Teaching Practices Among Instructors of a Hispanic-Serving Institution

Téa Pusey[1], Jourjina Alkhouri[2], Cristine Donham[2], Adriana Signorini[3], Petra Kranzfelder[2]
Sociology[1], Molecular Cellular Biology[2], Center for Engaged Teaching and Learning[3]
University of California, Merced

Introduction

- Previous research from North American universities suggests that a "student-centered" approach is the most effective way to teach STEM courses.[1]
- Research suggests that Hispanic and other underrepresented students do not receive the same educational experiences in STEM.[2]
- Classroom Observation Protocol for Undergraduate Students (COPUS) is a tool used for assessing instructional practices and student behaviors.
  - The 12 instructor COPUS codes can be collapsed into 4 collapsed codes[3]:

Presenting | Guiding | Administering | Other

Research Questions

- Do the teaching practices at an HSI university take a student-centered approach to STEM instruction?
- How do student-centered approaches differ across STEM discipline, instructional types, teaching experience, and class size?

Methods

Teaching Population

- 35 instructors were observed teaching 74 STEM courses: Biology, Chemistry, and Other STEM courses (QSB, Environmental Sciences, Engineering, Mathematics, and Physics).

Classroom Observations

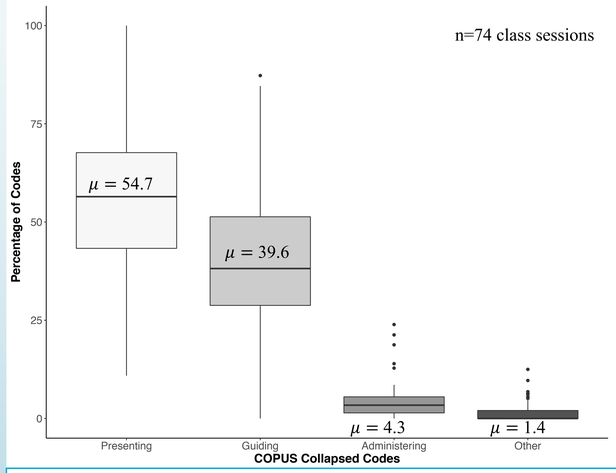
- Lectures observed between Fall 2018 - Spring 2020
  - 1-3 observations per instructor
  - All observations were face-to-face instruction

Data Analysis

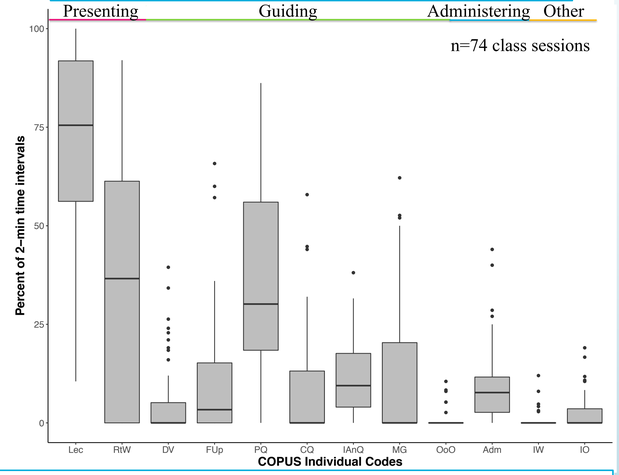
- COPUS codes were analyzed two different ways:
  1. Percent of code
     - We took the sum one code in a class period and divided it by the total number of codes counted in the class session.
  2. Percent of time
     - We took the sum of the 2-minute intervals in which a code appeared and divided it by the total number of 2-minute intervals in the class session.

