

FitzSimons, Gail E.:

What Counts as Mathematics? Technologies of Power in Adult and Vocational Education

Dordrecht: Kluwer Academic Publishers, 2002. – 274p
(Kluwer Mathematics Education Library)
ISBN 1-4020-0668-3 (HB)

John O'Donoghue, Limerick (Ireland)

Mathematics education is now a well-established academic field of study and research. As many readers will know from personal experience, it has not always been this way. On the contrary, adult mathematics education is not well known as a domain of study. As a new fledgling area broadly speaking within mathematics education, it has only recently begun to make an impact on relevant discourses through the work of researchers in the domain. This domain encompasses mathematics in a broad sense and includes mathematics, service mathematics, school mathematics, vocational and workplace mathematics and adult numeracy. Issues addressed by researchers in this area are well articulated in an increasingly robust corpus of work that includes conference proceedings e.g. Adults Learning Mathematics – A Research Forum; contributions to ICME e.g. WG18 (ICME-8, 1996), WGA-6 (ICME-9, 2000); journal articles e.g. *Literacy & Numeracy Studies*, 2002, 11(2) (Special Issue); books e.g. Benn, 1997; Evans, 2000. As even a cursory glance at this literature will show issues such as mathematics for vocational education and the workplace, numeracy, curriculum, and tutor training have a central place as do empowerment, democratisation of education, and equality of educational opportunity. While this book is rooted in the author's experience and concerns for Technical and Further Education (TAFE) mathematics teachers in Australia and their students (post-compulsory education/adult) it is clearly within the wider ambit of adults' mathematics education.

The purpose of the book is to explore, understand and explain the role of mathematics in Adult and Vocational Education, a sector where the very identities of mathematics and mathematics teachers are challenged. While this study is tied to the particularities of the Australian TAFE/VET sector, it transcends its local character and speaks to the wider international community of educators because of its central theme(s) of technology and technologies of power as they impinge on one facet of mathematics education, and also through the strength of its analysis and the breadth of its scholarship. The author is uncompromising in her criticism of the system but this is not a negative book because she brings her considerable experience and scholarship to bear on the search for improvement. The book ends with a positive outlook for the future.

Ultimately the book is about the relationship between knowledge and power, and in particular between mathematical knowledge and power in the adult and vocational education sector. As FitzSimons puts it:

“The aim of this monograph is to investigate and analyse the power relations of adult and vocational mathematics education, focusing on the VET sector in Australia as a case study.” (p. 9).

Her search for explanations leads the author to consider many related issues e.g. mathematics, technology, institutions, workplaces and curriculum, from a variety of perspectives including social, political and educational. The book revolves around the central question posited by FitzSimons “What counts as mathematics in adult and vocational education?” And as she asserts, her answer is “a consciously political one” (p.10). The author uses the question as a metaphorical pebble to disturb the tranquil pond. She follows the implications of the question as they lead her into related and intersecting academic disciplines in search of appropriate concepts and analytical tools. These are used expertly to critique the circumstances of the Australian Vocational Education and Training (VET) sector and the precarious standing of mathematics and mathematics teachers within the sector.

The structure of the book is complex. The work is set against a backcloth of globalisation; neo-liberal economic policies; lifelong learning and education; and information technologies. FitzSimons uses a number of theoretical constructs from related disciplines to support her analyses and theorisations. For example, she draws upon the work of several theorists including Habermas and Foucault to examine and explain the impact of technologies of power but ultimately, as she says, Basil Bernstein's work provided “the most coherent and consistent framework” for her work:

“His concepts of symbolic control, pedagogy and identity, across institutional levels, contextualising fields and texts, provided theoretical support for the analysis of texts as found in the discourses of lifelong learning, curriculum frameworks, and policy documents.” (p.229)

The construct of *institution* is applied in turn to mathematics, mathematics education and vocational education, and is used to shed light on their complex inter-relationships. *Technology* and the “concept of technologies of power” are used to tease out relationships between mathematics and vocational education and between the workplace and mathematics. Public image as it relates to institutions such as mathematics is identified and examined as a technology of power. The author concludes her critique by looking again at public image as a technology of management. She argues that public image can be harnessed for the benefit of vocational mathematics education, and offers suggestions for an improved curriculum and pedagogy for this sector based on:

“a curricular model which incorporates the discipline of mathematics with the construct of occupational competence.” (p.226).

After reflection, I have revised my view on the organisation of the monograph. Initially I read it as seven chapters organised into four parts introduced by a prelude. I now view the prelude as such an integral part of the study that it merits the status of chapter – perhaps the author had this in mind when she designated it Chapter 0. FitzSimons uses Chapter 0 to position herself as an experienced mathematics teacher in the TAFE sector and as a novice academic researcher. She goes on to position her work as follows:

“...my work is also in the borderlands of three subfields of educational research: *mathematics* education, *adult* education, and *vocational* education – connecting all three.” (p. 2).

Here she also outlines the aims and goals of her study and some of the theoretical choices she has made. The next two chapters, Chapters 1 & 2, are devoted to developing a mathematical perspective for the study using *institution* and *image* as intellectual tools to think about mathematics and mathematics education and explore the relationship between mathematics for the workplace and technology. Chapter 3 is an Interlude devoted to developing theoretical frameworks used in the book. These include perspectives on technologies of power and the production of knowledge and a more detailed exposition of Bernstein’s work on pedagogy, control and identity that underpins the whole book. The next three chapters, Chapters 4,5,6, discuss technologies of power. Beginning with the *micro-level* issues of teaching and learning, she moves onto curriculum or *meso-level* considerations, until finally knowledge production and distribution is reached at the *macro-level*. The book concludes with Chapter 7 which the author uses to revisit important aspects of her thesis; consider possible improvements; and issues for further research.

Clearly, the book has grown from the author’s research and the style of the book is that of the research monograph. The book is well written but the writing is dense leading to heavy intellectual demands on the reader. It could hardly be otherwise given the nature of the enterprise as critique but readers will be well rewarded for their efforts. The work is very well signposted and the reader is assisted by other literary devices e.g. Interlude Chapter.

This is an important book. The boldness of its conception allied to the scope of its vision marks it as an important contribution to the educational research literature particularly mathematics education research. The work transcends purely national boundaries through the quality of the research insights and scholarship (the bibliography lists around 500 titles) and the importance internationally of the question posed ‘What counts as mathematics in adult and vocational education?’ Indeed, the author has signaled other important questions to be considered such as ‘What counts as school mathematics?’ and (I would suggest) ‘What counts as service mathematics?’ and her own excellent study could serve as a model for their investigation. This book should be read by all parties identified in the author’s composite readership for the book, namely, policymakers, educators and researchers. My personal estimate of the work is that

is likely to be seen as a seminal work, often cited, in the emerging field of adults’ mathematics education, a sub-field of mathematics education. I thoroughly recommend it for all educators concerned with mathematics education in any form.

References

- Benn, R. (1997): *Adults Count Too: Mathematics for empowerment*. Leicester, UK: NIACE
 Evans, J. (2000): *Adults’ mathematical thinking and emotions: A study of numerate practices*. London: Routledge Falmer.

Author

O’Donoghue, John, Prof., University of Limerick, Department of Mathematics and Statistics, Limerick, Ireland.
 E-mail: John.Odonoghue@ul.ie