ICTMA - An international community

The abbreviation ICTMA stands for International Conference on the Teaching of mathematical Modelling and Applications and is a 20-year-old enterprise. The most recent conference was held in Milwaukee, USA in July 2003, which was the eleventh conference in a row. More information about that conference and about ICTMA can be found at http://www.infj.ulst.ac.uk/ictma/. So far there has been eleven international conferences in:

1 – England  7 – Northern Ireland
2 – England  8 – Australia
3 – Germany  9 – Portugal
4 – Denmark  10 – China
5 – Netherlands 11 – USA
6 - USA

The reason for the first ICTMA conference seems to have been born in the fact that students who graduate from universities with an exam in mathematics often are good in solving mathematical problems served directly to them, but not so good in doing mathematical modelling of “real world” problems, not so good in communication and not in working in teams (Houston, 2003). Evidently, there are voices who claims that this is still true today:

The SIAM (Society for Industrial and Applied Mathematics) report on Mathematics in Industry (SIAM, 1995) contained data from a survey of PhD graduates working in industry. The report indicated that modelling, communication and teamwork skills together with a willingness to be flexible are important traits in employees. However the PhD graduates themselves indicated that they felt inadequately prepared to tackle diverse problems, to use communication effectively and at a variety of levels, or to work in teams. (Challis, Gretton, Houston, & Neill, 2002).

There were and are of curse many other influences behind a theme such as ICTMA that still exists after some 20 years and some of the strong forces behind this community have resulted in products such as the eleven ICTMA books in which selected conference papers are published after the conference. The first two ICTMA conferences was held in England and David Burghes, by Ken Houston (Houston 2003) named “the father of ICTMA” managed to start publishing a journal called The journal of Mathematical Modelling for Teachers in 1978. This journal is since 1981 published under the name Teaching
Mathematics and its Applications, a journal of the UK-based Institute of Mathematics and its Applications.

The journal is available online at http://www3.oup.co.uk/teamat/.

The international flavour of this community was evident from the beginning with delegates from 23 different countries already at ICTMA 1 in Exeter 1983. It is worth mentioning that the addendum “and Applications” first occurred at the ICTMA 3 in Kassel, Germany. From that conference and onward, the phrase “applications and modelling” occurs frequently in literature and underlines the subtle but significant difference between a study of mathematical models and the process of mathematical modelling. In his plenary lecture at ICTMA 3, Mogens Niss (Roskilde University) said that an application of mathematics was the result of the process of applying mathematics to any area of extra-mathematical reality – a mathematical model – whereas mathematical modelling is the process (Niss, 1989).

The ICTMA organization of today is really an international community with many different nationalities and perspectives present at both conferences and in the excellent series of eleventh ICTMA books. Nevertheless, as far as I know, there have not been many Swedes present at the ICTMA conferences and only two Swedes have so far been published in the ICTMA series: Lingefjärd and Holmquist (1999), Holmquist and Lingefjärd (2003), and Lingefjärd and Holmquist (2003). Hopefully this will change in the future, since mathematical modeling is visible both in the Swedish curriculum for compulsory school as well as for the gymnasium at present time:

The importance of mathematical models has increased in the age of information society. Everything that happens inside a computer is the result of a mathematical model, as one example. It is important that this area is acknowledged in mathematics education. (Skolverket, 1997, p. 19)

The school in its teaching of mathematics should aim to ensure that pupils:
- develop their ability to design, fine-tune and use mathematical models, as well as critically assess the conditions, opportunities and limitations of different models, (English version of the Swedish curriculum for the gymnasium, 2000, p. 61.)
- develop their knowledge of how mathematics is used in information technology, as well as how information technology can be used for solving problems in order to observe mathematical relationships, and to investigate mathematical models. (English version of the Swedish curriculum for the gymnasium, 2000, p. 61.)
The ICTMA community has not only grown stronger but also more mature along the years, with a constitutional democracy that elects President as well as members to the Executive committee. Applications and modelling has also been on the agenda of the ICME conferences since ICME 6 in Hungary in 1988 (Blum, Niss, and Huntley, 1989). It was therefore especially joyful that ICTMA was accepted by ICMI as an Affiliated Study group earlier this year (other such study groups are HPM, PME, IOWME, and so forth).

Last, but not least, an ICME Study Volume is underway, with the Study Conference planned for in February 2004 in Dortmund, Germany. Werner Blum is the chair of the International Programme Committee and the richness and variation of the conference contributions so far looks very promising. Unfortunately, Sweden has not many contributions to the ICME Study although there is still some time for anyone out there that is willing to contribute. More information about the ICME Study conference in Dortmund can be found at http://www.mathematik.uni-dortmund.de/didaktik/_aktuelles/ICMI.htm.

References


/ Thomas Lingefjärd