

since 1985, and contains chapters on important issues such as college leadership, organization, accountability, instructional methodology, community college values and culture, and aboriginal education. This is all valuable material for anyone who wishes to understand some of the challenges and opportunities that currently concern Canada's community colleges.

The book also contains some sharp critical analysis. Much of this, of course, is provided by the editor in the introduction and conclusion. But there is also an important chapter by Paul Gallagher entitled "Promise Fulfilled, Promise Pending." It is argued that the two distinguishing characteristics of Canada's community colleges are (a) as instruments for the implementation of social and economic policy, and (b) as exemplars of teaching excellence. This book provides an up-to-date report card on the successes and failures of these dual characteristics. Many colleges, however, appear to have an uncertain future, at least for the short term. Given the current fiscal restraints, certain governments increasingly tend to see the colleges simply as instruments to deliver work-related training programs. Will the colleges be able to continue with their other functions, and to what extent? Will they be able to continue to provide increased accessibility for traditionally disadvantaged groups? Can they adapt to technological change? Can they survive economic restructuring? Can they seek out and serve new clienteles? Will they continue to experiment with new teaching methodologies? How much autonomy, if any, will they be allowed? The colleges are, indeed, "at the crossroads."

This is an important book for anyone who wants to keep *au courant* with the community college scene in Canada.

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DAVID PIMM. *Symbols and Meanings in School Mathematics.*

London: Routledge (1995).

220 pp. \$17.95. ISBN 0-415-11385-7.

David Pimm has extended the ideas he introduced in 1987(1) to explore the place of symbolism and icons in mathematics. At the same time that he makes a significant contribution to the growing interest(2) in the interaction between language and mathematics, Pimm challenges his readers to question their beliefs about mathematics teaching and learning, and the meaning of mathematics itself.

A knowledge of symbols (and what they symbolize) is an important component of mathematics learning. For the sake of efficiency, an automatic knowledge and application of the symbols of mathematics is valued. This suggests that the symbols should be easily accessible and subject to manipulation. Pimm used the words "opaque" and "compact". Yet current practice emphasizes learning with understanding, and the need for symbols to be as transparent as possible. This contradiction introduces the whole issue of manipulation, both in the abstract and in the concrete sense. Elementary school mathematics classrooms are full of manipulatives. One of the best uses of computers in the secondary classroom is for symbolic manipulation; secondary school algebra would be a short course if students did not have to learn to manipulate expressions; graphing calculators do much of this manipulation and put much of the algebra curriculum in question. The metaphor is pervasive.

Throughout the text, one of Pimm's themes is that both the metaphoric and metonymic use of symbols pervade mathematics. If we accept Magritte's caption "*Ceci n'est pas une pipe*" for his highly representational drawing of a pipe, we also have to ask: Is a diagram of a triangle really a triangle? If it is not, what is it? and, more important: If it is not, what is a triangle?

In posing questions about the meanings conveyed by mathematical symbols, Pimm explores the meanings of words in a variety of languages. Think of the related words, *computer* (= to count), *conter* (= to tell a tale), and our use of "teller", "all told", a store's counter, and Pimm's delightful quotation: "Them as counts counts moren them as dont count".(3)

Pimm draws his imagery from a range as diverse as the Rhind papyrus, the Vietnam Veterans Memorial Wall, The Book of Common Prayer, David Hockney, and the Goon Show. He also cites the work of a number of British mathematical thinkers such as Dick Tahta, Eric Love, and, the inspiration of much current mathematical thinking in Britain, Caleb Gattegno. These references provide a valuable counterweight to the influence of US mathematical thought which has such influence on Canadian classroom practice.

David Pimm demands our thoughtful attention to the meaning of symbols, images, icons, and words, and how these connect to give meanings to mathematics.

NOTES

1. Pimm, D. (1987). *Speaking mathematically: Communication in mathematics classrooms*. London: Routledge and Keegan Paul.
2. See, for example, Anghileri, J. (1995). Language, arithmetic and the negotiation of meaning. *For the Learning of Mathematics*, 15(3), 10-14.
3. Hoban, R. (1982). *Ridley Walker*. London: Picador, quoted in Pimm, p. 60.

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MARY BEATTIE. *Constructing Professional Knowledge in Teaching: A narrative of change and development*.
 New York: Teachers College Press (1995).
 168 pp. \$16.95 paper. ISBN 0-8077-3395-4.
 \$34.00 cloth. ISBN 0-8077-3396-2.

Constructing Professional Knowledge in Teaching: A narrative of change and development, as described on the back-cover of the book, "tells the story of a collaboration between an educational consultant and a classroom teacher. The two were participants in a teachers' in-service program for implementation of a school board curriculum that focused on the learner as inquirer. Within this context, consultant and teacher worked together over a two-year period to describe teaching, learning, and collaborating as holistic, integrated, relational, and artistic endeavours embedded within narrative unities of lives". Composed of eight chapters along with a foreword written by Elliot W. Eisner, Beattie describes her work with Anne, who, after twenty-six years as a physical education teacher, embarks upon teaching a core eighth grade classroom in the years just prior to retirement. In its focus on narrative and autobiography this book joins a growing body of literature in teacher education that acknowledges the significance of coming to understand the role of curriculum change in teachers' work by focusing on teachers' stories and teachers' lives.

Beattie's book is very much informed by the work of such researchers in teacher education as D.J. Clandinin, M.F. Connelly, and Freema Elbaz whose area of concern is on the significance of teachers' personal practical knowledge. Her book is part of an emerging body of scholarship on classroom-based narrative in teacher education, and sits nicely alongside other recent publications such as D.J. Clandinin's *Learning to Teach, Teaching to Learn: Stories of collaboration in teacher education* or Andy Hargreaves' *Changing Teachers, Changing Times: Teachers' work and culture in the postmodern age*. By drawing from the fields of biography