

ACTIVITY 5.2: COACHING INQUIRY BRIEF DEVELOPMENT

Providing feedback to another teacher researcher is an essential part of the inquiry process. The probing that can occur by having a critical friend who is capable of pushing your thinking is a luxury that is typically celebrated by accomplished teacher researchers. For teacher candidates, this critical friend might be their instructor or mentor teacher, or even a peer who is also learning to teach through inquiry. For practicing teachers, this might be another teacher, an administrator, a university partner, a parent, or perhaps even a student. For this activity, review an inquiry brief created for an introductory course on teacher research by mathematics teacher Daniella Suárez and the bubble comments provided by Daniella's faculty instructor, Gage Jeter. Answer the following questions:

1. What is the nature of the comments that Gage is making?
2. What types of questions is Gage asking?
3. Do the comments reflect a coaching or an evaluation approach to feedback? Explain your answer.
4. What other questions might you have asked Daniella?
5. What important lessons have you learned about providing feedback to others on their plans for inquiry by reviewing this interaction between Daniella and her inquiry coach, Gage?

Inquiry Brief

Purpose:

The purpose of this inquiry is to explore how to teach mathematics through a social justice lens and how to measure the impact of this approach on students. Gustein (2003) explains that mathematics can be used to understand power relations, resource inequities, and disparate opportunities within different groups of people. He insists that math can be used to explore phenomena in students' lives as well as in our broader society. Lucey and Tanase (2012) cite that in order for the conversation around math and social justice to begin, students must be treated with basic dignity so that they can engage in inquiry processes where they analyze and develop solutions to the problems they have been presented. Those authors also cite "democratic mathematics" and "critical mathematics" as ways to address social justice in the classroom. While the authors define these briefly, these are issues I think I may want to explore in more detail, because they both center around responsive and cross-curricular teaching.

Teachers must pose questions for students to wrestle with issues of social justice in the world surrounding us. Teaching with a social justice lens allows students to understand their own cultural and social identities by validating the language and culture that they contribute to our larger society (Gustein, 2003). Mamolo and Pinto (2015) argue that one must not be "value neutral" when it comes to teaching math simply to avoid controversy, but to take a stance to extend possibilities for student development, connecting students to view mathematics as a way to make sense of the world around us. Lastly, McGee and Hostetler (2014) confirm that low-income, inner-city, and rural students have fewer opportunities to experience success in mathematics, which confirms my desire to work with the population of students that I work with. They too, like Manolo and Pinto (2015) say that teaching math for social justice includes "increased participation in mathematics courses, leading to greater access to higher education and the workforce" (p. 213).

My wondering emerges because when teaching the higher-level maths, calculus and trigonometry, I am often at a loss as to how to tie these in to liberatory practice and critical pedagogy. A lot of the examples that we get on incorporating social justice into the classroom come from a social studies or English language arts lens, or are meant for younger kids. I want my students to be able to see math as a means to solve problems that help others. I know that many of my students will possibly never use this math again,

Commented [GJ1]: I almost see this as two inquiry cycles: 1) How do I design/facilitate these experiences? 2) How do these experiences impact students?

Commented [GJ2]: A particular strength of these introductory paragraphs is the way in which you situate your own inquiry within the existing literature. I so appreciate how you spend some time discussing what other scholars have to say about math and social justice. This really lays a solid foundation for your own work and frames your wondering in a way that is grounded in existing research.

Commented [GJ3]: Nice job crafting this inverted pyramid in which you discuss the bigger picture and funnel down into your own wondering.

so how can I teach math in a way that connects the math concepts students are learning to the ideas of social justice? Do students feel empowered by the math that they are learning to work towards social justice?

Research Question:

How can I teach my statistics units in a way that fosters social justice within my students?

Subquestions:

What does teaching with a social justice lens look like?

What do students think that learning via social justice looks like?

How am I considering student identities in my mathematics teaching?

How are students articulating their own identities within the context of learning mathematics?

How are students' mindsets about statistics shifting over time?

Can sociopolitical consciousness be measured, and, if so, who should do the measuring?

Context:

This study will take place within a Title I High School, where 42% of the student population identifies as Black, 32% identify as Latino, and 18% of students identify as White. The research will take place in an International Baccalaureate (IB) math class of 16 students who are all juniors in the first year of the diploma program. I see this group of students every day for 90 minutes. Some students are in the standard-level track and others are in the higher-level track. Some students have not passed the Algebra 1 EOC (state assessment) while others have received perfect scores on their Reading FSA (state assessment). Seven of the students identify as female and the other nine students identify as male. Twelve of the sixteen students identify as students of color.

Commented [GJ4]: After reading your brief in its entirety, I feel as though you can check this question off. You have many good ideas in place for teaching math connected to social justice issues. So, I wonder if your inquiry focuses more explicitly on your students' experiences with the type of teaching you're enacting.

