

# Editorial

I remember a few years ago trying to defend the terms “mathematics education” and “mathematics educator” against the claim of a friend that they referred to fictitious entities, invented to make certain activities sound legitimate, activities which were largely unrelated to mathematics teaching and mathematics teachers. The defence seems to me to be increasingly hard to sustain, though no less necessary. When I look at some of the writings which purport to be about mathematics education I find a number whose connection with mathematics or children or learning or classrooms is so slight or so superficial that I cannot imagine that they have any chance of ever being any use to anyone whose job is to teach mathematics. I have little patience with those researchers who pursue what is in effect an independent profession, taking in each other’s washing, blithely ignoring all criteria of relevance and applicability I understand, but don’t support, a taste for intellectual speculation that flies up from the source never to return to earth. I tire of those who think that their extensive knowledge of mathematics entitles them to pronounce on teaching it, and of those who seem to believe they can make a contribution even though they know almost none.

The case I tried to argue is that, however ineffectual and exasperating much of this activity is, it stands for something important: that the practice of any profession like teaching, especially one which is given a mandate to influence everyone’s lives, must be continually subject to justification, evaluation and improvement. Among other things, this means that the theories and practices of teaching mathematics should be criticised, researched and developed. Anyone who accepts some responsibility for undertaking this study, and gives a sufficient amount of time and energy to its pursuit, is entitled to call himself a mathematics educator whether he is a practising teacher or not.

But mathematics education, like engineering or medicine, is an applied field of study and at some point has to meet the test of action in an educational setting. This is a difficult test to apply since, paradoxically, a practical test in a human situation is often highly ambiguous in its results. Nevertheless, if it is appropriate, as it surely is, to demand of mathematics teaching that it works — i.e. that students learn mathematics — then it is equally fair and appropriate to demand of mathematics education that it works too — i.e. that mathematics teaching improves.

I think my friend’s complaint, essentially, was that the label “mathematics education” encouraged irresponsibility, that it appeared to permit people to say and do whatever occurred to them without the check of applicability (I don’t think he questioned their good intentions.) The accusation will continue to have some substance until it is accepted that mathematics education, too, must be continually subject to justification, evaluation and improvement. I put “mathematics education” in the subtitle on the understanding that this journal would make a contribu-

tion to these processes. The main title is there so that everyone may be reminded that both mathematics education and mathematics teaching are services performed for others.

It is early days, and the first issue of the journal has not yet found many readers, but I am a little disappointed that I could find only one letter to print in this issue. I would like to see perhaps one fourth of the pages of each issue given over to correspondence and comments arising out of the articles that appear in the journal. Whether that measure of open discussion is achievable, I don’t know. I cannot think of any journal which manages so much, but perhaps the others haven’t tried.

I realise that in inviting readers to comment for publication without going to the length of writing an article, I am asking them to give something of value to the journal with no guarantee of a return (Letters are not regarded as publications by those concerned to count these things.) I guess I would like to tap the generosity that usually expresses itself in private correspondence and “personal communications” where the writer knows exactly who may benefit from his gift. Printed words become public property and the writer has no further rights over them. Indeed, why should anyone give something for nothing?

Well, I can only say that in certain circumstances we do. Perhaps the fact that the questions of mathematics education are too large and complex for any of us to handle on his own suggests that a community of seekers might have more effect. I know that the educational world is not organised this way, but there is nothing to stop us trying to change that.

Sharp-eyed readers will have noticed a few typographical errors that escaped proof-reading scrutiny in the first issue. An errant exclamation point seemed to want to comment, not altogether inappositely, on one of the articles. Rather more serious were some mismatches between the text and the diagram on page 13. The sentence beginning on line 20 should read: “I take the right triangle which is on the right and I make it turn by  $180^\circ$  around  $BD$  (not  $BC$ ) as an axle.” In the first sentence of the next paragraph, the rotated segment  $BD$  should be swept along  $BA$  (not  $BC$ ) to produce the rectangle.

In this issue Peggy Marchi and David Tall write about infinitesimals and non-standard analysis, a subject of considerable pedagogical importance for teachers of the calculus. It seemed to me worth putting these two articles together in the same issue to give two different snapshots taken from quite different points of view. I hope the technicalities of the articles, which have been kept to a minimum, will not prevent anyone from at least getting their general drift and finding questions which could be asked about other mathematical topics and other levels of discovery.