

Teaching Assistant - Inquiry Observation Protocol (TA-IOP)

I. BACKGROUND INFORMATION

Name of Evaluator _____ Announced Observation? _____
Date of Class _____ Topic of Exercise _____
Start time _____ End Time _____
Name of TA _____ Prior Experience _____

II. OBSERVATIONS

| Time | Use the space below to take notes providing a description of the lab. Make note of specific examples of exchanges that demonstrated the TA's pedagogical skills, classroom management, content knowledge, or preparation. |
|-------|---|
| 0-15 | |
| 15-30 | |
| 30-45 | |
| 45-60 | |

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|-----------------|--|
| 1hr- 1hr15 | |
| 1hr15- 1hr30 | |
| 1hr30- 1hr45 | |
| 1hr45- 2hr | |

This instrument is to be completed during/following observation of classroom instruction. Please refer to the specific examples you noted in your observations that demonstrate each of the items. Use the numerical scale as follows: 0 = not observed, 1 = observed rarely (once or twice), 2 = observed occasionally (3-4 times), 3 = observed often (>50%), 4 = observed throughout (>75%)

III. PEDAGOGICAL SKILLS

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| <p>1. The TA asked questions that elicited student responses built on the students' own ideas rather than the TA leading them in specific directions.</p> <p>Example of a question that worked: After showing students graphical data that showed some inconsistencies, TA asks, "How would you interpret the results?"</p> <p>Why did it work? Asks students to analyze their thoughts and mesh them with inconsistencies and analyze and evaluate data rather than being told about it.</p> <p>Example of a question that didn't work as well: "What's wrong with this data?"</p> <p>Why did this not work as well? TA is leading them, telling them a little about what they should be looking for or analyzing rather than letting it be student-instigated.</p> | <p>0 1 2 3 4</p> |
| <p>2. The TA encouraged students to reflect (explain in their own words) how they learned something/came up with an answer (metacognition).</p> <p>Example of a question that worked: Students ask a TA why they got unexpected results and TA responds "First tell me what you got and then tell me what you did to get these results. Why do you think you got the results you did?"</p> <p>Why did it work? Asks students to first state their results and then retrace and verbally explain how they got their results; they are reflecting upon their methods of how they got their data. This reflection often solves the students' questions because it forces them to think out their methodology (and therefore where they went wrong).</p> <p>Example of a question that didn't work as well: Students ask a TA why they got unexpected results and TA responds "It seems to me based on what you wrote that you forgot your control, so redo the experiment with a control."</p> <p>Why did this not work as well? TA is identifying the problem and instructing students how to fix it. This does not allow for students to try and fix the problems themselves. This also does not allow for students to identify other possible errors.</p> | <p>0 1 2 3 4</p> |

IV. CLASSROOM MANAGEMENT

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| <p>3. The TA provided expected final outcomes for the activities.</p> <p>Example of a strategy that worked: TA opens the beginning of lab with a brief summary of what was to take place in lab as whole</p> | <p>0 1 2 3 4</p> |
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and then provides detail about each lab activity: “Today we are working with enzymes and we are going to complete three activities about how enzymes do their jobs and how we study the efficiency of those jobs. The first looks at the XXXX, and at the end of the activity you should be able to XXX. This sets up the next activity on YYYYYY, etc.”

Why did it work? Students have an overall view of the lab topic but are also clear on how the completion of the activities lead into one another.

Example of a strategy that didn’t work as well: TA opens the beginning of lab by stating “We are working on enzymes this week and by the end of lab you should have the following complete to turn in to me.”

Why did this not work as well? TA is providing a broad outlook of lab and what is due at the end, ignoring connections that should be made between activities.

4. **The TA regularly checked on group interactions to ensure a collaborative working environment where all students were contributing equally.** 0 1 2 3 4

Example of a strategy that worked: While students are working on activities, TA observes groups interactions to see how work is being completed. TA also checks in with each group to inquire what roles each team member is playing: “Who is doing the timing in this experiment? Who is writing down results?”

Why did it work? Students are reminded that all students should be equally participating in the lab.

Example of a strategy that didn’t work as well: TA talks with one of five groups, but only observes the other four.

Why did this not work as well? TA has not made efforts to reach all groups to check how work has been divided amongst members. This may communicate to students that TA is not concerned with equal work loads, so some students may continue to do all the work while others do little.

5. **The TA managed the progress of groups, ensuring that they finished the tasks and redirected them if they were lost.** 0 1 2 3 4

Example of a strategy that worked: While students are working on activities, TA checks with each group to see how much progress they have made and where they might be stuck. TA also asks a “check-in” question to make sure they are completing the work and looking ahead: “This looks like a good idea. How many replicates will you run?”

