

Supplemental A: Data collection tools- sample items
Trainee Fall Course Post-survey: Sample Items

Key practice	1. First, please tell us about your confidence in these teaching practices now, TODAY. Select the responses that best describe your thoughts today.	2. Next, please tell us about your confidence in these teaching practices at the beginning of this course, before the course started. Select the responses that best describe how you would have answered these questions then.
Framing active learning activities	Not Confident Slightly Confident Moderately Confident Confident Very Confident	Not Confident Slightly Confident Moderately Confident Confident Very Confident

Key practice	3. Now, for each teaching practice, which course feature or activity best supported you in this part of your teaching practice? Choose from the dropdown list.
Framing active learning activities	● Meeting other people who are interested in teaching ● Discussing and analyzing findings from the educational research literature ● Observing my colleagues' practice teaching session ● Observing other instructors' teaching ● Practice teaching session for my colleagues ● Practice teaching session for undergraduates ● Watching the video of my practice teaching ● Role play practice of evidence-based & equity-focused teaching strategies ● Collaborating with my colleagues on designing a course ● Practicing microskills of teaching within classes ● Receiving feedback from the instructor on my teaching ● Discussing the job market and application process for jobs involving teaching
4. In 1-3 sentences, tell us about how the course supported you in this group of teaching practices. What was valuable about the course in this area?	

Trainee Spring Teaching Survey: Sample Items

Key practice	1. Since teaching this quarter, has your confidence in the following teaching practices decreased, stayed the same, or increased?
Framing active learning activities	Decreased Stayed the same Increased
2. In 1-3 sentences, tell us about how teaching supported you in this group of teaching practices. What was valuable about the teaching experience in this area?	

Undergraduate Exit Ticket: Sample Items

1. *In comparison to your other science classes, how would you describe how equitable and inclusive class was for you today? In 2-3 sentences, please explain your thoughts.*
2. *Did anything the instructor did have an impact on your emotional wellbeing? If so, what was it and was it good or bad?*

End-of-year Trainee Focus Group: Sample Questions

Spiral Journal Activity: Respond to the following prompts and then we'll discuss as a group.

1. A teaching strategy that worked well with my students this spring.
2. Student outcomes or responses that helped me know that this strategy was successful:
3. Something from [program name] that helped me in my thinking about this strategy/student outcome:
4. What this success makes me think, feel, conclude, or realize is:
5. After this successful moment in [program name], an idea I have for myself is:

Alumni Interview: Sample Questions

- Are there any specific ways the [program name] program prepared you for or influenced your job search? Can you share any examples?
- How have you applied what you learned in the [program name] program (either so far, or currently)?

Supplemental B: Trainee-identified key course features

Supplemental B. Key course features for each group of teaching practices		
Key Course Features	Trainee reflections on how the course supported this set of teaching practices.	Trainees' related post-teaching reflections on the fall course
Teaching Strategies		
Practicing microskills Role Play Practice for undergrads	Multiple and varied opportunities to practice were integral to trainee's confidence in these teaching strategies. Trainees appreciated the progression from learning about a strategy to more complex practice, seeing others try them, and getting program mentor feedback.	Trainees reported implementing what they learned from the course in their spring teaching.
Supporting Students Socioemotionally		
Collaborating with colleagues Practicing microskills	Trainees appreciated practicing and role playing strategies for supporting students socioemotionally. The program mentor played an important role in this practice by modeling strategies (and incorporating these into the course itself). Concepts such as scaffolding and cognitive load helped trainees understand students' point of view and use teaching strategies that reflected their own values around supporting students.	Several trainees faced challenges in this category during teaching, but demonstrated thoughtful reflection about empathy, interacting with students 1:1, and the relationships between this support and student participation.
Assessment		
Discussing education research Practicing microskills	Analyzing typical assessments, reviewing the literature, and in-class exercises about writing high-level thinking assessments were helpful. In the fall and spring trainees reported an interest in further training/support in this area.	Trainees characterized their need to continue learning about assessment but many trainees connected their experiences implementing assessments to their own learning of how to support students socioemotionally.
Design + Preparation		
Role Play Discussing education	Trainees appreciated the iterative design process (learning about effective learning goals, writing	After teaching, several trainees noted that learning to design for

