

Preface

This is the fourth book in a series initiated by the Monash University—Kings' College London International Centre for Study of Science and Mathematics Curriculum and in partnership with University of Waikato. The Monash-Kings' College Centre was established in 2002 with initial support from the Monash University Research Fund (new areas). The Centre for Science and Technology Education Research at University of Waikato and the Centre for Science, Mathematics and Technology Education at Monash University have had a formal partnership agreement since 2003 and have worked cooperatively in many areas.

The first book in the series, *The Re-Emergence of Values in Science Education* (D. Corrigan, J. Dillon & R. Gunstone [Eds.], Rotterdam: Sense Publishers, 2007), considered the state of science education in the twenty-first century through the lens of values. The book presented a 'big picture' of what science education might be like if values once again became central to science education. A decade ago (when this first book was conceptualized) the overwhelming experiences of those who were teaching science were in an environment which had seen the de-emphasizing of values fundamentally inherent in both science and science education. There was a disparity between the evolutionary process that science was—and still is—undertaking and that undertaken by science education (and school science education in particular).

In the second book, *The Professional Knowledge Base of Science Teachers* (D. Corrigan, J. Dillon & R. Gunstone [Eds.], Dordrecht, Springer, 2011), our focus was on exploring what expert science education knowledge and practices may look like in the then slowly emerging 'bigger picture' of the re-emergence of values, a focus we saw as a logical step on from the focus on values in the first. In the third volume, *Valuing Assessment in Science Education: Pedagogy, Curriculum, Policy* (D. Corrigan, R. Gunstone & A. Jones [Eds.], Dordrecht, Springer, 2013), we took what we saw as the next step in the sequence of foci begun with our exploration of *The Re-Emergence of Values in Science Education*; the reality of education is that assessment almost always the strongest force shaping implemented curriculum,

teacher development and behaviour, student approaches to learning, etc. This book considered the ‘big picture’ of assessment in science education, from the strategic/policy to individual classroom levels. While some classroom case studies were presented, they focused more on teachers than students, and so considered assessment more in terms of what teachers plan and do than in terms of the impacts on students.

This fourth book moves on again from *Re-emergence of Values/Professional Knowledge Base/Assessment* to consider learning—the forms of science that better represent the nature of science in the twenty-first century, the purposes we might adopt for the learning of school science, the forms this learning might take, and how this learning happens (with particular concern for the need to better engage students with their school science and the need to place the burgeoning range of digital technologies into a more informed context than the narrow and uncritical contexts in which these are too commonly considered). An important overarching theme we seek is to represent and value the perspective of the learner.

We used the same approach to the creation of this fourth book as we did with the previous three. In a desire to achieve in this edited collection both the creation of a cohesive contribution to the literature and having authors able to assert their own voices without restrictive briefs from us as editors, we again organised a workshop involving the authors and ourselves to enable a more interactive and formative writing process. Authors completed a first draft of their chapters in time to distribute them to all workshop participants before we met. The workshop then involved intensive discussions of individual chapters and feedback to authors, and considerations of the overall structure and cohesion of the volume. Authors then rewrote their chapters in the light of these forms of feedback. As with the previous books, the workshop was scheduled around the European Science Education Research Association (ESERA) conference, and took place at the Monash University Centre in Prato (Italy).

This procedure had previously been used very successfully in the production of two other books in which the editors had variously been involved P. Fensham, R. Gunstone & R. White. *The Content of Science: A Constructivist Approach to its Teaching and Learning* London Falmer; R. Millar, J. Leach & J. Osborne *Improving Science Education: The Contributions of Research*. Milton Keynes Open University, and has been more recently adopted by other science education researchers. We believe that this process significantly improves the quality of the final product and provides an opportunity for what is sadly a very rare form of professional development—considered and formative and highly collaborative (and totally open) discussions of one’s work by one’s peers.

We gratefully acknowledge the funding of the workshop through contributions from Monash University, University of Waikato and King's College London, and the commitment, openness and sharing of the participants in the workshop—all authors and editors—who shaped the book.

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The Editors

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