Testing and Evaluation Techniques

PCEPT
Terminal Objective

The student will be able to construct, administer, and evaluate an assessment instrument
Enabling Objectives

The student shall be able to:

- Define the four levels of evaluation
- Differentiate between summative and formative evaluation
- Define the different kinds of tests
- Discuss the difference among the various types of tests
- List various sources for tests
Four Levels of Evaluation

- Level I – reaction
- Level II – learning
- Level III – transfer
- Level IV – business results
Reaction

How did the student react to the class?

- Evaluation form
- Focus groups (rarely used)
- Required by most academic institutions
Learning

What has the student learned?

- Oral examination
- Written test
- Skills assessment
Transfer

How much did the student retain?

- Measured six weeks to six months post coursework – on the job
- Based upon tests, observations, surveys, and interviews
Business Results

An assessment of the financial impact of the training or the return on investment.

- Six months to two years post coursework
- Most difficult to measure
  - Training courses do not have business objectives
  - Methodology for assessment is not yet refined
Do we ever get a final evaluation?

In teaching you cannot see the fruit of a day's work. It is invisible and remains so, maybe for twenty years. ~Jacques Barzun
Evaluation

“An evaluation is a process of making a value judgment based upon one or more sources”

Evaluation processes examine two components:

- Instruction from the teacher
- Performance of the student on objectives
Purpose of Evaluation

- Provides feedback to students
- Provide students gratification and motivation
- Measures the effectiveness of the instructor
- Measures the effectiveness of the program in meeting objectives
Formative Evaluation

- Ongoing evaluation to change or adapt the program
- Compares the objectives to the testing strategy
- Occurs during development of course
Summative Evaluation

- Typically performed at end of program
- Provides students feedback on mastery of subject
- Provides feedback on effectiveness of teaching strategy

Summative tools
- Course evaluation forms
- Final exams
  - Written
  - Practical
Formal Evaluation

“the test”

- Did the student attain the course objectives?
- Gives a grade
- Adds stress to the student
- If required to pass, it should not be the first testing of the material
Informal Evaluation

- Provides student feedback
  - With or without a recorded grade
  - Helps identify weaknesses and strengths
  - Use caution when presenting
Tests

Instructor’s last chance to emphasize the important information the student needs to retain

- Written
- Practical
- Oral
Written Tests

- Multiple Choice
- True/False
- Matching
- Completion or fill in the blank
- Essay
Guidelines for Written Tests

- Be sure questions relate to objectives
- Allow appropriate amount of time
  - Simple multiple choice allow about one minute per question
  - Scenarios and essays require more time
- Clear complete directions
- Be sure it has proper grammar and punctuation
Multiple Choice Tests

- Common method for formal and informal evaluation
- Normally used for national and state certification examinations
  - Easy to grade and be objective
- Test construction miscues
  - Using previous questions information
  - Negatively worded stems
  - Fill in the blank in middle of stem
  - Using ‘all of the above” or “none of the above”
True/False Tests

- Limited to two answers, no gray area
- Difficult to construct in positive voice
- Avoid always or never statements
- Useful tool as a study guide
Matching Tests

- Works best with definitions and terms
- Difficult to design
- Cautious of multiple matches
- Test directions must be clear
Completion Tests

- Fill in the blank
- Statements must be clear as to intent of question
- Need to be grammatically correct
- Be aware of size of blank
- Avoid having blank at beginning of sentence
Essay Tests

- May require long or short answer
- Time consuming and difficult to grade
- Recommended to grade in a group format
- Rubric is a useful grading tool
- Hand written exams must allow sufficient time
- Shotgun approach.. As much information as possible in hopes of hitting the target
What is a Rubric?

Heidi Goodrich, a rubrics expert, defines a rubric as "a scoring tool that lists the criteria for a piece of work or 'what counts.'" So a rubric for a multimedia project will list the things the student must have included to receive a certain score or rating. Rubrics help the student figure out how their project will be evaluated. Goodrich quotes a student who said he didn't much care for rubrics because "if you get something wrong, your teacher can prove you knew what you were supposed to do."

Generally rubrics specify the level of performance expected for several levels of quality. These levels of quality may be written as different ratings (e.g., Excellent, Good, Needs Improvement) or as numerical scores (e.g., 4, 3, 2, 1) which are then added up to form a total score which then is associated with a grade (e.g., A, B, C, etc).

Many rubrics also specify the level of assistance (e.g., Independently, With Minimal Adult Help; With Extensive Adult Help) for each quality rating.

Rubrics can help students and teachers define "quality". Rubrics can also help students judge and revise their own work before handing in their assignments.

Oral Exams

Requires verbal answers by students

Advantages
- Evaluate quick reaction of student
- Assesses the student thought process

Disadvantages
- Limited number of students examined at one time
- Difficult to standardize
- Time consuming and labor intensive
- Unexpected distractions
- Unfair emphasis on repeated mistakes
Project Assignments

- Gets students working outside the class
- In groups, helps develop people skills

Negatives

- Hard to standardize
- Potential plagiarism
- May measure only end product and not consider the process
Practical Exams

- Situational
  - Demonstration of a skill in the context of a scenario

- Rote
  - “Demonstration of steps of performing a skill”
Practical Skills Evaluation

- Rote mechanical skills
- No real world stresses
- Situational skills test asks the student to think through a situation
Performance Evaluations

- Determine standards to be evaluated

- Situation should
  - Represent desired outcome
  - Realistic scenarios
  - Realistic environment
  - Realistic in the real world

SAFETY
Performance Evaluations

- Keep situation in perspective
  - Remember safety
  - Remember legal ramifications

- List all activities to be completed
Reliability

Multiple tests

- Compare results
- The closer the scores, the more reliable

Four questions

- Does it measure consistently on different occasions
- Any influence of the environment
- Any difference with administrators
- Does it discriminate against anyone
Conclusion

As part of the learning process, the instructor needs a mechanism to evaluate the student’s learning and identify whether or not the student is achieving the objectives and goals of instruction.
Conclusion

Evaluate
- Four Levels
- Summative
- Formative

Tests
- Kinds of test
- Differences among the various types
- Sources for testing materials
Testing you

Multiple choice tests should avoid what?

- “Which choice is not correct”
- “All of the choices are correct”
- “None of the choices are correct”
- Maybe I just broke the rule!!!!!!
Question no.2

Which type of test is most commonly used for state or national certifications?

- True/False
- Matching
- Multiple choice
- Fill in the blank
Question no. 3

Unexpected distractions would likely be a disadvantage in what type of testing?

- Rote
- Situational
- Written
- Oral
Of the four levels of evaluation, which one would likely look at job performance 6 months to a year down the road?

- Reaction
- Business results
- Learning
- Transfer