research	them, getting syllabus feedback, teaching and assessing, etc), working with teaching partners in a cohort, getting program mentor feedback, observations, and applying learning theory to a concrete task.	explicit (to them and students) learning goals with active verbs was crucial to their success.
Reflection		
Discussing education research Practice for undergrads Instructor feedback	The discussion of educational research and how it could be applied, paired with the program mentors teaching anecdotes, gave trainees an evidence-based foundation (that they sometimes didn't know existed). Trainees will use this to make choices in their teaching and will continue to rely on it as new research comes out. Trainees would like further support in pulling meaning out of student evaluations.	After teaching, trainees reported applying practical lessons from research in order to focus on students' goals and progress. It also helped them remember why active learning was better even when it seemed more difficult than lecture. Most had not had the opportunity to pull meaning out of student evaluations from their spring teaching at the time of the focus group.

Supplemental C: Themes in trainee enactment reflections

Supplemental C. Summary of qualitative data: Themes in program name trainee reflections on successful enactment of teaching practices			
Evidence of successful use of teaching practices trainees cited	Course features trainees related to these successes	Trainee reflections on their success	Trainee-identified next steps
• Participation rates • Quality of participation (engagement) • Student communication to instructor (re: trust, comparison with other classes) • Quality of student questions	• Defining expectations • Using active learning strategies to encourage participation • How to work within the institutions' constraints • Research that shows the effectiveness of strategies • Demonstrating utility (rather than work for grade) • Reducing cognitive burden	• These strategies were effective (based on evidence, compared to other classes) • These strategies led to novel results (students were more interested than gauged in class) • Trainees felt more confident to teach • Trainees felt they could build trust with students • Trainees and students enjoyed these strategies more than other traditional strategies	• What to try next • How to expand/improve a strategy • Where else to use what trainees learned (mentoring, office hours) • Meaningful questions that could be further explored

Supplemental D: Trainee enactment case studies

Supplemental D. Summary of qualitative data: Mini-case studies of program name trainees' reflection on their teaching experience	
Trainee-identified examples of a teaching strategy that worked well with students.	Brief summary of trainee's explanation about the strategy, what worked, evidence of success, how the course supported this strategy, and their conclusions/reflections for them and their students.
Asking students what they were nervous about, then addressing those concerns (about public speaking assignments) both directly and to the class.	One trainee sent out a survey to students including "What are you nervous about?" then responded by email to clarify the final assignment for a student who expressed nervousness about presenting. The trainee noted that they aimed to build trust and reduce cognitive load by clarifying the expectations and explaining the particular reasons they were asking students to practice the skill. The trainee got a very positive response from the student about the email (including the fact that the instructor even responded personally) and the trainee noticed that the students' class participation increased immediately after the exchange. The trainee noted that even when there aren't options for 1:1 conversations with students (after class or in office hours) email communication can be impactful for building trust and reducing cognitive load, both in student perception and behavior.
Case studies - using lecture to develop a narrative module collectives	To incorporate an active learning strategy one trainee walked students through a case study activity where each group was asked to put together a section of a narrative story in order to learn good communication strategies. They set clear expectations for the narrative strategies student groups could use. Each group had a short amount of time to do research and write a short section. This was good training for a later assignment to model for students that good communication doesn't require a lot of time, but requires being clear and concise. Formatting this as a collaborative group work activity where each group's work was related to others was compelling for students, they referenced how other groups' work made their own work more meaningful and referred to this activity throughout the quarter. The trainee reflected on the opportunities and challenges that come with open-ended activities where the expectations are clear but the content is not set. The trainee said that it was worth it to have students so engaged but it did present

