

ICMI

ICMI Newsletter

A Newsletter from the ICMI-International Commission
on Mathematical Instruction

Editors:

Abraham Arcavi (ICMI Secretary General)

Merrilyn Goos (ICMI Vice President)

Lena Koch (ICMI Administrative Manager)

Contact:

abraham.arcavi@weizmann.ac.il

merrilyn.goos@ul.ie

lena.koch@wias-berlin.de

Graphic Design:

Lena Koch

Contents

1. From the desk of Jill Adler, President of the International Commission on Mathematical Instruction (ICMI)
2. Farewell to a dear ICMI friend – a Tribute to David Clarke
3. Review of ICMI Studies
4. Gender Gap Project
5. ADIMA – A new ICMI Regional Conference
6. International Day of Mathematics
7. Once upon a time... Historical vignettes from the ICMI Archives: The first ICMI Study
8. CIEAEM
9. Searching for ICMI Studies documents – in languages other than English
10. News in Brief

14th International Congress on Mathematical Education
July 12 to 19, 2020 Shanghai, China

ICMI International Commission on Mathematical Instruction

Announcement

ICMI and ICME-14 are closely monitoring the development of events regarding the coronavirus pandemic in China, and we are holding many conversations regarding the most sensible ways to proceed, given the circumstances and the available information. For now, we decided to put a hold on paid registrations and to extend any relevant deadline (e.g. poster submissions). On March 15th, ICMI and ICME-14 will make a new announcement.

ICMI and ICME-14
February 20, 2020

1. From the desk of Jill Adler, President of ICMI

I write this editorial following participation in Lisbon, Portugal, in the conference of the ICMI Study 25: *Teachers of mathematics working in collaborative groups*. The conference has got off to an excellent start, with Plenary presentations on Day 1 by Susanne Prediger and Masami Isoda (see icmistry25.ie.ulisboa.pt). There were four themed working groups and all these began the important work of sharing knowledge that will build towards the ICMI Study volume on day 1. Hilda Borko and Despina Potari, the co-chairs of the study, are supported by an excellent IPC and we look forward to the product from this conference, and the collaboration it invites and will extend as the volume is written. It was also a special moment on Sunday 2 February (02-02-2020) in the IPC meeting preceding the start of the conference, to enjoy that we were meeting on the first global palindrome day in 909 years!

Following a warm welcome from the Dean of the Education Faculty at the University of Lisbon, the President of the Mathematics Education Association, and João Pedro da Ponte, the conference host, I opened the conference on Mon 3 February. I began by commenting on what we knew at that point about the spread of the Coronavirus in China, and consequences for ICME 14 planned for July. I assumed this would be a pressing concern for all study conference participants, as I am sure it is for you, the reader of this newsletter. And hence I begin here by pointing to the 20/21 February announcement on the first page of this newsletter from ICMI and ICME14. This has appeared on the [ICME14 Congress website https://www.icme14.org](https://www.icme14.org) (as well as the [ICMI website www.mathunion.org/icmi](http://www.mathunion.org/icmi)). It follows the earlier letter (31 January) to us all from Jianpan Wang, the ICME14 Convener, which was widely circulated in our ICMI community, on our Facebook page, and on the ICMI Website. As indicated in the more recent announcement, we are monitoring the situation and will jointly make a further announcement on March 15. In the meantime, Jianpan and his team continue with their preparations. We all send our Chinese colleagues, as well as others elsewhere who might have been affected, our thoughts and support as they deal directly with the crisis, both personally and professionally.

I am happy to report here, that we held the Solidarity Fund Committee in Shanghai at the beginning of January, and all at that meeting have returned home in good health and in good spirits. We were able to provide some financial support to roughly two thirds of the over 300 applications to the fund. All applicants will soon receive notification from the Conference Convener in reply to their application. As all would know, in most cases, one, or two but rarely all three of the conference fees, accommodation costs, and flight costs will be offered. Our ability to provide financial support to maximize participation from colleagues across the world is one of the incredible strengths of ICMI, through contributions from the ICME conference fees and additional funds from the host country.

