


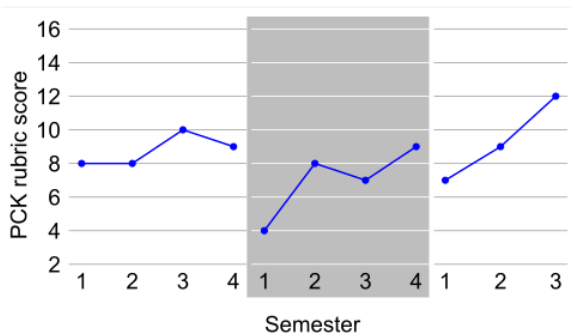
# Faculty develop teaching expertise...when they listen to students

 [#1845886: CAREER: Investigating knowledge for effective active-learning instruction in large undergraduate biology courses and how this knowledge develops](#)

## With experience, new faculty develop teaching expertise\* grounded in evidence of student thinking

\*This expertise is **pedagogical content knowledge (PCK)**. It is topic-specific knowledge about learning and teaching.

Three cases of early-career faculty show PCK development across semesters. **Some cases show more consistent growth.**



Each line = one faculty member over multiple semesters. Higher PCK score = more reliance on evidence from students.

## Some faculty intentionally seek out student thinking and some happen upon it.

There is **no substitute** for getting in the trenches there during class and **having lots of conversations with lots of groups.**



Created by Amethyst Studio from Noun Project

It's more so at the **office hours** that I get to **peek into individual student logic** behind how they're arriving at certain questions.



Created by Gan Khoon Lay from Noun Project


## Methods

Interviews

Mixed methods



Created by Cuputo from the Noun Project

- **Interviews** (with stimulated recall),  for the same lesson across semesters
- **Early-career biology faculty** in large classes using active learning
- **Qualitative content analysis** + data reduction with a **PCK rubric**.

## Challenge Overcome

Data sprawl

This project collected tons of data, including 36+ hours of interviews and video. We had to reduce the data using coding plus rubrics that quantified qualitative data AND pair it with case study analysis to retain the richness of the data. Honing in on key findings has been a slow process.