	challenges for what I'm reading as the trainees staying on track with their learning goals ("so far from where we started").
Participation points to encourage attendance	One trainee drew on the concept of rewarding effort by giving participation points, which led to "butts in seats" and kept students on schedule with the material, during a quarter where attendance was a challenge across the board (COVID). The trainee valued the opportunity to practice rewarding effort in addition to or instead of achievement, especially in a math class where the focus is so typically on getting the right answers. They also noticed that their experience with STEP UP helped them navigate some of the institutional structures (e.g., the university has a cap on participation points, and does not allow attendance points). Finally they found that for them, poll everywhere was good for feedback or check-in questions but it was challenging to write higher-level thinking questions-- that instead, they prefer to ask students to turn in some application of the material-- a diagram, calculation, or write-up that better demonstrates student understanding and that they get credit for no matter what-- gives participation credit and keeps grading down.
Higher-level thinking learning goals	Another trainee was able to gauge student understanding by asking them to write questions for their peer's video projects. The trainee also implied reference to Bloom's and found that this activity provided them with evidence that students were able to synthesize material across classes and topics to ask questions that demonstrating critical thinking. A similar hypothesis writing activity was also successful in that students were able to write good hypotheses at the end. The trainee recognized that to some extent, a pre-assessment would make it possible to see how much students learned these skills over the course, but it also sounds like the activity provided evidence of student learning in terms of the quality of their questions.

Supplemental E: Sample undergraduate student reflections

Supplemental E.

Sample responses from undergraduate students who reported the program name trainee instructor had a positive impact on their wellbeing and confidence as a learner.

*"This class was equally inclusive and equitable in comparison to my other science classes. This quarter I have been lucky to be in classes that provide multiple opportunities for collaboration with others and sharing your thoughts. This class provided slightly more opportunities for active participation in comparison to my other science classes. **Something that worked for me was:** Discussing and formulating an answer with my group before sharing with the class. Every group was called on to participate so everyone had a chance to share their thoughts. Additionally, we broke out into groups to do an activity that I thought was very engaging and relevant to the lesson from today. The instructor carved out time and space to allow us to talk with our group after posing a question rather than cold-calling or expecting people to have an immediate answer. Yes [the instructor had an impact on my emotional wellbeing] and their impact was good. Being able to collaborate with my group greatly reduces my anxiety."*

*"Class is always very equitable, seeing as this is a biology-based course and we are majorly seniors graduating in science, it allows us to explore different topics within our scope of practice that may not have been discussed in previous courses. Visual representations were discussed today and whether the message was clear to its audience is a form of inclusivity and equity that science needs to capitalize on. In allowing us to perform these activities, it helps each of us practice that inclusivity and equity when sharing our message of the work we've done with others as well. In comparison, I think class provides useful opportunities [for participation] because as always we are able to talk amongst our groups to pool together our ideas and discuss what each figure meant. We were also able to openly share as some people may have noticed that I might have just shouted my answers out at one point. **Something that worked for me:** As always I prefer working as a team to pool ideas together but I enjoyed working with visual aids today as they really help solidify my thinking when generating concepts. [T]he instructors prepared the slides and had us work in teams to discuss what features of each visual representation were easy to understand and which were not. [The instructor had] a positive impact on my wellbeing, I really wish all instructors could be as great. The lessons that we go through each session boost my confidence as a learner and allow me to exercise my brain to think about these topics that I would not have considered prior."*

