Teacher Assessment Using SourceView on DVD

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Teacher Assessment Using SourceView on DVD

- DVD 1: Classroom Instruction (Episodes 1-7)
- DVD 2: Classroom Instruction (Episodes 8-10); Mathematical Problem Solving (Episodes 11-14)
- DVD 3: Laboratory Instruction (Episodes 15-21)

- 5+ hours of professional videotapes of exemplary and non-engaging behaviors
- High school teachers videotaped on location
- Models general and science-specific teaching skills
- Includes episodes by several different teachers to model variety in teaching a given topic
- Accompanying User’s Guide enables self-evaluation and inservice/teacher development programs & for science methods courses

At the end of this workshop, you will be able to...

- Identify the qualities for effective teaching in several settings
- Use a Skills Inventory Rubric to evaluate classroom behavior
- Plan the use of the Inquiry Rubrics included in this Workshop and others on the website for self-evaluation or evaluation of practice teachers

General Science Teaching Skills

- A. Beginning the Unit
- B. Conducting the Unit
- C. Ending the Unit
- D. Mathematical Problem Solving
- E. Pre-Laboratory Instruction
- F. Supervising Laboratory Instruction
- G. Post-Laboratory Instruction

Specific Science Teaching Skills

- 1. In-Depth Content
- 2. Safety in Lab and Classroom
- 3. Organization and Management
- 4. Pacing of Instruction
- 5. Motivating Students
- 6. Enhancing Student Self-Esteem
- 7. Obtaining Feedback
- 8. Questioning
Specific Science Teaching Skills

• 9. Awareness of Rote vs. Real Learning
• 10. Decision Making and Role Playing
• 11. Peer Learning
• 12. Using Applications
• 13. Reinforcement and Review
• 14. Providing Feedback and Informal Assessment
• 15. Nature of Science

Specific Science Teaching Skills

• 16. Identifying Preconceptions and Preventing Misconceptions
• 17. Using Demonstrations
• 18. Using Models and Analogies
• 19. Using Discussions
• 20. Computers in the Laboratory and Classroom
• 21. Using Audio-Visual Resources

Science Teaching Skills (Skills Inventory)

• Look at the Skills outlined in this packet
• Each skill has an explanatory paragraph, a set of timely references, and an accompanying set of behaviors
• Each behavior can be evaluated using the rubric on the right-hand side of page
• You will be assigned one skill to evaluate while viewing the following videos
• Read the behaviors carefully first

Selected Episodes

• Now take the set of papers labeled “Selected Episodes”
• There are three episodes we will view
• There are questions for you to observe as the video progresses – most are keyed to the timing on the video
• You have two jobs to do during the video: try to answer these questions while also observing & evaluating the behaviors on your assigned skill sheet

Part Three: Episode 15
Simulated Poor Lesson for Part Three Laboratory Instruction: Mrs. McKibbin Questions

15.1G Did Mrs. McKibbin truly help her students while they were performing the lab? How might she have improved their understanding of the lab’s procedures and concepts?

15.1S During the pre-laboratory instructions Mrs. McKibbin suggests that the students can form their own lab groups of about three people. Is this a good approach for participation in the laboratory? Defend your answer.

15.2S In the pre-laboratory, Mrs. McKibbin shows the class the technique of serial dilution. Is it clearly demonstrated both visually and auditorily to students? How could Mrs. McKibbin improve showing the technique?

15.3S In the pre-laboratory Mrs. McKibbin reveals the end results for the lab before the students perform the lab. Is this a good idea? Why or why not?

15.4S Problems arise in the lab with the use of the students’ wells. What does this tell you about Mrs. McKibbin’s preparation prior to the students doing the lab?

15.5S What teacher behavior do you observe during this segment of the Episode? How does Mrs. McKibbin respond to the problems that arise during the lab?

15.6S Should the students actually be doing the dilution with the teacher as she is demonstrating the method a second time on the overhead? What are at least two possible problems that can occur when the teacher and the students practice the technique simultaneously?

15.7S What safety problems arise during this segment of the Episode? What potential problems may develop as well?

15.8S How does Mrs. McKibbin respond when a student tells her that she is going too fast?

