



## A reflection on the Coding, Computational Modeling, and Equity in Mathematics Education Symposium

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Computational thinking (CT) and mathematical thinking (MT) are two significant skills that are required to better understand how to leverage technology and solve problems in the 21<sup>st</sup> century. The recently concluded Coding, Computational Modeling, and Equity in Mathematics Education (CCMEME) symposium (a FIELDS-sponsored event) at Brock University, was enlightening and acts as a reminder that technology continues to play an important role in mathematics education. It was refreshing to reconnect with mathematics education researchers that I have not seen since the pandemic. The event was well organized and focused on a deeper understanding of CT and its relationship to MT. In addition, the symposium addressed ways in which computational modeling can be applicable to mathematics teaching and learning, as well as, addressing issues pertaining to equity. That is, how to promote equity in participation when learners engage in technology-enhanced learning? My interest in the symposium arose from my dissertation work on technology integration in mathematics education and most recently, my interest in Equity, Diversity, and Inclusion (EDI) principles. I saw the CCMEME as an opportunity to expand my knowledge in both areas.

The keynote speakers' addresses were thought-provoking and presented ideas around understanding the knowledge required to effectively implement technology in education. Furthermore, the discussion about cultural issues and ways in which AI technology might propagate racial bias, highlighted the need for an awareness not solely for research or education purposes, but also how these issues relate to our personal experiences.

I attended the *Equity, Diversity, and Inclusivity working group* because I needed a deeper understanding of how computational and mathematical thinking might contribute to equity, diversity, and inclusion, and how this understanding might shape my classroom practice. The aim of this working group was to address issues of quality equitable pedagogy and the benefits of coding to mathematics education. To accomplish this goal, we were engaged in rich discussions and explorations of existing activities to identify how they might be adapted to promote equitable experiences for all learners. One of the things I have struggled with in the past, was being able to identify resources that focus on CT and MT as a unified whole rather than separate entities.

As a result, I was impressed by the variety of activities requiring these two skills that were shared by both participants and facilitators during the sessions.

Attending the symposium highlighted the importance of understanding how these distinctly different, yet similar skills are closely connected to each other. I learned that although CT draws on principles and techniques relating to computer science, it does involve similar elements to MT; such as pattern recognition and problem-solving. I also learned that several jurisdictions are now embracing computational and mathematical thinking for interdisciplinary collaboration and innovative solutions, particularly in mathematics education, and that there is an increased interest in research about the intersection of these two related concepts.

The working group sessions piqued my curiosity, in particular, on the implications of computational modeling to mathematics teaching and learning. As a result, I would like to pursue the following ideas further:



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1. How can I take into consideration identities such as race, gender, religion, socioeconomic status, disability, and marginalized groups in the context of CT and MT to address tensions that learners might face?
2. How can CT and MT bridge the gap between technology and societal needs?