

Editor's Perspective Article: Using the History of Mathematics to Motivate Students in the Classroom

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Abstract

The focus in this issue's first Editor's Perspective article is using the history of mathematics to motivate students in the classroom. I have been integrating the history of mathematics into my mathematics methods course over the last six years with New York City Teaching Fellows (NYCTF). In this article, I reflect upon some of the ideas from this process.

Keywords: history of mathematics, motivation, alternative certification

The views expressed in this article are the editor's views and do not necessarily reflect the views of the National Association for Alternative Certification.

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In the last issue, I had given some background on my work with New York City Teaching Fellows (NYCTF) alternative certification program in the context of culturally responsive pedagogy (Evans, 2019). I had indicated that for nearly 12 years, I have been a professor at Pace University in the School of Education in New York City, and that a large percentage of the graduate students in the School of Education are in the NYCTF program, which prepares teachers through an alternative certification program to teach in New York City public schools (NYCTF, 2018a). The Teaching Fellows make up approximately 12 percent of New York City active teachers (NYCTF, 2018b).

In this article, I present some of the work I have been doing over the last six years to integrate the history of mathematics into my mathematics teaching methods class that Teaching Fellows take within the childhood education (i.e., elementary education) program. I began teaching a history of mathematics undergraduate course to students in mathematics adolescent education and childhood education with mathematics concentration, among other majors, in 2011. In 2014, I published my mathematics history book with Wiley (Evans, 2014), *The Development of Mathematics throughout the Centuries: A Brief History in a Cultural Context*. The purpose of this book was to provide students with a reasonably-sized book, in this case not much more than 200 pages, that would be readable, practical, and underscore the various cultural contributions to mathematics throughout the centuries. My two-fold purpose for my students was to help them understand the development of mathematics from a diverse perspective, and to provide them with the connections, stories, and legends in mathematics to motivate their own students in the classroom. We start the course in Sub-Saharan Africa tens of thousands of years ago with the first known mathematics artifacts such as the Lebombo and Ishango bones, which are tally sticks, created by early humans using the calf bone from a baboon to indicate the lunar cycle of the month. We start there and then travel forward throughout the centuries exploring the diverse contributions to mathematics around the world.

I wanted my undergraduates to understand the history of mathematics, but more importantly, I wanted them to use it in their classrooms. This purpose had led me to think about the students in the alternative certification students at my university, which is the NYCTF program. Over the six years, I have been working to integrate the history of mathematics into my mathematics methods class, which includes students in the Teaching Fellows program along with non-alterative certification masters degree preservice teachers. The course is designed primarily as a methods course for elementary school mathematics, and the approach is one in which students learn about teaching mathematics from a student-centered constructivist approach using culturally responsive pedagogy and teaching mathematics for conceptual understanding, rather than only focusing on procedural and computational methods.

I began using class time to discuss some of the concepts in an historical context and to help the teachers use the stories and legends in mathematics history, along with placing a human face, albeit through diversity, in order to motivate students to want to learn mathematics. The driving theme behind this is to help students see that mathematics is not restricted to one type of group or person, but rather, mathematics has been developed by people from all over the world. This helps students to see themselves as part of the mathematical process, and to see that mathematics is for them too.

I have been refining my approach to integrating the history of mathematics into my mathematics methods class now for six years. I feel that I have made a good balance between this topic and the other competing elements in the course that we need to address. The idea that developed over the time I have been doing this work has been to integrate history throughout the course, and to connect this history to content and methods we do in this course. Additionally, this is related to the integration of culturally responsive pedagogy approach that I had articulated in the last issue (Evans, 2019), which is also connected to history and diversity with the idea that mathematics is for all students from all backgrounds.

References

- Evans, B. R. (2014). *The development of mathematics throughout the centuries: A brief history of mathematics in a cultural context*. Hoboken, NJ: Wiley.
- Evans, B. R. (2019). Culturally Responsive Pedagogy within alternative certification teacher preparation. *Journal of the National Association for Alternative Certification*, 14(1), 43-46.
- New York City Teaching Fellows. (2018a). *Our vision*. Retrieved from <https://nycteachingfellows.org/our-vision>
- New York City Teaching Fellows. (2018b). *Our impact*. Retrieved from <https://nycteachingfellows.org/our-impact>