Results

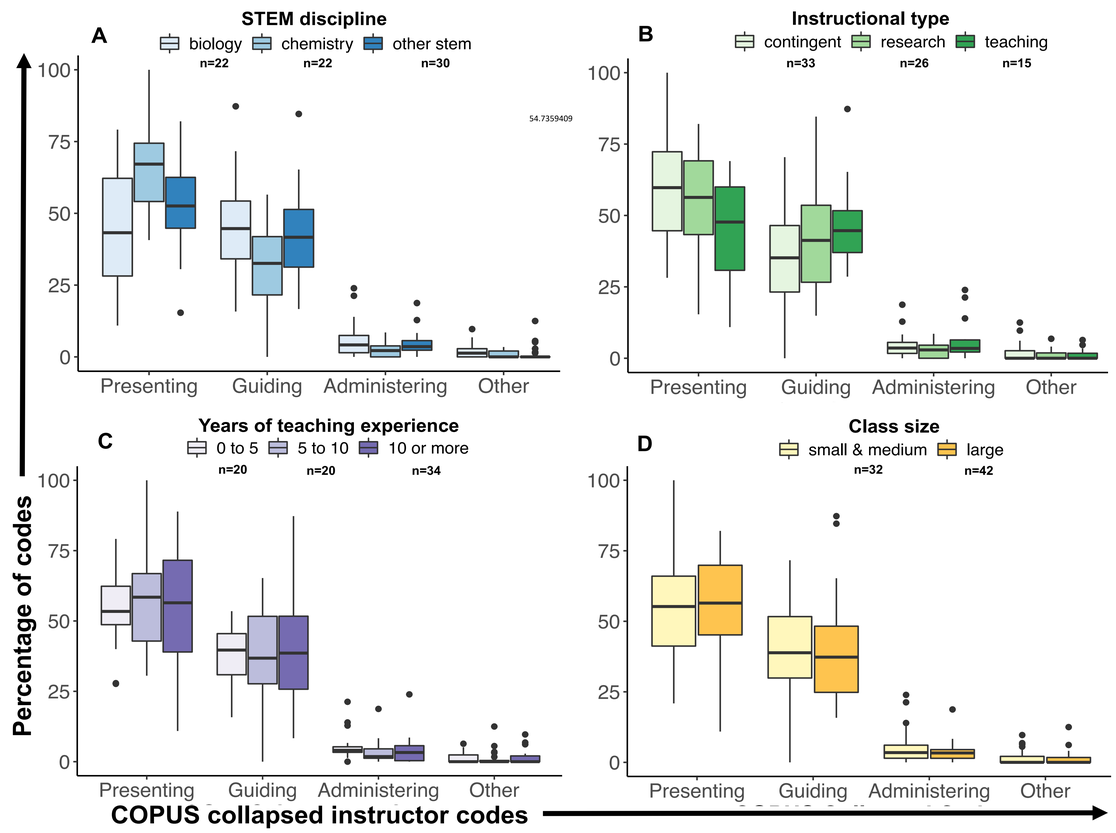
Instructors are presenting majority of their lecture



Instructors are lecturing for most of the class



Instructors across disciplines, instructional types, years of teaching experience, and class size mostly present their lecture content



Discussion

- While instructors are mostly lecturing, they are including some active learning into their lecture.
- Chemistry presents the most of the three STEM disciplines.
- Teaching instructors are more likely to guide compared to their counterparts.
- STEM instructors need to create more student-centered activities to support an active learning classroom.
- In the future, we hope to analyze if these instructional practices change during emergency remote instruction.

Acknowledgements

I would like to thank everyone in the Kranzfelder lab; Namitha Bhat, Alexander Stivers, Wesley Alejandro, as well as Tin Eric Tran and Marcos E. García-Ojeda for guiding me through this research. I would also like to thank SURF coordinator Jorge Arroyo and my SURF mentor Tashelle Wright for their guidance throughout my time in SURF. Additionally, I would like to thank Students Assessing Teaching and Learning (SATAL) students for collecting our data. The data collection was funded by NSF HSI Award #1832538 and Howard Hughes Medical Institute (HHMI) Award # GT11066. This was approved by IRB: UCM 2020-3.

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4. teacher teaching by ProSymbols from the Noun Project

Supplemental Data

COPUS code definitions, student data, and more can be found here

Let's Connect!

Email: tpusey@ucmerced.edu
LinkedIn: linkedin.com/in/teapusey