

The Importance of Cultural and Linguistic Context when Learning Mathematics.

In western culture and education, mathematics is often perceived to be “culture-free” (Bishop, 1988), and nothing could be further from the truth. This misunderstanding derives from the fact that mathematics often deals with the abstraction of concepts to generalisations which are common across many (and potentially all) cultures. The misconception is in essence that mathematics deals with these abstractions in isolation, when in fact mathematics is actually the process of abstraction itself --- which involves taking concrete (culturally and linguistically contextualised) concepts, and generalising them. Viewing mathematics in this way highlights how having a cultural and linguistic connection to the way in which it is taught and discussed is a crucial aspect to learning mathematics.

The requirement for cultural and linguistic context can often be masked if the cultural and linguistic backgrounds of teacher and student are the same. However, when they are different this can lead to significant barriers to learning for the students. By incorporating the culture and language of our students into the methodology by which we teach mathematics, we can allow our students to learn mathematics in a way that is meaningful and engaging to them. Simultaneously, such an approach can also afford us opportunities to learn more about our students culture and language.

The need for this kind of cultural contextualisation in mathematics education of Aboriginal and Torres Strait Islander students has been recognised for a long time (Graham, 1988), but only more recently have we seen examples of what this looks like when put into practice (Matthews, 2012). Matthews (2012) discusses how this can be put into practice through the use of storytelling and dance into the teaching of mathematics, and most importantly the incorporation of negotiation and discussion surrounding the definitions of terms and symbols. Mathematics can often be thought of as a language in and of itself, and when learning a new language it is essential to spend time discussing the meaning of the new terms being introduced, and to link these meanings to existing schema that are culturally meaningful for our students.

Graham, B., 1988. Mathematical education and Aboriginal children. In *Mathematics education and culture* (pp. 119-135). Springer, Dordrecht.

Bishop, A.J., 1988. Mathematics education in its cultural context. *Educational studies in mathematics*, 19(2), pp.179-191.

Matthews, C., 2012. Maths as storytelling: Maths is beautiful. *Aboriginal and Torres Strait Islander education: An introduction for the teaching profession*, pp.94-112.