)
  - Good for reviews and test preparation or class activities
  - Make them harder by having students write correct answer for the false items.

- Completion
  - Learners provide the appropriate word to complete a statement.
  - Missing word blank should come at the end of the statement
  - Should have only one correct answer.

Scoring the Test

- Guard against your own biases:
  - length of answers
  - conciseness vs. fullness of expression
  - neatness of work
  - degree of application of instructional content

- Score according to plan
  - Use a rubric, checklist or rating scale
  - Make sure it is based on the standard

Scoring the Test

- For Subjective test (like essays)
  - Grade one question at a time for all learners
  - Use an answer guide

  Analyze the results to see if certain individual test items are missed too often. See if the right answer is marked on your checklist or see if there are actually two right answers, or the test question is confusing.
CTE Teachers!
Pretesting and Post-Testing

- One of the rules of competency-based education:
  - You should test learners prior to instruction to see if they already know the information or can already do a skill.
- CTE student teachers, in student teaching, are
  - required to develop lesson plans that include a pretest and a post-test
  - write an analysis of the results and include it in their student teaching portfolios as proof of their successful teaching abilities.

Pretesting and Post-testing

- Many training programs use a competency-based instructional model too.
  - The idea is that if the learner can pass the pretest, they prove they know the content and can skip that lesson and move on to learn something they do not know.

Pretesting and Post-Testing

- You will find that you all will have to write some lesson plans that include both a pretest and a post-test.
  - Be sure to read the instructions for the portfolio.
Rules of writing Pretests and Post-Tests

- Both pretests and post-tests should be based on the performance objectives. Pretests and post-tests should be approximately equivalent. Performance tests can be identical.
- The testing should be conducted under the same or similar conditions. The length of time and the conditions under which both tests are taken should be approximately the same.
- The test language should be that which is understood by the learners.
- A pretest or post-test may be any type of test: objective, subjective, oral, or performance.

Questions?

- What two levels of Kirkpatrick’s Evaluation Model must the instructor be most concerned about?
  - Level 1 -- Reaction and Level 2 -- Learning

- What do you use to test Level 1 -- Reaction?
  - A Reaction survey ("Smile Sheet")
Questions?

- What is the “Major Rule for Outcome Testing”?
- Prepare test items based on what the performance objective says.

Questions?

- When you write a lesson plan, do you need to include an outcome test with it for the lesson?
- “YES”

Questions?

- When writing pre-tests and post-tests, when can the tests be identical?
  - For Performance tests.
    - The other tests should be equivalent in content, conditions, and time. However, they may be of different types of test questions or situations.
**Level 3 -- Behavior**

- Did they apply it on the job (in life)?
  - You can check this through your periodic performance ratings. If they are based on job competencies and the job competencies are used to develop the training.
  - Also, acquire follow-up reports from supervisors and managers via written and telephonic/digital reports.

**Level 3 -- Behavior**

*CTE Teachers*

- Cooperative education programs can check this on coop visits to the workplace and from supervisor reports (if they rate job tasks or competencies on the periodic written reports.)

**Level 4 -- Results**

- This is an evaluation of the training program in terms of was it worth the cost.
- Check this with cost benefits analysis and return on investment formulas.

\[\text{Income} + \text{Benefits} - \text{Cost of developing and conducting the training} = \text{ROI}\]
Kirkpatrick's Evaluation Model

<table>
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<td>LEARNING</td>
<td>Did they learn it?</td>
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<tr>
<td>3</td>
<td>BEHAVIOR</td>
<td>Did they use it?</td>
</tr>
<tr>
<td>4</td>
<td>RESULTS</td>
<td>Did the training pay (ROI)?</td>
</tr>
</tbody>
</table>

Objectives

- Explain the concept of encapsulation.
- List the kinds of follow-up activities suitable for a follow-up program.
**Why study this?**

- The lesson covers two relevant concepts:
  - The process by which the trainee transfers learned material from the training situation back to the job.
  - It is only when learning is transferred to the job that training has any value through productive organizational outcomes.

