

LINKAGES AND LINEAGES

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Having read FLM from the first issue, as well as editing it between 2003 and 2006, I am aware of what Lesley Lee calls “the FLM conversation” and that “the conversation is not for those who feel they have all the answers but for those who are searching and willing to contribute their understandings and questions to the ongoing inquiry” (p. 5, this issue).

Each issue of FLM is a collection of articles that speak to each other, explicitly and implicitly. The editor has an important role in this process although constrained by the articles that are submitted for review. Richard Barwell says, in his editorial, that, “the conversations and themes emerge, often taking FLM in directions that I have not anticipated” (p. 2, this issue). David Reid closes his reflections with:

It matters that FLM comes printed on paper in a bound volume. A single FLM article does not stand alone [...] When an article appears in FLM it does not merely occupy its pages, it changes the whole issue. And when a new issue of FLM comes out it does not simply add to the series at the end, it changes the whole. (p. 11, this issue)

In his editorial for 1(1), David Wheeler wrote of his hope that “this journal may grow into one that learns along with its writers and its readers” (p. 2), which gives me hope that through these pages David Wheeler’s vision is still alive within FLM. It will always be in some sense his journal, but the journal has grown up and new conversations and themes continue to emerge tended by the editors. As Anna Sfard says, FLM is where “I usually find what I am looking for” (p. 10, this issue). Her call for FLM to “stay the way it is” (p. 10) gives me a sense that it is the processes that support both the long conversations and the newly emergent ones that are central. When I was appointed, I created the role of associate editor. Since then, new editors have first been associate editors. This practice means that FLM will continue to learn, supported by stable processes.

The rest of these reflections will be in two parts. In the first, linkages, I reflect on some of the long conversations in FLM connecting 1(1) with the current issue. In the second, lineages, I consider the question: what are the roots of David Wheeler’s vision *for the learning of mathematics*?

Linkages

What is it like to read FLM? When I am reading, I become aware of the linkages between articles and over time. In 1(1), for example, an article by Joseph Agassi, a philosopher who had read his paper “On mathematics education: the Lakatosian Revolution” to the Canadian Mathematics Education Study Group Meeting in 1979, opened up the world of Lakatos to me through “the great classic work,” *Proofs and Refutations*, that, he had been told, “some of you are not

familiar with” (p. 28). Agassi’s article also contains the statement, “The Lakatos revolution is the end of the textbook” (p. 30). In the current issue, the article by Kotaru Komatsu *et al.* contributes to the FLM conversation about proof. Their article is called “Proof problems with diagrams: an opportunity for experiencing proofs and refutations” and I cannot read this title without the history of my interactions with a whole range of ideas and experiences buzzing in my head, including Agassi’s article from 1(1). I turn to read the article by Komatsu *et al.* expecting links to Lakatos’s ideas. Straight away, I get a sense of difference, reading “Lakatos’s research is well known in the mathematics education research community” (p. 37), followed by an extensive case-study, with no sign of a textbook, of how students use deductive guessing over a few lessons. I was interested that an aim of the authors was to develop a set of tasks and associated teachers’ guidance. Is this a textbook? I realize that I need to extend my own thoughts about what a textbook is. Stories of practice in classrooms, documenting what children do, help to allow concepts (like, for me, textbook) to be interrogated again.

When I first started to edit FLM, I asked the advisory board to look back in the journal and choose an article they loved. David Reid chose an article entitled *Norman* (7(2)), which led me to encourage writing about individuals. As well as details of practice in the classroom, the current issue includes an article related to Lila, Mellony Graven’s daughter. At the end, there is an invitation to respond to the article with the question, “Are there other insights that the incident might illuminate for teachers?” (p. 31, this issue). My attention was taken (again) by the word “textbook”. We cannot know where and when our attention will be taken; in this case, Lila’s attention was taken by the remote. Graven and Lerman propose that “We might think of the remote as a sort of textbook”. My inner conversation, influenced by the Lakatosian revolution, screams “no”, Lila is interacting with her world, she cannot *not* learn, her attention taken by pattern, noticing the form of 3, 6, 9 ... I am reminded of the image of a girl counting in threes on her fingers (the three sections of our fingers between the joints) described in an article in 23(3) entitled “Mathematics as social: understanding relationships between home and school numeracy practices”. The remote similarly supports the recognition of the pattern of threes because the buttons are organized in rows of three with the digits written on the buttons. Again, I am challenged to extend my image of textbooks.

