WHY LANGUAGE DIVERSITY MATTERS IN MATHEMATICS EDUCATION

Richard Barwell
University of Ottawa, Canada

Language diversity is a fact of life in most mathematics classrooms around the world. We can think of mathematics classrooms in societies in which many languages are spoken, in contexts of migration, in post-colonial contexts, or in sign-language contexts, for example. Learners or teachers of mathematics may use multiple languages, a language they are still learning, or a language mixture. It is often thought that mathematics transcends language and hence language diversity is not a significant issue in the learning and teaching of mathematics. I, along with a growing number of researchers, reject this thought. The increasing amount of research on this topic shows that language diversity matters in mathematics education. So why?

In the first part of this lecture, I will draw on my own research as well as the research literature to examine this question, tracing the evolution of different responses over time. For example, in early research on language diversity we can see that language diversity was seen to matter because it was understood as a barrier or obstacle, often located within the student. In subsequent work, language diversity was seen to matter because it affected or restricted students' participation in mathematics classroom interaction or their understanding of mathematics texts. In more recent work, language diversity is seen to matter because it represents a valuable resource with which students and teachers can make sense of mathematics and because ignoring language diversity is related to inequity, injustice and oppression (see Barwell, Moschkovich, & Setati Phakeng, 2017).

In the second part of the lecture, I will discuss the importance of language diversity in mathematics education from a broader perspective than has generally been the case. In my recent research, I have drawn on dialogic perspectives to look at language diversity in mathematics classrooms in terms of fluid repertoires that reflect broad social forces (Barwell, 2018). The inherently stratified nature of language is related to social hierarchies, access to education, influence and power. Meanwhile macro-perspectives like ecojustice education show how the in-built hierarchies of language are related to human relationships with each other and with their environment (Martusewicz, Edmundson, & Lupinacci, 2015). Using these ideas, I will make connections between language diversity and global issues, including the ecological crisis, climate change, Indigenous rights and movements for peace and social and racial justice. My argument is that language diversity matters not just for students, for teachers, or for mathematics, but for the future of our society and our planet.

References

Barwell, R. (2018). From language as a resource to sources of meaning in multilingual mathematics classrooms. *Journal of Mathematical Behavior, 50*, 155–168.

Barwell, R., Moschkovich, J., & Setati Phakeng, M. (2017). Language diversity and mathematics: Second language, bilingual, and multilingual learners. In J. Cai (Ed.), *Compendium for research in mathematics education* (pp. 583–606). Reston, VA: National Council of Teachers of Mathematics.

Martusewicz, R., Edmundson, J., & Lupinacci, J. (Eds.) (2015). *Ecojustice education: Toward diverse, democratic, and sustainable communities* (2nd edition). New York, NY: Routledge.