Why did it work? Students are shown that TA is concerned about their group’s progress and are given an opportunity to ask questions. Students are also held accountable for how they will

finish the experiment in the allotted time.

Example of a strategy that didn't work as well: TA talks with one of five groups, but only observes the other four.

Why did this not work as well? TA has not made efforts to reach all groups to check on progress. This may communicate to students that TA is not concerned with them understanding the lab and completing work. This may lead to lower effort on students' part.

V. CONTENT KNOWLEDGE

6. The TA had a solid grasp of the subject matter content inherent in the lesson and could apply it to real-world situations. 0 1 2 3 4

Example of a teaching strategy that worked: TA asks "In the article you read on letters to the editor, one person wrote about "unschooling." Has anyone ever heard of this term? Can you give me an example?...Pause...The best example I can think of is this lab! You are an atypical lab, doing traditional science laboratories in a non-traditional way...this is an example of unschooling!"

Why did this work? TA used an unfamiliar term and is able to draw a direct comparison to the students themselves.

7. The TA acted as a resource person, working to support and enhance student investigations. 0 1 2 3 4

Example of a strategy that worked: As TA checks on groups' progress, he states "This experiment looks pretty good, but don't forget that there are other reactants available to work with on the table. How could they help your investigation?"

Why did this work? TA recognizes and compliments current progress while encouraging students to look beyond their current work and possibly enhance their experimental results

Example of a strategy that didn't work as well: Student has only used 3 of 5 solvents on lab bench for experiment and asks TA if she should use the rest. TA responds "Well, I'm not really sure why they are there so I'd say don't use them. I'm sure what you did is fine."

Why did this not work as well? TA communicates to student that he does not understand all possible variables in the experiment and how students should utilize them.

VI. PREPARATION

8. The TA presented information that was accurate. 0 1 2 3 4

Examples of inaccuracies: 1) TA has lectured on material that she later realizes had some inaccuracies. For instance, she gives the incorrect end products of photosynthesis; 2) incorrect methods to dilute solvents; 3) incorrect identification of organism on slide

9. The TA selected strategies that made content understandable to students. 0 1 2 3 4

Example: TA wants to explain “denaturation.” She draws a flower on the board, representing an enzyme. She explains: Let’s say this flower is an enzyme. If we put this flower in an environment that it wasn’t used to, such as really high heat, what might happen?...it will wilt.” She redraws the flower, this time crumpled and wilted. “This is what happens when you put enzymes in unfavorable conditions such as high heat; they break apart and lose their shape.”

Why did this work? TA uses simple example to explain a more complex scientific concept.

Example of a strategy that didn’t work as well: Student asks who in the real world would want to isolate specific genes. TA replies an in-depth description of his master’s research project.

Why did this not work as well? TA is giving a real life example, but it is too detailed and complicated for the general connection that the student is trying to make. A connection to a larger picture would work better (i.e. someone interested in trying to find a specific genetic link to Alzheimer’s disease).

10. The TA covered all that was required in the time allotted. 0 1 2 3 4

VII. STUDENT BEHAVIORS

1. Students were actively engaged in thought-provoking activity and stayed on task. 0 1 2 3 4

Examples of off task behavior observed: (text messaging, talking about social events, talking on the phone, head down on desk/sleeping)

2. Most student questions were reflective (asking about why they were doing something) rather than procedural (how they were doing it). 0 1 2 3 4

Example of reflective question: Student states “I don’t understand why we are how long a behavior occurs instead of the number of times a behavior occurs.”

Example of procedural question: Student states “I don’t understand how to adjust the temperature setting on the water bath.”

3. Students actively shared ideas and problem solving strategies, including how they learned and what they learned with each other rather than turning to the TA for corroboration. 0 1 2 3 4

Example:

VIII. POST-LESSON INTERVIEW QUESTIONS

1. What do you think went well in the lab?

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| Answer: | Observers suggestions: |
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2. Can you give an example of an interchange you had with the students that you felt went particularly well? Why did it work well?

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| Answer: | Observers suggestions: |
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3. What did you feel did not go well with the class?

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| Answer: | Observers suggestions: |
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4. What is the reason you think these problems happened?

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| Answer: | Observers suggestions: |
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5. How would you modify your teaching next time to deal with this problem?

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| Answer: | Observers suggestions: |
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6. Are there any materials or instructions you felt would have helped you better prepare to teach this lab?

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| Answer: | Observers suggestions: |
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7. If you could teach this same class over again, what would you do differently? (In particular any interactions you had with the students during class.)

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| Answer: | Observers suggestions: |
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