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theme

Supporting
best teaching
of mathematics
for Aboriginal
learners

Pedagogy and Classroom Practices

Teachers need to implement approaches that build on Aboriginal and Torres Strait Islander ways of knowing, learning and doing mathematics. This inevitably means moving away from a 'transmission' model to an approach that is more responsive. It requires creative and thoughtful use of each teacher's repertoire of professional skills, and a careful consideration of context.

There is an increasing body of evidence that pedagogy and related classroom practices in mathematics that are successful for Aboriginal and Torres Strait Islander students also work well for other students, but the reverse is not necessarily true: what works for other students may not work well for Aboriginal and Torres Strait Islander students. It should also be noted that Aboriginal and Torres Strait Islanders students seem more vulnerable to 'bad' pedagogy than their non-Aboriginal and Torres Strait Islander counterparts.

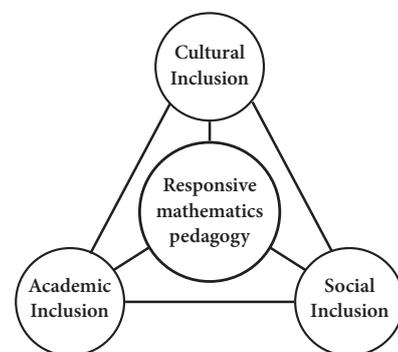
There is no single answer to the question of appropriate pedagogy for Aboriginal and Torres Strait Islander students, but appropriate pedagogy – and associated classroom practices – is characterised by being responsive to diversity in order to meet each student's learning needs.

Responsive pedagogy in mathematics

When responsive pedagogy in mathematics for Aboriginal and Torres Strait Islander learners occurs, the teacher identifies and works with students' world views and ways of knowing, working and learning. For some students this will include connection to 'country'; for others it will not.

Knowledge of individual students and a connection with families and the wider Aboriginal and Torres Strait Islander community is important. Teachers can fear 'doing the wrong thing' culturally, and need strategies to learn about the community context. Feeling the fear is not sufficient reason to shirk your duty as an educator to connect with families and students. However, learning outcomes in mathematics can be compromised or even lost if there is not a balance between cultural, academic and social inclusion approaches.

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Supporting best teaching of mathematics for Aboriginal learners

Using story-based learning is one way of drawing Aboriginal and Torres Strait Islander students into the learning conversation. This links to using mathematics as a way of communicating, where it is seen as an abstraction of reality with symbols that are telling a story.

Structures in the classroom that support learning of mathematics

It is important that teachers make the learning goals (for the lesson, for the unit of learning etc.) intentional, explicit and understood by all students.

Establishing a learning environment that is predictable (for students, parents and teachers) through structures and routines, and setting out clear expectations are valuable strategies. Part of this strategy involves giving clear and well-known processes for scaffolding students' learning in mathematics. An 'apprentice model' can provide the overall framework for this consistency such as: I do – you watch; I do – you help; You do – I help; You do – I watch.

It is essential that teachers give consistent and explicit attention to the language demands inherent in learning mathematics, remembering that the language of Western mathematics may vary greatly from students' home language of mathematics.

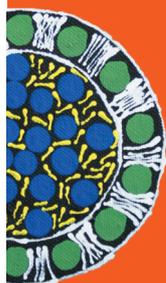
Strategies for providing multiple modes of learning mathematics for Aboriginal students

- Students watching as teachers (or others) model the mathematics ie doing it, articulating it, applying it.
- Providing means for student control and choice within their learning.
- Providing time for students to reflect on their learning.
- Giving opportunities for independent and collaborative learning.
- Students interacting with mathematics through 'body-hand-mind'.
- Establishing effective ways of capitalising on the potential of Aboriginal and Torres Strait Islander education officers in schools to contribute to the development of pedagogy for mathematics, such as a two-way approach to teaching and learning.

NOTE: Individual teachers can make a difference in Aboriginal and Torres Strait Islander students' learning and take a leading role, but systematising good teaching across the school can only come through whole school approaches.

Questions for discussion at a school community level:

1. Am I considering the social, contextual and cultural aspects and implications of learning for Aboriginal learners? Am I applying these to my teaching of mathematics and numeracy? How might I do that? How effective am I and how do I know?
2. Do I have a deep knowledge of the mathematics that needs to be taught/learnt?
3. Am I working closely with others, such as Aboriginal education assistants, to find and create stories that can 'hook' students into the learning?



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