

EDITORIAL

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A lot has changed in mathematics education since David Wheeler founded FLM in 1980. Some of these changes, concerning the kinds of articles published in journals, are discussed in Mogens Niss's article in issue 39(2) and the replies to it by Arthur Bakker, and Jinfa Cai and Stephen Hwang, in this issue. Those changes are likely connected to others, related to the number of researchers working in the field, the nature of doctoral programmes, technological changes, and funding policies. I would like to reflect on those changes briefly here.

The 1980 PME conference was the first held outside Europe, in Berkeley, USA, and was attended by 81 participants. The following year PME was held in Grenoble, France, and 86 attended. In contrast, the most recent PME held in North America (also on the west coast) was the 2014 conference in Vancouver, Canada, attended by 825, and the most recent in Europe, in 2018 in Umeå, Sweden, was attended by 689. These numbers suggest that eight to ten times as many people are active in mathematics education now compared to 1980. As other conferences have been founded in the last 40 years, the increase may be even higher. For example, CERME is only two decades old, and the most recent conference in Utrecht, the Netherlands, was attended by over 900 people. What might these changes mean for academic publishing in mathematics education? One obvious implication is that there are more articles being written and seeking publication.

There has also been an increase in the number of journals. *ESM*, *JRME*, and *ZDM* were founded around 1970, joining *L'Enseignement Mathématique* (founded in 1899). Around 1980 those four were joined by *FLM*, *RDM*, and *JMB* (and, I suspect, others I have lost track of). Recent counts have listed about 20 international journals in mathematics education. So in fifty years the number of journals has increased five to seven-fold, and in forty years about three fold. There are also journals that are not international, but it seems likely that the number of people wishing to publish articles is now greater, in comparison to the number of journals, than it was forty years ago. This means that journals receive more submissions, which puts pressure on editors, reviewers and publishers.

Adding to the pressure of numbers is the advent of doctoral programs that are either entirely based on published articles, or that require at least the submission of an article. Hence, more researchers are submitting articles very early in their careers, and very early in the course of their research. Some of these articles are very good, but my impression is that not only is the quantity of submissions going up, the quality is going down.

These pressures do not affect all journals equally. Another change in the past four decades is the rise of indices that assign scores to journals based on various criteria. In some

places, only journals listed in certain indices are counted in assessments of academic output, and so the journals that are listed in such indices receive more submissions than others. Journal editors have mixed feeling about these indices. Being listed in many indices means that potential authors can count their submissions in assessments of their output. But it also means many more submissions from authors who have chosen the journal because it is listed, not because they feel it is a good fit for their article. For-profit publishers, of course, are very keen to have the journals they publish listed, and ranked highly, in as many indices as possible, and this can result in pressure on editors to prefer certain kinds of articles. My personal inclination is to ignore numerical indices and to rely on the wisdom of the community to recognise the value of the kind of article FLM publishes. But some authors who would like to submit articles to FLM, and whose work we would like to publish, do not do so because FLM is not listed in whatever index their institution considers essential.

In 1980, submissions to FLM were sent by post, and the process of reviewing and preparing articles to print took much longer than it does now. Technological changes have allowed the review process to be much quicker. They have also made it possible for readers to read journal articles in electronic form, and many journals now publish articles electronically before they appear in print on paper. Some have dispensed with paper copies entirely. FLM is old-fashioned in this regard. Older articles are available electronically, on our website and elsewhere, but current and recent articles are available first in the printed journal, though subscribers can also download electronic versions if they wish. One reason for this reluctance to move with the times is a conviction that FLM is a journal that is worth reading as a whole, not merely a collection of articles. As editor, I spend some time thinking about the sequence of articles, and little details that I hope enhance the experience of reading the journal on paper.

Publishing a journal on paper costs more than publishing electronically, and someone must pay those costs, as well as the costs of typesetting and proofreading. As FLM is not for-profit, one can get a sense of those costs by examining our subscription rates. Our subscribers pay for the production of the journal. The subscription rate of some other journals is much higher. For academic libraries with limited budgets, this creates a problem, and moving to new publishing models, made possible by technological changes, has increased in the past twenty years. One such model eliminates most of the expense of publishing by automating the reviewing process, having authors format their article to the journal's standards, and publishing electronically. Another transfers the expense to authors, having them pay a fee to publish their article.

Many funding agencies now require that articles be made freely available immediately or a short time after they are accepted for publication. This puts subscription based journals in a difficult position, as it is not clear if subscribers will be willing to continue to pay for articles they can read without subscribing. At FLM we have chosen to allow authors to deposit the version of their article accepted for publication in an open access repository, but the final version, after we have copyedited and typeset it, remains limited to our readers. It is not clear how this situation will evolve in the future.

The combination of several of these changes in academic publishing has given rise to a new kind of journal. These journals are electronic, open access, author funded, indexed, and often offer extremely short review timelines. They actively solicit articles via email. For a new scholar who must publish to be awarded a doctorate, or for an academic working in a context that requires open access publication in an indexed journal, such offers must be tempting. I wonder, however, about the quality of the review process. Such journals exist to fulfil the needs of the authors. Subscription funded journals must also consider the needs of their readers, and I hope there will always be a place for journals, like FLM, that publish articles worth reading.

Continuations, transitions and acknowledgments

Three years ago my predecessor Richard Barwell wrote an editorial welcoming me as the latest incarnation of Editor of FLM. I have very much enjoyed inhabiting that role, and have agreed to continue doing so for the next three volumes.

In the last three years I have been very ably assisted by my two associate editors, Mellony Graven and Jean-François Maheux. Jean-François will be continuing, but Mellony has, with regret, decided to return to her former role as an Advisory Board member. Sue Staats, a longtime member of the

Advisory Board, will become an associate editor beginning with the first issue of Volume 40. I would like to thank Mellony for her excellent work as an associate editor, at a time when she had many other responsibilities. Sue has already started participating in the work of the editorial board and I look forward to working with her over the next three years. I would also like to thank Jean-François for his support, especially in encouraging francophone authors, and in many other ways as well, and for being willing to continue as an associate editor.

While I am thanking people, let me mention my two editorial assistants, Hannah Schönhoff who worked with me on Volume 37 and Elke Naber who has assisted me ever since. They made my work much easier than it would have been, keeping track of submissions and correspondence, and proofreading, with fresh eyes, articles I had read too many times. Elke will be continuing for the foreseeable future, so submitting authors should expect the same standard of care for their submissions to continue.

Another transition that occurred recently was the retirement of Dave Wagner as Managing Editor at the end of 2018. For seven years, Dave handled all the business of FLM, making sure that issues were sent to subscribers on time, dealing with myriad rules and regulations, and other duties too numerous to list. The position of Managing Editor has been taken on by Susan Oesterle, and judging by her first year, she will be every bit as successful in the role as Dave was. Thank you, Dave for seven years of hard work, and Susan, for being willing to take that work on.

Finally, thank you to the authors and readers of FLM, for whom I edit this journal. Please keep writing, and reading, and commenting. A conversation needs people who converse, and FLM is more than a journal, it is a conversation.

