

Resource Review

Discussions in Science

Promoting conceptual understanding in the middle school years
By Tim Sprod. Published by the Australian Council for Educational Research

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The widespread use of terms such as 'creative', 'critical' and 'higher order thinking' in our school curriculum documents means that we barely have time to wonder about the science, evidence and rationale for programs that purport to develop thinking in our students. With a nod to John Hattie's work, we have become accustomed to asking, 'so *what is the evidence?*' about programs, schooling and learning.

The 'teaching of thinking' is an arena fraught with creative misrepresentations that lure us into imagining the brain is best stimulated through 'fun' or gimmicky programs. So it was with some scepticism that I turned to this book, bracing myself for reminders and tips about engaging all the different modes of intelligences, cross lateral movements and catering for the right- or left-brain children in my classroom.

What I found was a book that was affirming, stimulating and supportive of teachers in helping students become better thinkers. A summary of the theory, evidence for the efficacy of teaching for and of thinking, and a comprehensive range of activities are the nuggets to be found here. If you want to develop a 'community of inquiry' along the lines of the Philosophy for Children (P4C) in the science classroom, this book will guide you through the 'why', 'how' and 'what to next' sorts of questions.

The central feature in these sorts of communities is that students talk, listen and engage meaningfully with a topic. These skills do not readily develop without framing the 'thinking' activity and establishing some agreed rules for engagement and discussion where the teacher is not the font of all wisdom. A story is read and shared with students who sit facing each other in a large circle;

the book describes a number of different stories on topics such as energy, lizards, bouncing balls and shadow play. Then, the teacher may ask students what is interesting or puzzling about the story and turning those ideas into questions. When you first try this sort of teaching, students may be surprised, lack confidence in their ideas, or be reluctant to listen carefully. A think-pair-share or another collaborative learning technique can be helpful to involve everyone. In these lessons, students have to think and to participate.

At this stage, you may feel well and truly out of your comfort zone as a teacher. The book offers some concrete suggestions to encourage thinking, such as increasing wait time, and better listening, as well as managing the thinking in a large group and the role of the teacher as a group member. The book will also guide you in unpacking the issues of each of the stories around which the thinking is developed.

Sprod's call for classrooms to be 'focused on inquiring after truth, meaning and understanding' (p.19) will resonate with those who yearn to get back to doing what we are charged with: improving students' thinking and reasoning in science (and beyond). This is a practical book for teachers and a stimulating read.

Tim Sprod has produced an accessible tome to enrich teaching, learning and classroom practice and this is a wonderful culmination of his hands-on, minds-on experience as a teacher of thinking in science classrooms, as well as his academic research. Published by the Australian Council for Educational Research (ACER), the book is complemented by the website at www.acer.edu.au/press/discussions-in-science