

## *Book Review*

### Not for Adults Only!

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Jeff Evans (2000). *Adults' mathematical thinking and emotions: A study of numerate practices.*

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It is a truism that learning takes place throughout a lifetime, intentionally and unintentionally, in the home, the community, the workplace, and so forth, as well as in formal institutions. It is also widely accepted that the development of mathematical knowledges and skills able to be accessed as numerate practices by citizens to meet their diverse needs in their various contexts is an essential component of social, cultural, and political formation of the individual and of society at large. Nations around the world are striving to promote mathematical empowerment in their young—according to their curricular documents at least (Niss, 1996)—and, more latterly, to enhance the skills of adults in response to the rise of social capital perspectives. Whatever the cohort of students uppermost in any mathematics educator's mind— from early learning to upper secondary, tertiary, or adults returning to study—this richly theorised book by Jeff Evans can offer new perspectives on the complexities of learning and using mathematical knowledges.

Drawing on an eclectic range of authors, such as Bernstein, Freud, Lacan, Lave, de Saussure, and Walkerdine, to present a range of theoretical perspectives and frameworks, Jeff Evans addresses the relationships between:

- practical mathematics and its contexts;
- mathematics performance and social difference;
- mathematical affect, emotion, and mathematics anxiety;
- knowledge and learning in context and the possibility of transfer;
- social theories of learning, including socio-cultural approaches and situated cognition;
- practices, discourses and semiotic relations;
- theory, pedagogy and professional practice. (p. xv)

He critically pursues ten themes of adults' mathematical thinking and emotions in practice, illustrated by data from surveys and case studies conducted as part of his doctoral dissertation at the University of London Institute of Education. These are:

1. Contexts of thinking ascribed in terms of positioning in practice (i.e., out-of-school practices can either help or hinder school mathematics practices).
2. Inseparability of task and context.

3. Gender and social class differences in performance related to positioning.
4. Numerate thinking as specific to the subject's positioning.
5. Emotion pervades mathematical thinking—'mathematics is hot'.
6. Gender differences in expressing anxiety.
7. How the expression, and exhibiting, of anxiety are specific to positioning.
8. The idea of exhibiting diverse forms of emotion, showing the need to explore psychoanalytic ideas more fully.
9. Instances of specificity of the relationship between thinking and emotion to positioning.
10. Any episodes where a student shows an ability to transfer their learning (or ways of thinking) in school or college mathematics to other contexts.

Evan's work suggests that there can be no deterministic relationship between a person's level of mathematical knowledge and skills and their application in practice. This is because of the very powerful influence of their perception of their own positioning in any given context. He presents an example of a capable student who makes a simple error in a 'restaurant context'—her over-riding feeling with respect to this positioning as a guest is of 'not wanting to be an expense' and this interferes with her ability to calculate the tip. Accordingly, some of Evans's findings that might be pertinent to mathematics educators and policy makers are that:

- A person's mathematical proficiency and functional competence are not adequate to understand the context of their thinking in specific situations.
- Instead, it is necessary to determine which practice(s) the person has called up, and hence his/her positioning in the situation.
- Several aspects of thinking in problem-solving situations depend on the subject's positioning in practices.
- Mathematical thinking and activity are charged with emotion. (p. 181)

Evans expresses the idea that transfer is difficult to predict or control, for a variety of reasons such as context, goals and values, social relationships and regulation, and standard language used, in different discursive practices. This is in addition to the unpredictability of flows of meaning along chains of signifiers and the sometimes unexpected flow of emotional charges. However, he sees that the possibilities of different meanings within different discursive practices also offer a basis for possibilities of transfer—or 'translation' or transformation.

Finally, acknowledging that numeracy is a contested term, Evans proposes a provisional working definition, considerably broader than those in use by functionalist-oriented writing teams under obligation to neoliberal or 'new labour' political systems.

Numeracy is the ability to process, interpret and communicate numerical, quantitative, spatial, statistical, even mathematical information, in ways that are appropriate for a variety of contexts, and that will enable a typical member of the culture or subculture to participate effectively in activities that they value. (p. 236)

This book can be recommended for a range of audiences beyond those in adult mathematics education. It displays a thoroughness of approach in the detailed, justified use and interplay of both quantitative and qualitative research tools and methodologies. This makes it a valuable addition to the libraries of research students and their lecturers/supervisors. The two appendices contain details of the questionnaire design and fieldwork, including the questionnaire itself, as well as

some of the interview problems posed to subjects. The elaboration and critique of a range of current theoretical approaches is likely to offer new insights and directions for many in the mathematics education research community. In fact, further directions for research are suggested in the final chapter. Minor criticisms are that the text appears a little repetitive at times, and that there appears to be an overuse of parentheses to indicate alternative interpretations within sentences.

This careful study of adults' numerate practices, building on and extending research from respected authors, highlights as never before the integral role played by the emotions in the mathematical thinking of people of all ages. It provides a salient reminder of the importance of our interactions as mathematics educators for all with whom we come into contact, formally or otherwise.

### Reference

- Niss, M. (1996). Goals of mathematics teaching. In A. J. Bishop, K. Clements, C. Keitel, J. Kilpatrick, & C. Laborde (Eds.), *International handbook of mathematics education* (pp. 11-47). Dordrecht, The Netherlands: Kluwer Academic Publishers.