15.9 How does Mrs. McKibbin respond when a student asks “What if you forget to clean the mixer?” Is this an appropriate response?
15.10S Describe the teacher's behavior when she finally does walk around the laboratory monitoring the students' progress. Does she act as a supervisor or a facilitator? Does she encourage or discourage higher level thinking and questioning?

15.11S How might you interpret Mrs. McKibbin's comment "Seems like you could figure it out!"

15.12S How did students respond to hearing that the time was up? What does this indicate about the teacher's preparation and the communication of her expectations?

15.13S Mrs. McKibbin states, "If you got that you were right, but if you didn't get that you probably weren't." Is this appropriate? What effect does this have on the students?

15.14S Is it clearly communicated what the students are to "write-up" for the next day?

After Episode 15

- Now gather in groups according to your skill sheet assignment, i.e., those having the assignment of “Supervising Laboratory Instruction” etc.
- Compare your answers to the episode questions as you followed the video. Is there a great deal of agreement? Or disagreement?

EPISODE 18

18.1G Would you describe Mrs. McKibbin's teaching style being more like a director or a facilitator? Give at least two examples to support your answer.

18.1S Does Mrs. McKibbin provide sufficient safety precautions regarding the use of acids and bases? Should safety factors be repeated for each lab experience the students have?

18.2S A student poses a hypothetical problem of adding just one extra drop and wondering if it would really matter. How did Mrs. McKibbin react to this question? What effect did her reaction have on the student?

18.3S Mrs. McKibbin tells a laboratory group whose results show no change to be sure to mention those results tomorrow in the post-laboratory discussion so that they can be analyzed and discussed. What are some possible reasons why Mrs. McKibbin did not explain the discrepancy right then?

18.4S A student suggests that more water should be added to correct for a well that had an extra drop of indicator added to it. How does Mrs. McKibbin deal with this student's question?

18.1B Compare Mrs. McKibbin’s simulated laboratory supervision in Episode 15 with this Episode. One major difference is that she is circulating among the students instead of sitting at her desk grading papers. In what other ways is she facilitating a smooth progressive laboratory experience in this Episode?

18.2B Compare and contrast Mrs. McKibbin's simulated laboratory supervision in Episode 15 with Mrs. McKibbin's supervision in Episode 18. State four differences.
Part Three: Episode 21 Questions
Post-Laboratory Instruction: Mr. Cardulla

21.1G What rationale is present for Mr. Cardulla to spend an entire class period on a discussion of deviant results from the titration lab?

21.2G In what specific ways does Mr. Cardulla encourage students to THINK?

21.3G Do you agree or disagree with Mr. Cardulla’s statement that nothing in science can be proven, only disproved or not proved? Support your decision.

21.4G Comment on Mr. Cardulla’s teaching style. What kind of proximity and interaction does he maintain with his students? How does he encourage students to ask and answer questions?

21.1S What evidence does Mr. Cardulla offer to support the statement “science learns most from mistakes.” What other discoveries have been serendipitous?

21.2S What purpose does Mr. Cardulla’s history lesson on Robert Andrews Milliken and Humphry Davy serve? Are statements of Milliken and Davy meant to discourage Mr. Cardulla’s students when confronting the results from their labs?

21.3S The concept of uncertainty is difficult for science students to understand because of an emphasis on “correct” answers instead of “best” or “better” results. How does Mr. Cardulla help relieve this student anxiety?

21.4S Why does Mr. Cardulla ask his students to act as if they were Columbo?

21.5S Are the criteria considered by the students for discovering the discrepant results?

21.6S What is the titration equipment Mr. Cardulla has out on the desk really useful? Why or why not?

21.7S How are higher order thinking skills promoted during the analysis of the class data and the detailed discussion of the procedures?

21.8S What student suggestion seems to be the most probable explanation for the deviant results? What suggestions did the students make to test this possibility?

21.9S How does Mr. Cardulla demonstrate flexibility and provide students with the opportunity to further investigate laboratory concepts?

21.1B N/A

21.2B N/A

21.3B Should every teacher purposely sabotage lab results in order for students to work through discrepancies?

Going Further

• Mary Virginia Orna
  – mvrorna@gmail.com
  – Email me if you have any questions
  – www.maryvirginiaorna.net
  – All the handouts and PowerPoint slides for this workshop are on my website under “Hadassah College Workshops;” there are other resource materials there too
  – www.chemsource.info
  – Go here for more information on ChemSource