And having begun this message with a note on ICMI Study 25, I am also pleased to announce that we have begun a meta-study and reflection on our ICMI Studies with a Survey that has been sent out to all Study conference participants beginning with Study 12. In this Newsletter, Merrilyn provides more information about the survey. If you have participated in any of the Study Conferences for Studies 12 – 25, you should have received an email with the link to the survey. Please take the time to complete it, and as fully as possible. This will help ICMI up ahead, as the new EC takes over in 2021, to plan future studies. On that note, if you have attended an ICMI Study conference and you have not received an email with a request for you to participate and complete the survey, please email Lena Koch, the ICMI Administrative Manager in the IMU Secretariat icmi.administrator@mathunion.org and she will add you to the database and send you a link so you can complete the survey. The deadline for receipts is 4 March and so very soon. Lena can assist you with any query you might have.

And with happiness, comes the sad passing of our colleague David Clarke, from Melbourne, Australia. David has taken roles in many ICMI activities, among others he served as a member of the Awards Committee during 2011-2016 and was the plenary panel moderator in ICMI 11 in Mexico. You will find an obituary of David in this Newsletter. Our condolences to David's family friends and colleagues. We have lost a great scholar, collaborator and promoter of mathematics education.

And so, as is evident above, this final year of the term of office of the current EC has got off to a busy and challenging start.

Jill Adler

2. Farewell to a dear ICMI friend - a Tribute to David Clarke



David Clarke

We hereby reproduce with permission a message from Professor Jim Watterston, Dean of the Melbourne Graduate School of Education, University of Melbourne, Australia.

I am deeply saddened to announce that our dear friend and colleague, Professor David Clarke, passed away on January 25 surrounded by his family. David's courage in the face of his final illness, and his determination to make the most of moments with family and colleagues, has been an inspiration to those of us fortunate to have spent time with him.

Professor David Clarke leaves behind an incredible academic legacy and I detail below a short summary of significant moments in his career.

Professor David Clarke was welcomed to the University of Melbourne in 1994 and promoted to full Professor of Education in 2004. He established the International Centre for Classroom Research (ICCR) in 2003; a facility unique in its support of the generation, storage and collaborative analysis of complex classroom data. The ICCR's flagship project - The Learner's Perspective Study - examined the practices of eighth grade mathematics classrooms in 16 countries in a more integrated and comprehensive fashion than had been attempted previously. Professor David Clarke has been well known internationally for his establishment and leadership of a substantial, internationally-extensive, innovative research programme in video-based classroom research. Over the last twenty years, the research activity of Professor Clarke centred on capturing the complexity of classroom practice through a programme of international video-based classroom research in more than 20 countries. The combination of theoretical, methodological, and technological advances and the creation of the vibrant and active international research community moved the field towards greater critical self-reflection, and increasingly sophisticated research designs and research tools for understanding complex teaching and learning practices in different parts of the world.

Professor David Clarke attracted funds from a range of national and international funding agencies during his career. This included continuous Australian Research Council (ARC) funding since 1996 (18 ARC Research Grants; 14 as lead CI). In 2014, when David was co-awarded the ARC Special Research Initiatives grant which funded the establishment of the Science of Learning Research Classroom, this research platform greatly enhanced the capacity of the ICCR to engage in controlled experimental classroom research and significantly expand its data management capacities. More recently, in 2017, David was awarded \$1.2M in ARC funds for two Discovery Projects out of six awarded to mathematics education nationally.

Professor David Clarke has published 12 books (including one edition in Spanish translation and another in preparation), over 50 book chapters, more than 70 refereed journal articles and 90 refereed conference proceedings.

Besides promoting theoretical, methodological, and technological advances, the research programme led by Professor David Clarke has also created an active and vibrant international research community; an achievement he was most proud of. The list of active collaborators associated with David's research programme is very large, numbering more than 55 research academics plus associated research students and research assistants in Chile, China, the Czech Republic, Denmark, Finland, France, Germany, Hong Kong, Israel, Italy, Japan, Korea, New Zealand, Norway, the Philippines, Portugal, Singapore, South Africa, Sweden, the UK and the USA. David has supervised more than 20 doctoral students to successful completion. One of the most admirable qualities was David's willingness to engage in 'coffee conversations' with anyone who had a good idea to discuss.

