

BOOK REVIEW

Title: Care in Mathematics Education: Alternative Educational Space and Practices.

Author: Anne Watson (2020)

Publisher: Palgrave Macmillan

Do not be put off by the title!

The 'Care' in the book is not a soft and fluffy add on; Perhaps this warning is unnecessary; anyone who knows Anne Watson's work will expect something learned, incisive and wise. Warmth and kindness too, the care starts at home, care for the reader. It is clear, accessible and, of course, profoundly challenging. The section on the nature of care in education starts with Heidegger: none of us are neutral. The author then moves on to Nodding: our capacity to care grows onion-like in layers, from the nub, caring for self, then family, strangers, environment, artefacts to the outer layer, ideas; the primary purpose of education is to develop 'competent and caring people', if people only need basic mathematics then that is all they should learn. The author finds Nodding's position, 'difficult' and in the following ten or so pages explores, with reference to other thinkers and research, the relationship between learning, caring and social justice. This is one of the joys of the book. It's like listening to, 'In Our Time' on a particularly good day (for those outside the UK this is a long running, popular radio programme where experts discuss something serious/complex/baffling in an accessible way and thus educate, inform and entertain us).

Even if you are not interested in care the chapters, 'The Cognitive Work of Learning Mathematics', 'Mathematics Schooling and the Aims of Education' and 'Content, Pedagogy and Learning States' would be worth reading. It is useful to have the cognitive science focus on the mechanisms of memory placed within a wider context of ways and purposes of knowing. The education culture war between 'direct instruction' and 'inquiry' is dismissed as a 'false dichotomy'; they are only 'two positions in a field of possibilities' and 'both have a wide range of enactments and also address different aspects of the nature of mathematics and mathematical activity'. The author does not

set up straw men but we are alerted to how a tendency to over simplify or over generalise research findings, a superficial understanding of cognitive science and the pressures of government policy has led to pedagogy which could be described as, 'cognitive control'. Alternative, care orientated, 'guidance' models are explored accompanied by solid examples of mathematical activities. Are there such things as maths book clubs? If so, this would be an excellent candidate.

The 'alternatives' case studies are not impractical or militant experiments on the fringes of maths education. Some, a chapter's worth, are situated within mainstream, publicly funded education and there are chapters for outside the mainstream and other cultural contexts. All are stories of what happened when a teacher's or whole institution's values caused them to act in a way which they felt to be different to the norm. The norm is taken to be European Heritage School Mathematics (EHSM): government funded; following national guidelines, concerned with tests and international comparisons. Teaching mainly 'focuses on doing procedures and breaks problem solving into steps, mnemonics and stereotyped advice' so that maths in many schools, becomes a 'frogmarch' through the curriculum. Every ALM member will have their own examples of alternatives to this version of EHSM; acting differently to the norm, promoting student self determination and working for social justice is at the heart of ALM. In this book the examples include: teachers working within a 'traditional' maths departments; an internationally recognised rural education programme with thousands of students; a forest school and a national curriculum where Maori and EHSM world views enrich one another: 'Traditional knowledge keepers do not regard formal mathematical knowledge as of a higher order by being rational – rather they see that EHSM has lost part of the holistic unity of mind, heart, spirit and body. Ironically, the experiences many EHSM mathematics educators hope students will get from doing mathematics include awe, wonder, excitement, puzzlement, satisfaction and a sense of personal power, that are emotional and transcendental sensations, yet in EHSM these facets have been separated in order to measure knowledge and hence be accountable to political powers – awe and wonders are extras rather than the source.'

This is a book that everyone involved in mathematics education could read for pleasure and profit. However if I could only recommend this book to one group of people it would be to those embarking on a teaching career. Teacher training tends to be full of certainties about the current norms. How helpful, before getting too set in our ways, to be taken firmly by the hand and led to a vantage point where we can see the current norms and assumptions sitting within a far wider landscape. And be inspired as well, all teachers care about their students and their subject, but the care explored in this book is qualitatively different to the normal mathematics classroom care. Maybe Love in Mathematics Education would be a better title because the care described is a fundamental force that can transform educational spaces into places where students, teachers and mathematics blossom. It includes the care of students for one another; for wider society; the world; an appreciation of the extraordinary uniqueness of each person and their right for self determination. And care for mathematics itself, for ideas and the search for truth. It is filled with humanity, optimism and, when necessary, deftly deals with sloppy thinking. It is a call to action, to listen carefully to our students, to reflect, to use our professional discretion and judgement and make mathematics education more holistic, kinder and mathematical. Just the thing for a new teacher ... and the rest of us.