"My class was very equitable and inclusive. I'd say it's at about the same level as most of my other neuro department classes, all of my instructors have been very equitable and inclusive

in every course I've taken in the department. However, it was much more so than classes I've taken in other departments- mostly large courses like introductory bio, ochem, biochem, etc. as accommodations for those are absolute hell to get. Definitely more [participatory] than other non-seminars I've taken. There are more questions asked and less frantic note-taking on lecture material, but I think that that's mostly a product of it being a journal club/seminar and not a lecture section. **Something that worked for me:** A short break in the middle of section. I think all classes that are over an hour and a half long should be required to have at least a 5 min break in the middle. [The instructor] has the class take a break for 5-10 minutes in the middle of section, which is awesome because I have accommodations for class breaks and it means I don't have to miss content to take them. [The instructor] actually implemented the whole-class breaks after I let [them] know about my accommodation for them- it's nice to be able to take my break without having to get up in the middle of content and disappear for 10 minutes while my classmates are still there. And even though I have the accommodation, it still feels rude to my instructor to leave while they're teaching every single class, so having the break built in is awesome because I don't feel bad about taking the break I need. [My confidence as a learner was also impacted by these breaks.] Building certain accommodations into the class itself makes me feel like I actually belong in the class, which is nice and definitely helps against impostor syndrome."

"[This class is] more inclusive. [I] was called on by name so I felt like part of the learning conversation. [This class provided useful opportunities for active participation:] Asked to participate. Called on. Poll Everywhere. Information not just given. **Something that worked for me:** Open discussion to answer questions then provided more elaborate answers. Good to hear the thoughts of my peers rather than lectured information. [For my well being, it was] good to know that my teachers are well aware of individuals in the class and part of their background (like what other classes we take and the knowledge that we should have from that and know our names so it's personal engagement in a good way). [For my confidence as a learner,] it was nice to know that my prof intentionally called on me when no one answered since she thought I knew the answer (which I ended up knowing)."

"This class is much more inclusive and equitable than any other science class I have taken. I believe this is due to the much smaller class size and the fact that the teachers have most of their focus on this one class. The teachers do a great job of getting answers/responses from practically every student each day. They also include lots of small group break outs that get the students talking more in a smaller, less intimidating environment. This class does a better job than most on providing useful opportunities for active participation. They do this by taking answers from students at various points, having us break up into smaller groups and present information equally between all members in the group. Also they know our names, which is super cool. **Something that worked for me:** Brainstorming ideas with the class and teacher on the white board. [My instructor] made sure to ask for our thoughts when brainstorming. [In

terms of my wellbeing, their impact was] good, they call me by my NAME, which never happens in my bigger science classes. [The instructor] made me feel more confident, by always validating my ideas and appreciating my contributions. I really enjoy this class: the material, the size, the teachers, the other students.”

“[This class is] very inclusive, they always provide an opportunity for everyone to speak and our teachers come from diverse backgrounds. I would say it's similar [to other classes in terms of useful opportunities for my active participation,] maybe slightly more opportunities. Most of my classes except one are very heavily participation based. **Something that worked for me:** Great readings have consistently characterized this class, and then great discussion always follows. I love how this cycle is always followed by independent work and then an opportunity to present. Again, I think the use of deep specific global texts to introduce a larger problem paired with specific case studies really allows students in the classroom to have something to grab onto and engage. It also gives us enough to then apply that information to novel situations and practice our critical thinking. I wouldn't say our emotional wellbeing was a large factor, but I do feel like they have done a silent but very conscious effort to create what was previously referred to in my Biol 355 class as a "low stress learning environment. [In terms of my confidence as a learner,] I think feedback is objective and frequently given which allows me to know that I'm learning and headed in the right direction.”

“[This class] was much more inclusive. I liked how we worked in groups today and moved around. It was very easy to participate in class given we were moved around a lot and had lots of opportunities to participate in class. **Something that worked for me:** I liked the activities and group work. The activities that they planned worked well in groups and I was engaged the entire class. My instructor was concerned and also very helpful when it came to my emotional wellbeing today. I received an important call from work at the beginning of class and stepped out to take it. After returning to class my instructor made sure that I was okay and that I was able to continue class today. [In terms of my confidence as a learner,] I felt really prepared given the prep material and felt that I was very confident answering questions in class. I also like that we were able to talk with our groups before answering, it made me feel like we weren't just put on the spot.”