

That's My Job!: A Preliminary Analysis of How Mathematicians View Teaching

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As a person engages in the act of teaching, they make numerous decisions before, during, and after the instructional period. In making these decisions, teachers (mathematicians in our case) justify their decisions based on their perceptions of their obligations. For example, Fukawa-Connelly, et al. (2016) found that most mathematicians choose to lecture. Others, such as Woods and Weber (2020) corroborated these findings and suggested that lecture best served various goals such as the goal to cover certain content. While mathematicians engage in large scale decision making (such as lecturing), they also engage in smaller scale curricular decisions such as content ordering (e.g., Mirin and Rupnow, 2022). While research has started addressing why mathematicians make specific decisions, we began to ask the question, how do mathematicians conceptualize teaching and their role in the process—specifically which aspects of teaching and learning do mathematicians view as their responsibility and which aspects of teaching and learning are put on the student?

In this poster, we report on our initial steps towards addressing this question. Specifically, we report on our preliminary analysis of 14 mathematicians' answer to the questions: *What do you view as your role in teaching [abstract algebra]? What do you view as the students' role in learning [abstract algebra]?* The data originated from a larger dissertation study focused on pedagogical decision making in Abstract Algebra. Of these mathematicians, 4 self-identified as taking an inquiry-oriented approach, while 10 self-identified as taking a lecture-based approach. Each author independently conducted thematic analysis on the instructor role and student role questions. We then compared our themes and came to a consensus through discussion. We noticed six themes across how mathematicians conceptualized their role and four themes in how they viewed the role of students. From the instructors' view, the role of the instructor is: to spend time outside of class preparing for class and grading, to ensure that content moves forward within the class time frame, to inform overall trajectory of course content, to steward the discipline of mathematics - that entails providing correct information and fostering disciplinary norms, to spark students' interest in mathematics in order to motivate them to learn the math, to adhere to institutional guidelines. From the instructors' view, the role of the student is: to engage with the materials that I provide, engage with materials that I provide outside of class, to engage in self-exploration of the content, to positively interact with their peers.

We noticed that given information about how the instructor viewed their role, we could see who did or who did not identify as inquiry-oriented, with some exception. However, we noticed that there was no clear pattern in the relationship between instructional choice and how the instructor viewed the role of the student. This result is intriguing considering students tend to engage in different activities in IO classes compared to lecture based classes. This leads us to wonder if those patterns would hold true with more data. For this poster, we will report the results of our pilot analysis and present a study design which seeks to further address our research question.

References

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