Pāngarau Unleashed

A multiple case study of de-streaming secondary mathematics

Research Team: Kay-Lee Jones, David Pomeroy, Kaitlin Riegel, Sriparna Saha, and Sara Tolbert

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Introduction

Putting students into maths classes by perceived "ability" (streaming) is common in Aotearoa New Zealand secondary schools but can hold students back from discovering and achieving their educational potential. We worked with seven schools that had removed or reduced streaming to learn collectively about effective "de-streaming" of secondary maths. Rather than a prescriptive "how to", we developed principles and guidance based on the teachers' own experiences across diverse school settings.

Aims

The aims of the project were:

1. to support participating schools to enact effective non-streamed practices in mathematics
2. to carry out and share research that supports other schools to enact effective non-streamed practices in mathematics.

We defined "effective non-streamed practices" as those that had benefits for mathematics learning across the achievement spectrum and especially for students with low prior attainment; used culturally empowering pedagogies, such that Māori and Pasifika students can succeed in mathematics as Māori and as Pasifika; did not result in a long-term workload increase for teachers; and had credibility in the eyes of the wider school community.

Why is this research important?

Streaming maths can harm tamariki (children) and rangatahi (young people) in our education system, by limiting their learning opportunities and mathematical self-belief of those in low streams. Māori and Pasifika students, alongside others over-represented in low streams, are disproportionately impacted. While there is increasing recognition of streaming's problems, there is a pressing need for us to better understand *how* schools can effectively de-stream, and what effective non-streamed maths teaching looks like.

Key findings

- A key enabler of effective de-streaming of maths is a shared understanding across the school community of the reasons for de-streaming.
- Mathematics teachers need to adapt some aspects of their planning, teaching, and assessment to optimise learning in non-streamed classes, but these adaptations may be less radical or onerous than expected.
- School and curriculum leaders play a key role in de-streaming, supporting and resourcing both the shared understanding of reasons and the teaching adaptations.
- Solidarity and community, involving the experiences of teachers (across and within schools), rangatahi, and whānau, enrich and sustain de-streaming.
- De-streaming is an ongoing process involving teacher practices and mindsets.

Implications for practice

- Prior to de-streaming, schools develop a shared understanding of the reasons for de-streaming and take time to share and discuss these reasons with staff, students, and the wider school community. As part of this process, engage with students' experiences of streaming through direct discussion or prior research.
- School and curriculum leaders should allow time and resources for mathematics teachers to adapt their planning, teaching, and assessment for non-streamed classes.
- Mathematics teachers adapt planning, teaching, and assessment for non-streamed classes. This includes a common year-level curriculum that gives all students access to all maths. Make incremental adaptations to day-to-day teaching, such as increased use of low-floor, high-ceiling tasks. Where feasible, increase the flexibility of formal assessment.
- Teachers remain connected within and between schools by meeting with peers at different points in the de-streaming transition.
- Establish and maintain strong relationships with ākonga and their whānau based on ako and whanaungatanga that work toward student (and wider whānau) aspirations.

Our partners

Christ's College, Christchurch Girls' High School, Horowhenua College, Mana College, Onslow College, Te Pā o Rākaihautū, Wellington East Girls' College.

Contact:

David Pomeroy
david.pomeroy@canterbury.ac.nz

