

WA Maths Book Club Review

May 2019

Mathematical Mindsets, Jo Boaler, 2016

Drawing on her extensive research, Dr Jo Boaler, a professor of mathematics education at Stanford University reveals how students' ideas about mathematics can be transformed by changing the mathematical mindset of students, parents and educators. Destructive and archaic notions of what it is to be good at maths are debunked in this book and a practical road map on how to be successful in maths is supplied to help students learn and love mathematics.

Struggle vs Success – “The most productive classrooms are those in which students work on complex problems, are encouraged to take risks, and can struggle and fail and still feel good about working on complex problems” (p177) Reflecting on our assessment practices and how at a system level it can be difficult to achieve this very important change in mathematical mindsets. Anxious students are driven by their test results (especially in a secondary school) as a measure of their success and celebrating mistakes is not a highly held view of their parents. By taking the emphasis off of the assessment and instead focusing on the mathematical growth we can allow our students to experience maths as a broad, inquiry-based subject that they can all work on.

Intuition vs Process - Jo's research in the UK and the US has demonstrated that students learn at significantly higher levels when taught through a conceptual approach and the mathematical process are taught when they are needed. Intuition plays a critical role in the work of mathematicians, however this is often absent in a mathematics class. Students should explore different triangles and rectangles and consider how they could find the area before given a formula and capture the differences between data sets before being taught mean, median or range.

Quick vs Deep - Debunking the myth that quick maths is good maths is repeated throughout the book. The celebration of the quick arithmetic calculations of individual students does not support long term mathematical success. Allow students to think deeply about maths by

- Hands-on experiences
- Project-based curriculum
- Curriculum with real-life applications
- Opportunities to work together

Overall this is a must read book for all current teachers of mathematics and #MathsBookClubWA recommends that it becomes an essential reading for all pre-service teachers in their university course. If you are a school leader and are looking for a guide to

to improving how mathematics is taught in your school then this is the go to book to share with your staff. With amazing videos and resources for teachers and parents on her website you too can join the revolution to change mathematical mindsets!!

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