

Engaging Preservice Elementary Teachers in Statistical Investigations of Systemic Racism in School Discipline Data

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In this poster, we share preservice elementary teachers' (PSTs') initial noticings during exploratory data analysis of materials focused on developing content knowledge of statistics as well as normalizing conversations of race in math class. The content covered is typically included in college-level introduction to statistics courses. We summarize PSTs' noticings and wonderings of an interactive data dashboard presenting racial disparities in school discipline.

Racial disparities in school discipline are a significant issue with lasting effects (Huang, 2018; ProPublica, 2023). To illustrate, Black students are suspended at a rate three times higher than their white counterparts (USDEOCR, 2014). These disparities are rooted in prevailing racial narratives that influence teachers' perceptions of Black, Indigenous, and People of Color (BIPOC) students and impact their math identities (Aguirre et al., 2013). Implicit biases may help explain these disciplinary disparities (Gilliam et al., 2016). Since about 80% of U.S. teachers are white, we must raise awareness of these disparities (NCES, 2023).

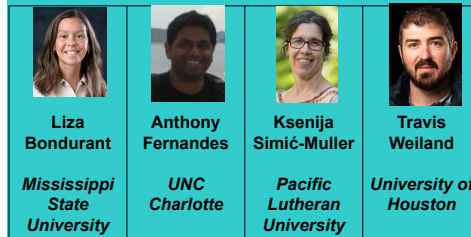
Inspired by Paulo Freire's critical pedagogy, we focused on critical thinking, empowerment, social justice, and collaborative dialogue to engage PSTs in addressing this issue (Freire, 2004). We developed instructional activities for secondary PSTs, combining statistical investigations with social justice concepts, contributing to the growing body of work on using data analysis to examine social justice issues (Bondurant et al., 2022; Casey et al., 2023). After implementing, we adapted it for elementary PSTs, emphasizing elementary math content and pedagogy, specifically operations with fractions, decimals, and percentages, and utilizing virtual manipulatives to teach math concepts (Suh & Roscioli, 2023).

This poster delves into elementary PSTs' initial observations of an interactive data dashboard focusing on racial disparities in school discipline. We aimed to answer the research question: When presented with such data, what aspects of racial disparities do PSTs notice? Using open coding, we identified themes in PSTs' responses, highlighted representative quotes, and determined frequencies for each theme (Corbin & Strauss, 2014). The findings revealed four key themes in PSTs' responses: "Personal connections" encompassed experiences as students or school employees; "Academics" focused on course offerings, graduation rates, and standardized test scores; and "Discipline" involved comments about behavior, classroom management, and suspension data. Surprisingly, only one PST mentioned discipline, and none discussed racial disparities. We employed nudges in the form of assessing and advancing questions to guide PSTs' attention toward racial disparities (e.g., "What do you notice about the suspension rates of Black and white students and why might this be?"). The impact of these nudges was not within the scope of this poster. Our findings suggest that PSTs may be uncomfortable discussing race and discipline or may not perceive them as relevant to their role as math teachers. These findings point to a need for math teacher educators (MTEs) to explicitly connect mathematics topics with social justice issues (Conway et al., 2022). Future research could explore the impact of different nudging techniques in this context.

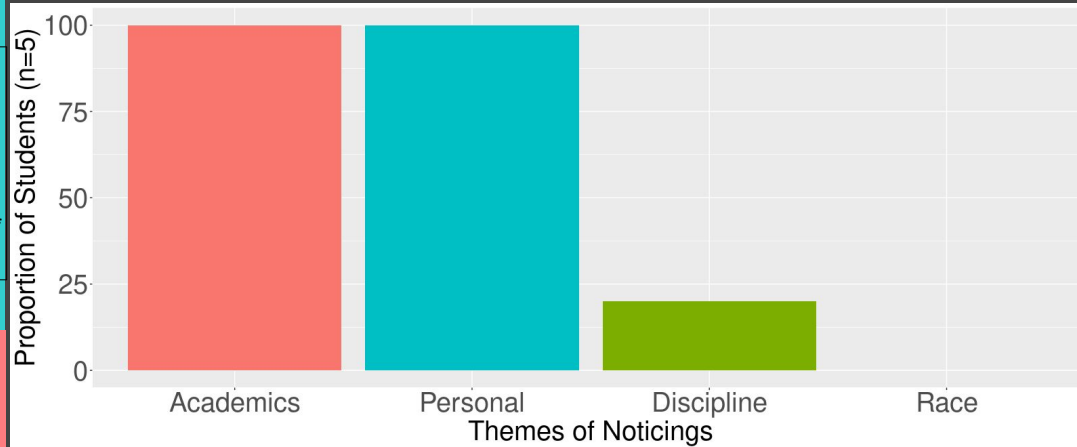
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ENGAGING PRESERVICE
MATHS TEACHERS in
STATS
INVESTIGATIONS of
SYSTEMIC RACISM in
DISCIPLINE DATA



*When presented with an
interactive data dashboard on
racial disparities in school discipline,
what do five elementary preservice
math teachers notice?*



“I have always wanted to work there because of the environment, salary, and educational opportunities.”

“I don't think a test score is appropriate for a child to pass or fail.”

Potential reasons for avoidance

- fear
- denial
- acceptance

How to mitigate?

- relate to other marginalized identity markers
- Direct task goals specifically to considering race

Not Racial Disparities



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