

# ICMI

## ICMI Newsletter 30

*A Newsletter from the ICMI-International Commission  
on Mathematical Instruction*

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## 1. EDITORIAL - FROM THE DESK OF ROGER HOWE, MEMBER-AT-LARGE, ICMI EXECUTIVE COMMITTEE

### **By Sharing Knowledge and Ideas, We Can All Improve.**

The recently published book *Building a Better Teacher* by Elizabeth Green, tells a story of mathematics education spanning two countries, the USA and Japan. In the 1980s and 1990s, US educational reformers promulgated ideas about how to improve mathematics instruction, by increasing student participation and emphasis on problem solving. Some Japanese mathematics educators, prominent among them Akihiko Takahashi, became convinced that the American ideas were promising, and promoted them strongly in Japan.

Through the Japanese practice of lesson study, the new ideas were able to become widely known, and were incorporated in many lessons, with the result that the practice of mathematics instruction in Japan changed substantially over a period of a few years. Wanting to learn more about the American way of mathematics education, Takahashi visited the US.

There he found, much to his consternation, that the wonderful ideas he had read about in mathematics education journals, and in the book *Teaching Problems and the Problems of Teaching* by Magdalene Lampert, were rarely to be seen in US classrooms. And indeed, despite being strongly promoted by the NCTM (National Council of Teachers of Mathematics) through their 1989 Standards for Mathematics Education, and its sequel Principles and Standards of Mathematics Education of 2000, the kind of teaching envisioned by the reformers is still far from the norm in the US. One key reason for the lack of change is that the US education system has no mechanism for changing teaching practice. It is built on the concept of the solitary teacher, who discovers for him/herself the personally most promising ways of presenting content. Teachers consult with each other rarely, and likewise, rarely see each other perform in the classroom.

There is little opportunity for ideas, good or bad, to spread.

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Also in the 1990s, Singapore surprised the world by placing first in the world on the mathematics part of the TIMSS, and some Americans became interested in the possibility of using textbooks and other materials from Singapore to improve US mathematics instruction. These efforts have had some striking successes, but these remain isolated, and many school districts that experimented with the Singapore materials did not discover how to use them well, and abandoned them.

In 1999, Liping Ma published *Knowing and Teaching Elementary Mathematics*. She had come to the US from China to learn more about mathematics education. She encountered Deborah Ball's interview questionnaire for probing mathematical knowledge of elementary teachers. She took it back to China and used it with Chinese teachers. She found evidence that, despite having had less formal education, Chinese teachers have substantially better grasp of basic ideas in the mathematics curriculum than do their counterparts on the US. Although these developments had little immediate impact on US teaching, they did serve to open the eyes of US mathematics educators that there were things that the US could learn by studying education in other countries.

One result has been the incorporation of important ideas from abroad for teaching place value and fractions into the latest version of mathematics standards in the US, the Common Core State Standards for Mathematics (CCSSM). At this point, most states are engaged in attempting to implement the CCSSM, and the same structural features that hobbled the reform ideas of the 1990s are impeding the success of this effort. However, at least these valuable curricular ideas are now on the table. All the above examples show the value of being able to learn from good practices, wherever they may have originated. By identifying and disseminating the best thinking around the world for mathematics instruction, the ICMI can promote overall improvement.

The current ICMI Study 23, which has just had its Study Conference in Macau, has as its focus whole number arithmetic, which is the bedrock of the mathematics curriculum. It is my hope that the publications coming out of Study 23 can help raise achievement worldwide in this crucial area.

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## 2. ICME-13

Preparations for the 13th International Congress on Mathematics Education (ICME-13) continue. The conference will take place in Hamburg, Germany on July 24-31, 2016. The Second Announcement includes:

- A call for papers, posters, discussion groups and workshops (see pages 31-33 for guidelines and deadlines), and for support to cover some of the expenses.