Commented [GJ5]: Based on what I've read in your methods section, I wonder (no pun intended) if your question might focus more on your students' learning/experiences and less on your teaching. So, the question might instead center on how students experience a statistics unit that explicitly integrates social justice components? (Not this wording exactly – I think you can better craft a wondering that fits your methods more tightly.)

Commented [GJ6]: I appreciate your detailed description of the setting and your students. To think about ALL aspects of your teaching context, I wonder if you might enter the conversation more directly here, too. What about you – personally and professionally – matters for this particular inquiry? This might better situate your inquiry.

Methods:

As mentioned, I will work with my first-year IB math class. Students already have a structure in place called TOK [Theory of Knowledge] Friday, where we explore math as it relates to other areas of discipline. I keep track of their participation and debrief with them individually the following week. I will be sure to video TOK Friday and to keep track of anecdotal notes from individual student conferences.

Additionally, students will be charged with working on several inquiry questions that apply the statistics that they are learning to issues of social justice and inequities around them. Students will use what they learned about normal distributions to explore differences in human development statistics, such as infant mortality rates; and access to resources, such as health care, in the Americas. Students will examine outliers and ideally pose questions as to what they are seeing, then begin researching to explain the data that they're seeing, pose additional questions, and posit possible solutions. I will examine student work samples with a rubric borrowed from Teach for America that provides some language surrounding sociopolitical consciousness and identity, diversity, justice, and action.

Students will also take pre- and postsurveys via a Google Form to determine their level of knowledge on the issues we are tackling in class, and their level of thinking as to what they can do about it. I will ask them to self-report any changes in mathematical mindsets (Gustein, 2003).

Data Collection:

[Documents/Artifacts/Student Work](#)

[Notes from Student Conferences](#)

[Video](#)

[Student Surveys \(Appendix 1\)](#)

Reflective journal on the adaptations I am incorporating into my practice

Commented [GJ7]: Wow – so lucky for you and your students that this structure exists!

Commented [GJ8]: I appreciate you using multiple forms of data to gain insights into your wondering. These data collection strategies really put students at the center of your inquiry – a smart move. It keeps me wondering about your main question and how it might be more focused on your students themselves. Take a close, critical look at your data collection strategies to be sure that they align explicitly with your wondering and all other components of your inquiry plan.

Calendar:

Date	Activities/Data Collection	Data Analysis
October 22–26	Draft survey, distribute presurveys in class (Appendix 1), determine TOK Friday topic, conduct a TOK Friday.	Analyze video for themes that emerge, student participation, and language to address social issues brought up on TOK Friday; analyze presurveys for themes and common language.
October 29–November 2	Conduct individual debriefs and take anecdotal notes, incorporate conversation feedback <i>and</i> data from video and survey analysis into inquiry question introduction and next TOK Friday, write/explore possible adaptations in reflective journal and thoughts on sociopolitical consciousness.	Analyze conference notes for trends and themes.
November 5–9	Introduce inquiry questions (Appendix 2), have students work on their research, conduct a TOK Friday video, and take anecdotal notes.	Analyze video for themes that emerge, student participation, and language to address social issues brought up on TOK Friday.
November 12–16	Have students work on inquiry question, conduct individual debriefs, adapt individual conversations based on TOK Friday video notes, decide if any adaptations need to happen; if so, journal these as well as thoughts on sociopolitical consciousness.	Analyze conference notes for trends and themes.

Commented [G19]: These data collection/analysis strategies seem doable in the given time frame. I'm excited to see what you discover about your teaching and your students' learning from this inquiry!

November 19–23	Examine student responses to inquiry questions, score against Teach for America rubric (Appendix 3), and journal thoughts on sociopolitical consciousness.	Analyze projects for the language students use to report their results, similar to how Gustein (2003) reports having done in his work.
November 26–30	Conduct postsurvey (Appendix 4), conduct debriefs with students based on survey and TFA rubric results, take anecdotal notes.	Analyze data for shifts in attitudes with students, analyze notes about debriefs with students and compare to earlier weeks. Where were there changes? Where were there no changes?

References

- Gustein, E. (2003). Teaching and learning mathematics for social justice in an urban, Latino school. *Journal for Research in Mathematics Education*, 34(1), 37–73.
- Lucey, T. A., & Tanase, M. (2012). Making learning to problem-solve count: Critical use of mathematics to bring about social justice. *Multicultural Education*, 13(4), 8–13.
- Mamolo, A., & Pinto, L. E. (2015). Risks worth taking? Social risks and the mathematics teacher. *The Mathematics Enthusiast*, 12(1), 85–94.
- McGee, E. O., & Hostetler, A. L. (2014). Historicizing mathematics and mathematizing social studies for social justice: A call for integration. *Equity & Excellence in Education*, 47(2), 208–229.