I have tried to give a flavor of what reading articles in an issue of FLM is like for me, the making of connections within that issue and an illustration of what a hundred issues speaking to each other might sound like given the linkages that form over time.

Lineages

What are the roots of David Wheeler's vision *for the learning of mathematics*?

In his editorial in 1(1), David Wheeler wrote "well-chosen words *can* trigger awarenesses and stimulate reflections and give experience to those sensitive to them" (p. 2). For me, the word "awarenesses" points to a connection with Caleb Gattegno ("only awareness is educable") and, in fact, in that first issue there is a conversation between David Wheeler and Caleb Gattegno entitled "The foundations of geometry". The theme of geometry in 1(1) is echoed by an article by Dick Tahta, entitled "About geometry". (These two articles are mentioned in the first few reflective articles in this one hundredth issue.) The appearance of these three authors in the first issue was a continuation of their earlier work together.

As a student teacher in the UK, David Wheeler's tutor was Caleb Gattegno. So began a relationship that led initially to the founding of the Association of Teaching Aids in Mathematics (ATAM), which then became the Association of Teachers of Mathematics (ATM). Each year there was a conference around Easter and, in a similar way to FLM being about exploration, the sessions were exploratory spaces. I went to my first conference around 1973, when I was a student teacher, with Dick Tahta as my tutor. There were no sessions where individuals told us what we should be doing in our classrooms. Instead, we worked together on some mathematics, or we watched a film and shared, developing insights as we went. No matter how experienced the members of the group, we were all able to share our perceptions and these were always linked to our actions as teachers. One particularly powerful way of working was through observing others teach a class of children, with discussions afterwards. David Wheeler was an early and influential editor of *Mathematics Teaching*, the journal of ATM, and from 1988-92, I followed Dick Tahta and Ray Hemmings as editor.

This emphasis on "self-examination" in research on teaching was established from the start. In the first minute book of ATAM, from 1957, Gattegno wrote:

This needs conscious development, discussion, meeting together [...] knowing each other, self-criticism. [...] We know, for instance, that children of 7 and 8 years can conquer fractions; we must not be content with this kind of discovery (though there is also the vital work of helping others to know this).

Gattegno worked on a Science of Education and wrote many books, including a sequence called *For the Teaching of Mathematics*. David Wheeler later named his new journal *For the Learning of Mathematics*, consciously evoking Gattegno's phrase.

In this issue, the focus on mathematics and ways of learning it "power-fully" (Brent Davis) and in early years (Linda Venenciano and Barbara Dougherty) continue a lineage that respects children as more than receivers of pre-given algorithms in the name of mathematics that is at the heart of FLM. The word contingency comes to my mind: teaching the children or other learners in front of us, subordinating our teaching to their learning. We might not be able to apply the insights from articles in FLM as recipes in our own contexts, but we can take responsibility for our own development as mathematics educators and mathematics teacher educators through working with our awarenesses. As part of this approach, Gattegno used the phrase "perceptive activity" in *For the Teaching of Mathematics Volume 2* (p. 49), in a chapter entitled "Perception and action as bases of mathematical thought." So when David Reid asks whether FLM is an enactivist journal, the link between the lineages through perceptually guided action as the basis for learning resonates with Gattegno's ideas.

Dick Tahta in the UK and David Wheeler, by now in Canada, engaged in correspondence almost daily after e-mail arrived (their equivalent of twitter) until David Wheeler died. Dick Tahta missed this correspondence and talked about still talking with David Wheeler in his head until he himself died. Both these men were influenced by the work of and their personal interactions with Gattegno.

Like the current editor, I think FLM has grown up and will continue learning. Ubi d'Ambrosio challenges us to continue to open the journal to the themes that are raised by living in our world. The editor, advisory group and the associate editors play a role in the community, both shepherding and soliciting articles. As I have already mentioned, the last couple of editors have emerged from the role of associate editor. This pattern is a way of passing on the culture when no-one is left who has a personal image of working with Caleb Gattegno, David Wheeler or Dick Tahta, these people from whom there is still a light in our hearts. Their vision is alive in FLM's learning.

