



# Inclusive teaching practices and culturally responsive science teaching in graduate teaching assistants: A qualitative analysis

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## Introduction

### Background

- Culturally responsive science teaching (CRST) is a pedagogical approach based on student empowerment, cultural competence, and sociopolitical consciousness (Ladson-Billings, 1995)
- CRST may be used to mitigate the effect of sociostructural disparity and systemic oppression on historically marginalized students in science classrooms (Barron et al., 2021)
- CRST and other culturally-centered pedagogies have been linked with improved student outcomes including student empowerment, self-efficacy, and ethnic and academic identity (Aronson & Laughter, 2016)
- The purpose of the study is to assess whether graduate teaching assistants (TAs) in college science are familiar with and prepared to engage in CRST as needed.

### Research Questions

- How do TAs describe their barriers regarding inclusive teaching practices and CRST before and after receiving relevant training?
- How do TAs describe using inclusive teaching practices and CRST before and after receiving relevant training?

## Method

- Data were collected at UC Merced, a large, research-intensive Minority-Serving Institution.
- Participants included  $n = 5$  graduate teaching assistants enrolled in a professional development course
- Participants received two training sessions on inclusive teaching practices and CRST adapted from Barron and colleagues (2021)
- Participants completed surveys and written teaching reflections before and after receiving training sessions.
  - Briefly describe how you use inclusive teaching practices/CRST
  - Briefly describe what you see as barriers to using inclusive teaching practices/CRST
- Inductive, open-coding (Saldaña, 2015) was used to analyze data

## Results\*

**TAs reported their own implicit biases, lack of knowledge, and navigation of power dynamics as barriers to inclusive teaching practices & CRST before the intervention.**

Code	Implicit biases	Lack of knowledge	Navigation of power dynamics
Example	"We have the tendency to rationalize from our own perspective; <b>we have our own cultural/gender biases.</b> " Mateo Hernandez, ITP	"I think I <b>have a barrier to really understanding "inclusive teaching practices"</b> . For clear understanding, is this in regards to just how you teach or is it the effort of making all of your students from different backgrounds be heard?" Lizzie Haas, ITP	"I could also see positionality being difficult to navigate, like if you're a white teacher teaching largely non-white students or teaching students with a large class disparity, <b>the power dynamics may make it more difficult for students to trust.</b> " Noah Aaberg, CRST

**TAs reported using inclusive teaching practices and CRST through getting to know their students, connecting curricula with real-world events, and modeling vulnerability before the intervention.**

Code	Getting to know students	Connecting real-world events	Modeling vulnerability
Example	"I typically use index cards that <b>I have them fill out with their name, nickname, preferred pronouns, their major, and an interesting fact about themselves.</b> " Solaris Mendoza, ITP	"We have students look up <b>current issues in sustainability and connect it to scientific publications.</b> " Kendall Doyle, CRST	"So when I don't know something <b>I directly say 'I have no idea, let's look it up'</b> and I think that eases pressure off of them thinking that they should know it." Lizzie Haas, CRST

**TAs most commonly reported fear of student exclusion, lack of time, and increased effort as barriers to inclusive teaching practices & CRST after the intervention.**

Code	Fear of exclusion	Lack of time	Increased effort
Example	"My biggest barrier to inclusive teaching is <b>the struggle I feel exists in one aspect that then contributes to being exclusive in another aspect.</b> " Kendall Doyle, ITP	"I think the biggest barrier I have experienced is the <b>time it takes to cultivate and integrate inclusive teaching practices fully into curriculum.</b> " Solaris Mendoza, ITP	"Because the field is still generally not centered on CRST practices, <b>it might mean more building classes from scratch rather than relying on other templates</b> , which may be difficult for new teachers." Mateo Hernandez, CRST

**TAs most commonly reported using inclusive teaching practices and CRST through soliciting student feedback, learning students' personal information, and creating various means of assessment after the intervention.**

Code	Solicit student feedback	Learn student information	Vary assessment
Example	"I also usually <b>do a mid-semester survey check with them to incorporate their suggestions</b> or make necessary changes." Noah Aaberg, ITP	"I would <b>make the effort to learn about the background of my students.</b> " Lizzie Haas, CRST	"We try to use these techniques to <b>emphasize the importance of learning and utilizing topics rather than memorizing for a temporary grade.</b> " Kendall Doyle, CRST

\*All participant names were changed to maintain anonymity

## Discussion

### Conclusions

- Graduate TAs report more intentional and targeted use of inclusive teaching practices and CRST following intervention
- Graduate TAs report specific barriers to use of inclusive teaching practices and CRST due to increased knowledge following intervention

### Implications

- These findings suggest that even short interventions may bolster graduate TAs beliefs and behaviors regarding inclusive teaching practices and CRST

### Future directions

- Complete consensus coding with second coder
- Use findings to inform larger study

## References

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