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**Mathematics**

# Using Fiction to Uncover the Facts of Equity in Math

## The Challenge

Mathematics courses are not typically the locations of open conversations about equity and identity, in part because mathematicians claim that “math is universal.” Yet there is a difficult history of how privilege interacts with access to mathematics education lying beneath the surface of most students’ understandings of what mathematics is. I wanted to provide space in my Mathematics Through Fiction course to unpack this reality and how it relates to students’ mathematical identities. Since my course accessed math-related topics through fiction, I sought to explore *how critical reading and discussion of mathematical fiction can encourage discourse around equity issues in mathematics.*

## The Approach

I assigned the Martin Gardner short story, “Against the Odds,” which tells about a mathematically talented African-American student in Kansas during the early years of public school desegregation. The student becomes a great mathematician despite the racist beliefs of his math teacher. Students read the short story with a few redactions: the author’s name, evidence of the publication date and location, and the only date in the story that might locate when it took place. They, reflected individually on their initial response to the story, then worked in small groups to come up with a profile of the author based upon the information they could glean from the piece. Their profiles asked them to determine social identifiers such as age, race/ethnicity, class, gender, religion, and profession of the author, as well as conjecture why the piece was written and when. Profiles were presented to the class and compared to note contrasts and similarities from different groups, focusing on why students made their conclusions. Next, students were given the previously redacted information about the author/story to challenge the assumptions they had made. While students believed the piece was written in the 1960s or 1970s, it was written in 2001 in a journal for mathematicians; while the hero in the piece won the Fields Medal, to date, no African-American has won this award. The activity closed with written reflections on why these disparities existed, how they learned from the activity, and what it led them to wonder about.

## How it Went

Students saw the story as pointing out injustice (racism holding back students of color in mathematics) that they did not expect still occurs. A class norm, that anyone can do mathematics, had been confronted and challenged in the activity, and they felt called to act. The identity of the author and audience impacted the message received.

## Advice for Others

Safe and respectful conversation on the topics of race and equality was an essential norm for this activity. We had been building our community and attending to norms of inclusion and respect for six weeks when they began the assignment, but still I warned students in advance that we would be encountering a story with racism in it. This activity should be framed with an agreement of mutual trust.

Additionally, facilitation was challenging as I sought to listen to and contrast how students came up with different analyses without providing judgment as to which perspectives I agreed with. To mitigate this, I put the responsibility on students to determine why they had been given the assignment and what they guessed my reaction had been to the piece as part of their reflections. This led to some of the most fruitful takeaways for me as an instructor as to how they had learned from the exercise.

Stories and other works of fiction provide insight into how the author and intended audience view the world or how it should be. They make space to discuss equity issues when the identities of the characters shape their outcomes, and by interrogating those identities, we confront bias and aspire to inclusion.



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