

Linking Mathematics and Language: Practical Classroom Activities

**Richard McCallum and Robert Whitlow,
Ontario: Pippin, 1994, ISBN: 0-88751-038-8
(£14)**

There is a dearth of books on language and mathematics and although this volume from the Pippin Teacher's Library series is now nearly ten years old it is still worth taking a close look at and has some illuminating things to reflect on in regard to current approaches to mathematics teaching.

For me personally, following a somewhat bland recent diet of strategy training, one of its main attractions is that it both predates the National Numeracy Strategy and is essentially written for a different context (American schools). That said, there is much in it that any KS2 or KS3 teacher will find useful when planning from the Framework, or as the blurb puts it, 'The classroom activities ... do not have as their aim the replacement of existing curriculum but are intended, rather, to stand as exemplars of what teachers can do – and do with ease and profit – to provide an exciting alternative to leaven an unvarying regimen of traditional, skill-based instruction'.

McCallum, a former English teacher and reading specialist, and Whitlow, teacher/director of an integrated cross-age curriculum program in California, are both steeped in the 'whole-language' philosophy, a child-centred approach based on six key principles that: language develops in a social context; language development has an affective base; language develops in functional and meaningful settings; language growth is a developmental process; language development is an active process; and language development requires repeated exposure and opportunities for practice. They argue that mathematical ability should essentially be developed in the same way.

To the six key principles above, and following the work of Marilyn Burns, they outline three basic stages in the development of mathematical concepts: the *experiential* level – involving direct physical contact and activity; the *connecting* level – in which children make connections between symbolic representations such as pictures and numbers, and real world objects; and the *symbolic* level – at this level children no longer need to refer back to concrete objects but are able to use it independently.

Having established the theoretical underpinnings of their approach in a breezy and jargon-free thirty pages, they then move on, in the subsequent hundred pages, to the meat of the book, which consists of thirty-one activities that are practical realisations of their approach.

Though not specifically written with EAL students in mind, the whole-language approach is one that sits comfortably with a linguistically principled, collaborative learning model that recommends itself to a content-based language development programme. For example, in an activity called 'Grab Bag', students in groups of at least two are given a bag with an object in it. One member of the group reaches in to the bag and describes the object to the others. The focus in this activity may be on geometrical properties and can be returned to at different levels. Another activity entitled 'Headlines' is essentially a word problem activity in which groups of students are given a 'headline' such as $3+5=8$ and they then have to produce a simple 'story' to go with it that must end in a question, e.g. 'Three turtles were swimming in the pond. Five more joined them. How many turtles are there now?' Richard Barwell's recent NALDIC occasional paper explored the positive value of word problems for EAL students and showed how they provided students with the space to 'negotiate identities' in Jim Cummins' sense. Word problems are an area of mathematics that the NNS has (sadly) not emphasised, especially in view of the findings of the King's College longitudinal investigation of student attainment as part of the highly influential Leverhulme Research project that showed this was an area in which standards of attainment were actually falling.

Whether you read this book as a refreshing antidote to the Framework or as a companion piece to it that helps you see how some of those objectives might also serve (second) language development, you are likely to find it a useful and insightful book and one that at least goes some way to filling the gap in the market that is growing daily. We have been treated to Strategy training sessions on literacy in subjects such as PE, D&T, Art and Science, but we are still waiting for their advice on literacy in mathematics. One can only hope that the author is reading and connecting with books such as this one.

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