- An invitation to mathematics educators from developing and economically disadvantaged countries to submit applications (depending on need) to attend the conference (for guidelines and deadlines to apply to the Solidarity Fund see 35).

[Click here for ICME-13 announcements](#)

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### 3. ICME-14

According to the ongoing tradition, about a year before an ICME, the Executive Committee of ICMI selects the site of the following Congress. Three countries submitted bids to host ICME-14 in 2020: Australia (Sydney), USA (Honolulu) and China (Shanghai).

The Executive Committee had to make a choice between excellent and outstandingly excellent proposals - after long deliberations Shanghai was selected to host ICME-14.

The Executive Committee is very grateful to the Mathematics Education communities in the three countries for their enormous efforts and enthusiasm in preparing their bids and in hosting the delegation during the site visits.



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### 4. FORTHCOMING ICMI STUDY VOLUMES

ICMI is pleased to announce that two ICMI study volumes are already in print and will be available soon:

1. ICMI Study 21 on Mathematics Education and Language Diversity, and
2. ICMI Study 22 on Task Design.

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### 5. ICMI STUDY 23

ICMI Study 23 has recently held its Study Conference (June 3-7, 2015, University of Macau, [Click here for details](#)).

The Proceedings of this meeting are available [here](#).

The ICMI Study 23 volume is expected in 2016.

The Executive Committee of ICMI, which held its annual meeting at the University of Macau immediately before the Study Conference, expresses his deep gratitude to the University authorities for hosting both the meetings and the Study Conference, and for contributing to support both. Likewise, The Executive Committee is very grateful to Mariolina Bartolini Bussi and Xuhua Sun, co-chairs of the Study, and to the IPC for their intensive efforts to organize and run the Study Conference.



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## 6. IMU'S VOLUNTEER LECTURER PROGRAM AND MATHEMATICS EDUCATION

In 2008, in collaboration with the United States Committee on Mathematics (USNC/M), IMU's Commission for Developing Countries (CDC) developed the Volunteer Lecturer Program (VLP). The purpose of the VLP is to offer universities in the developing world lecturers for intensive 3-4 week courses in mathematics at the advanced undergraduate or master's level"

[Click here for details.](#)

Such mathematics courses have been offered by volunteers at universities in Africa, Central America, South East Asia and the Middle East. The host institutions choose the volunteers from a list available at the website. IMU supports travel and living expenses of the volunteers with up to \$5000 for the one month stay and the volunteers home institution is expected to grant them leave with pay for the month.

The Francisco Morazán National Pedagogical University (UPNFM) in Tegucigalpa, Honduras, had benefited from three volunteers from universities in Brazil in their undergraduate program that prepares high school mathematics teachers. The Director of UPNFM's Mathematics Department, Gladys Gómez, and then made a request to IMU for a volunteer in Mathematics Education.

Since none of the volunteers in the VLP data base were Spanish-speaking Mathematics Educators, Angel Ruiz and Roger Howe of the ICMI

Executive Committee contacted Patrick (Rick) Scott, Past Chair of the United States Commission on Mathematics Instruction (USNC/MI) and Vice President of the Inter-American Committee on Mathematics Education (a regional affiliate of ICMI). Rick was very pleased to accept the opportunity and has just returned from a month in Honduras.

He taught in an undergraduate "Seminar on Mathematics Education", and offered a series of workshops to students in a Master's program in Mathematics Education in both Tegucigalpa and San Pedro Sula. He also was able to work with other undergraduate groups, present a colloquium on "Research in Mathematics Education" and attend the Honduran National Mathematical Olympiad where he had the distinct pleasure of participating in what may well have been the first ever "Olympic Parade" celebrating the start of a Mathematical Olympiad.

To view his report, [click here](#).

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## 7. HPM, AN ICMI AFFILIATED STUDY GROUP - LUIS RADFORD, CHAIR

HPM - the International Study Group on the Relations between the History and Pedagogy of Mathematics - brings together mathematicians, historians of mathematics, mathematics education researchers, teachers, philosophers, epistemologists, and educational policy makers.

