

A CASE FOR ETHNOMATHEMATICS

ADEM ADJAHOTO
CRITICAL TEACHER PROJECT
APRIL 2021

A Case for Ethnomathematics

“There’s no such thing as neutral education. Education either functions as an instrument to bring about conformity or freedom.” – Paulo Freire

As a future teacher, I am inspired by educator and philosopher, Paulo Freire’s words about the role of education in our society. Freire states, “There’s no such thing as neutral education. Education either functions as an instrument to bring about conformity or freedom.” Historically, educational institutions have played a significant role in the way society views certain cultures and peoples. In recent years, there has been much debate about low math test scores. Specifically, the role of standardized tests in the educational system. Now more than ever, I believe that there should be re-examination of how math is taught to students. One way to do so is through the inclusion of ethnomathematics into the classroom and curriculum. In this paper, I will examine the importance of ethnomathematics in making math more inclusive to students, especially racialized students.

Coined in the 1960s by Brazilian mathematician, Ubiratan D’Ambrosio, ethnomathematics examines the intersection between culture and mathematics. According to D’Ambrosio, “Mathematics is absolutely integrated with Western civilization, which conquered and dominated the entire world. The only possibility of building up a planetary civilization depends on restoring the dignity of the losers and, together, winners and losers, moving into the new. [Ethnomathematics, then, is] a step towards peace.” (Greene, 2000). Culture encompasses a system of norms and values of a group people such as language, religion, customs, art, and music. Ethnomathematics looks at how mathematics is used in different cultures through their traditions and belief systems.





I believe that ethnomathematics should be incorporated in the classroom. Students should have the opportunity to explore mathematics through diverse perspectives. In my personal experience as a student, I found that all subject areas, especially math, focused only on the contributions of Western mathematicians. Ascher states, "This broadening of perspective to include other cultures has the associated effect of enlarging the history of mathematics from dealing primarily with the Western professional class called mathematicians to involving all sorts of people." (Ascher, 1991).

In an increasingly diverse country and world, students must have the opportunity to explore math from a global and cross-curricular lens. The inclusion of "ethnomathematics" would help in the fight for a more inclusive and equitable education system. Students should learn about the Indigenous mathematics, which can be applied to any strands of the Ontario math curriculum. In his lecture, "What is Indigenous Mathematics?", Dr. Doolittle argues that Indigenous people have elements of math in their cultural traditions and knowledge. According to Dr. Doolittle, the aspects of Indigenous mathematics includes creation, mathematics, culture, applied mathematics, contact, reconciliation, contemporary issues, and educations. (Doolittle, 2018). All these eight elements must be considered when examining Indigenous mathematics. Such lessons can also be tied to other subject areas such as language, history, geography, and art. Ethnomathematics would also provide space for the inclusion of diverse mathematical perspectives from around the world. Our society's definition of math and who can be a mathematician must evolve. Elements of math can be found in all cultures and traditions. I was recently inspired by Gholdy Muhammad's math unit on the Fabric Map of Africa. Created by Priya Shah, the Fabric Map of Africa showcases the diversity of African textiles and patterns. Muhammad's unit plan explores themes of identity and culture. In addition, to the application of mathematical concepts such as geometry.



One of the aims of the new Ontario math curriculum is to provide more real-life connections to the function of math in our daily lives. According to the Ministry of Education, “Teachers also learn about student’ identities, identifications, and/or affiliations and build on students’ ideas, questions, and interests to support the development of an engaging mathematics classroom community.” (Ontario Ministry of Education, 2020). As teachers, we should adapt our lessons to meet the needs of our students. In the case of math, students should have their culture reflected in their learning. Incorporating ethnomathematics will help to increase the engagement of students who are struggling to connect with mathematics. In addition, ethnomathematics can help society re-examine who is considered a good ‘math’ student and who is not. A 2017 study found that Black students are disproportionately streamed to applied courses compared to other students. According to James and Turner, 39% of Black students in the Toronto School Board were registered to Applied courses, in comparison to 18% of other racialized students and 16% of white students. In contrast, 53% of Black students were in Academic courses, compared to 80% other racialized students and 81% of white students. (James & Turner, 2017). As we continue to work towards a more equitable society, we must re-examine how we teach mathematics. We must re-examine the streaming of racialized students, especially in math. Like all other subject areas, mathematics must reflect our diverse student population culture and their lived experiences.

REFERENCES

Ascher, Ethnomathematics: A Multicultural View of Mathematical Ideas (p. 188). Boca Raton: CRC Press - Taylor & Francis Group.

Doolittle, E. (2018, November 7). What is Indigenous Mathematics? Retrieved from The University of Winnipeg: <https://www.uwinnipeg.ca/indigenous/weweni/weweni-2018/what-is-indigenous-mathematics.html>

Greene, E. (2000, October 6). Good-Bye Pythagoras? Retrieved from The Chronicle of Higher Education: <https://www.chronicle.com/article/good-bye-pythagoras/>

James, C., & Turner, T. (2017). Towards Race Equity In Education: The Schooling of Black Students in the Greater Toronto Area. Toronto: York University. Retrieved from York University:

<https://edu.yorku.ca/files/2017/04/Towards-Race-Equity-in-Education-April-2017.pdf>

Ontario Ministry of Education. (2020). Mathematics Curriculum Context: The Ontario Curriculum.