

Supplemental Material

CBE—Life Sciences Education

Wise *et al.*

Two-year Biology Instructor Interview Protocol

Introduce yourself as interviewer

HHMI BioInteractive wants to develop professional development opportunities that are useful and invigorating for faculty at 2-year colleges. They have asked us (the UC-Boulder team) to help them understand what this might look like. This is why we have reached out to you. You've been selected for your experience and expertise. Your honest and candid perspective is critical to us finding out how to create better professional development for 2-year college instructors.

The topic for this interview is teaching practices and strategies, by that we mean any methods or approaches that you use with your students other than traditional lecture. We also mean approaches that can be done in a typical classroom setting, outside of special opportunities such as research internships. These include practices and strategies that you developed, that you observed from colleagues, that you read about or learned from professional development, that increase student interactivity and engagement in class, and those that are known as active learning or evidence-based learning.

Review consent form, confidentiality and anonymity.

Thank you for using Docusign to return your consent form!

OR

I notice we need to start by collecting a consent form for you. Would you be able to find the Docusign invitation in your email?

The information from this research may be published; however, your identity will not be given out and quotes will not reveal your identity. UC Boulder and HHMI BioInteractive's Outreach and professional development team will use the information strictly for the purposes of research and program development. We are hoping to keep this interview conversational, so to facilitate that process, we would like to record this interview.

Turn on the recorder and identify the time and date of recording.

Can you please state for the record that you consent to being recorded during this interview?

Experiences with teaching practices and strategies.

1. To begin, could you tell me a little about your teaching philosophy and some of your favorite teaching strategies?

- To give me some perspective, how long have you been teaching, and how long have you used this strategy with your students? (repeat)

2. For each: Can you say more about why you like using [the strategy/ strategies] with your students?

- Probe: What type of feedback do you get from your students about that approach
- Probe: Are there other ways that help you know that [that strategy] is working?

3. Are there any strategies you like to use to address equity, diversity, and inclusion in your teaching?

- Clarify: If they ask what we mean by EDI in teaching, provide inclusive pedagogy as an umbrella term that is sometimes used to describe these kinds of strategies. For example, inclusive pedagogy includes strategies to increase student sense of belonging, social engagement, and engagement with the instructor; metacognitive strategies; and culturally relevant connections in course material.

4. Have you had to overcome any barriers to implementing these strategies in your classes? What were they?

- Clarify: If they ask what we mean by barriers, turn it back to them (what would you consider a challenge or barrier around using these strategies? It is most useful for our research to get a better idea of what the spectrum of barriers can be. If they still need help, the interviewer can offer things like anything from classroom layout, to administrative demands, to student apathy).

5. Where have you found ideas or inspiration for your teaching strategies?

- Probe: Are there specific individuals that you go to find ideas?
- Probe: Are there journals, repositories, conferences, PD providers or other sources that you get ideas from?

6. How supportive are your colleagues and administrators in your decision to use your preferred teaching strategies?

7. Are there any teaching strategies or approaches you've left behind over the years? Which ones? Why?

8. What role does educational research play in your selection of teaching strategies?

-Probe if time: Is BER something you are doing or interested in doing?

9. In your opinion, do CC faculty want to know that a strategy is evidence-based, in order to try it?

Professional development experience

1. Have you participated in any activities you would consider professional development? What were they?

- Probe: Describe the professional development opportunities you have participated in.

2. Have any of those experiences changed your approach to teaching? What changed?

- Probe: When you consider some of your most useful experiences, tell us more about what the Professional Development providers did that made them a meaningful use of your time? We're interested in knowing what attributes made this a successful experience for you (specific activities, readings, opportunities to engage with a broader community, etc.)

- Probe: What have you had to do, to translate what you have learned into action in your classroom?

Needs of 2-year college biology instructors

1. What support do you think 2-year college biology instructors need to improve their use of evidence-based and active engagement strategies?

- Probe: What types of *professional development* do you believe are most needed or would be most helpful to 2YC instructors?

2. Share screen with this numbered list:

1. PD that gives participants time to work on aspects of their own course.

2. PD where small groups plan and practice implementing a teaching strategy of common interest.
3. PD where two or more people from the same department participate together.
4. PD that is fully online.
5. PD with a follow-up support or community network component.
6. PD with a component where participants later teach colleagues about what they learned or have become skilled at implementing.
7. PD which brings people from different STEM disciplines together.
8. PD about non-biology goals (such as: science skills, quantitative skills, mindset, metacognition, study skills, getting students involved in research or other opportunities, microaggression, inclusion, peer review, effective group collaboration, etc.).
9. PD around collaborating in biology education research (focused on 2-year college context).
10. Schedule PD over semester / summer breaks.
11. Offer PD specific to a subdiscipline of biology.

3. Professional development (aka PD) providers have tried a number of methods to make PD more impactful. Can you tell me the numbers of the methods listed on the screen you think are most needed for 2YC instructors?

- Probe: Ask them to pick 1-2 of those they identify to discuss their reasoning further.
- Probe: Why do you think this method would better meet the needs of 2YC instructors?

4. What incentives would help 2YC instructors participate in these kinds of PD?

Advice

Circling back to the goals of this interview...recall that HHMI BioInteractive is interested in providing professional development to help CC faculty enhance their teaching. With that in mind, what advice would you give BioInteractive as they pursue this work?

Thank you and goodbye, clarify how they will receive gift card