Two of its main aims are:

-To promote an interdisciplinary and cultural approach to mathematics in order to better understand the emergence and cultural evolution of mathematics; and

-To stimulate research about the manners in which the history of mathematics can enhance the teaching and learning of mathematics at all levels and assist the development of curricula.

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HPM organizes two main conferences that alternate every two years:

-Satellite meetings of the International Congress on Mathematical Education (ICME) devoted to the history and pedagogy of mathematics; and

-European Summer Universities on the History and Epistemology in Mathematics Education (ESU).

The next satellite meeting will take place in Montpellier, France, from July 18 to July 22, 2016. HPM invites members of the ICMI community to participate. Featuring a relaxed and inclusive atmosphere of discussion and exchange, this ICME HPM satellite meeting will include plenary lectures, discussion groups, workshops, research presentations, and posters.

Information about HPM:

[Newsletters.](#)

Proceedings of ICMI Conferences.

- 1) [Digital Library.](#)
- 2) [History and Math.](#)

History of HPM

- 1) [ICMI History.](#)
- 2) [HPM History.](#)
- 3) [History, Math and Edu.](#)

An ICMI Study was conducted and published in 2000:

*Fauvel, J., & Maanen, J. (2000). History in mathematics education: The ICMI study. Dordrecht: Kluwer.*

We hope to see you in Montpellier, France, in 2016!

Luis Radford, HPM Chair, Université Laurentienne, Canada

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## 8. IN MEMORIAM

The ICMI community mourns the untimely passing away of two dear friends of ICMI: Daniel François Coray (1947-2015) and Maria do Carmo Santos Domite (1948-2015).

Daniel F. Coray was a Swiss mathematician, graduated from Cambridge University in 1974, and Professor at Geneva University. He was involved for many years with *L'Enseignement Mathématique*, the official organ of ICMI.

Bernard Hodgson, former Secretary General of ICMI, remembers: "Daniel played a major role in the reinvigoration of the links between ICMI and *L'EM*, when Hyman (Bass), Michèle (Artigue) and I started our first term on the EC.

He was always keen in having ICMI-related materials appear in the journal... He is the one who proposed the (brilliant) idea of inviting co-chairs of ICMI Studies to reflect on « their » Study, a few years after the event... I always appreciated his dedication, wit, scholarship, and subtle sense of humor."

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Michèle Artigue added: "This is very sad news for the ICMI community. During my terms in the ICMI Executive Committee, I was impressed by his mathematical culture and also his professionalism as editor of *l'Enseignement Mathématique*. For decades, he was a supportive friend of ICMI, and when needed, a critical friend, and I cannot think of him without remembering the Symposium he organized in Geneva for the centennial of the journal a fascinating event which inspired us for the centennial of ICMI."

Maria do Carmo Santos Domite was a Brazilian mathematics educator, graduated from the University of Georgia (USA) and the State University of Campinas (UNICAMP) in São Paulo (1993). Her Brazilian colleagues attest to her very important contributions to teacher training, problem solving, and ethnomathematics as well as to the recognition and valuation of cultural and linguistic diversity as central to education.

She collaborated with worldwide famous Brazilian educators: Paulo Freire (during his tenure as Secretary of Education of the Municipality of São Paulo) and with Ubiratan D'Ambrosio (in the development of ethnomathematics).

Maria do Carmo worked with teacher education from indigenous groups (Guarani, Tupi, Kaingang, Terena and Krenak). Nationally and internationally, this work became a reference on issues of intercultural education and she advised pioneering masters and doctoral investigations in mathematics education on indigenous, African and Afro-Brazilian education. ICMI is especially grateful to Maria for her contribution to the 21st ICMI Study "Mathematics Education and Language Diversity" including hosting the Study Conference in Águas de Lindóia, Brazil.

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