  For training to be worth anything at all, learning that occurs off the job must be implemented when the trainee returns to the job. Assisting the trainee to implement new learning should be regarded as an integral part of conducting training activities, a sort of after-sales service.

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**Encapsulation**

- Often trainees will learn material in the training program but fail to improve their performance on the job.

  This phenomenon is known as "encapsulation of training".

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**Encapsulation**

- This experience is enclosed, as in a capsule, and not applied to the work situation.

  - The condition may be caused by:
    - a supervisor's or peer's resistance to change
    - inflexibility in the system
    - a lack of motivation
    - a poorly designed learning experience (that does not facilitate transfer of learning to the job)
    - the inability of a trainee to cope with the tension produced by change.
Reducing Encapsulation

- To reduce encapsulation, use a planned follow-up program.

- The basic strategy of follow-up programs is to bring rewards to the trainee after the training program. You mainly achieve this by:
  - assisting the trainee to experience success in his or her attempts to apply the new learning on the job.

Activities that are potentially useful in follow-up

- Action Plan
- Individual Project
- Group Project
- Individual Guidance and Coaching
- Formal Sessions
- Seminars and Guest Speakers
- Workshops

Action Plan

- During training, each learner develops a plan to utilize aspects of the instruction on his or her job.
- Each learner identifies 3 or 4 practical ideas presented during training that are applicable to his or her work situation.
- Learners consider the costs and benefits of utilizing each idea and then develops strategies and a timetable for the implementation of these changes.
- Discuss the plan with the learner's supervisor (and approved by him or her). It becomes part of the learner's job description when the trainee returns to work.
**Major Advantages of an Action Plan**

- It directly relates training to the job.
- It can be structured so that the learner can evaluate his or her own success at implementing training.

An example of an action plan for a safety training program for supervisors might be to:

*Identify, investigate, and eliminate three safety hazards in the immediate work area within one month, in addition to performing normal duties.*

**Individual Project**

- This is similar to an action plan, but broader in scope.
  - Completion of the project may be the trainee's entire "job" for a considerable period after the training course.
  - He or she normally is assigned a project that requires to use of the knowledge and skills learned in the course.

**Group Project**

- A group project is similar to an individual project, except that several learners cooperate in the project.
  - This follow-up activity is particularly useful if one of the objectives of training is the development of interpersonal skills.
  - Group projects have been used widely in relation to management training.
Individual Guidance and Coaching

- Potentially, this is one of your most potent follow-up techniques.
  - Its effectiveness depends on the coaching skill of the learner's supervisor, who is usually given the role of coach.
  - This method of follow-up will fail if the supervisor is an inadequate coach or does not have the time to coach. It requires that the supervisor is trained in his role.

Formal Sessions

- This is a mini-program. It is run some time after the training program.
  - Use it to reexamine material that learners have reported as difficult.
  - Or use it to motivate the continued use of the concepts and skills learned in the main program.
  - It can serve as a useful review of the original program.

Seminars and Guest Speakers

- Bring learners together to extend their knowledge on topics of mutual interest.
- You can have them prepare seminar papers themselves, or you can invite a guest speaker.
  - Success depends on the effectiveness of the speaker and the importance of the topic to the learners.
**Workshops**

- Workshops are very popular and are often effective ways of following up instruction.
- At regular workshop meetings, learners take turns presenting their current work problems.
- Group members draw on the training materials plus their own experience to propose solutions to the problems.
- Workshops reinforce concepts and skills learned in instruction and contribute significantly to the reduction of organizational problems.

**Choice of the Follow-up Activities**

- This depends a lot on your educational or training situation.
- A good plan may include a combination of action plan, project, coaching, and/or workshops is likely to produce good results because in these the learner is actively learning about immediate work problems.
- Mature learners will often be able to give you sound guidance on what type of follow-up they would find most useful.

**Summary**

- Kirkpatrick’s Four Level Evaluation Concept
- Writing test questions for tests that support performance objectives
- Actions to help overcome encapsulation
Next Week

- Read Chapters 11, 12, 13, and 14 in your text.
- I will cover the Portfolio requirement.

BYE!

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