Professor David Clarke has received three MGSE awards: in 2014 a Supervision Excellence Award; in 2017 a Research Leadership Excellence Award; and, in 2019 a Distinguished Career Research Award.

In December 2019, Professor David Clarke received two additional awards: Universitas 21 awarded David with an honorary U21 Award for Internationalisation; the University of Connecticut special award honoured David's leadership and support of student and faculty and collaborations between the two universities.

Please keep David's wife Sharon and his loving children, grandchildren and those most dear to him, in your thoughts."

3. Review of ICMI Studies

The ICMI Executive Committee entrusted ICMI Vice-President, Merrilyn Goos, to lead a review of the ICMI Studies 12 to 25 (which is still ongoing). The goal of this review is to obtain structured feedback from the members of the ICMI community who participated in any way (as participants, authors, co-authors, co-chairs and invited plenary panelists and speakers) in these Studies.

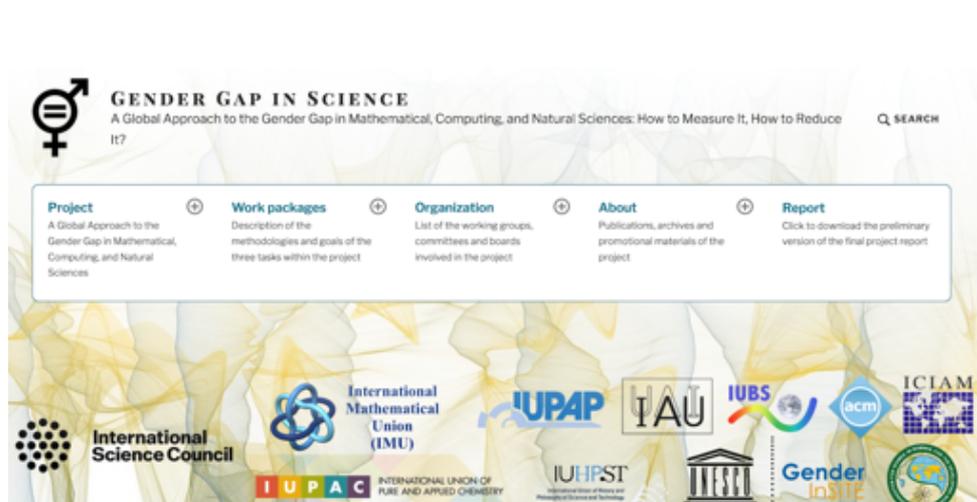
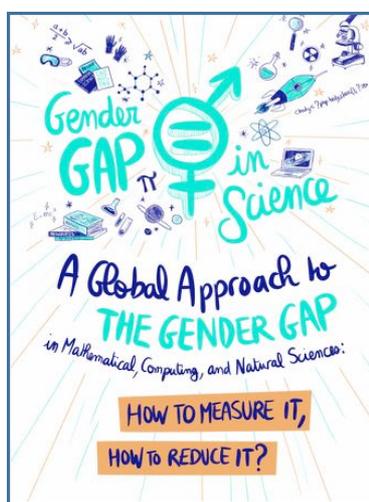
The feedback obtained will inform the ICMI Executive Committee whether the stated goals for ICMI Studies remain relevant, the extent to which these goals are being realized, and their actual and potential impact on the worldwide community of mathematics education (researchers and practitioners). The findings of the survey will be distributed to the ICMI Community via this Newsletter and it will serve the ICMI Executive Committee in their decisions concerning all aspects of the future ICMI Studies.

If you participated in an ICMI study and have not received an invitation to respond to the survey, please contact Lena Koch, before March 4, 2020 at icmi.administrator@mathunion.org and she will add you to the database and send you a link so you can complete the survey.

4. Gender Gap Project

The International Science Council (see <https://council.science/>) together with eleven scientific partner organizations funded a three-year project to investigate the gender gap in STEM disciplines from different angles, globally and across disciplines. ICMI Vice President, Merrilyn Goos, was involved in several aspects of the study including the authoring of sections of the final report. The project performed (i) a global survey of scientists with more than 32,000 responses; (ii) an investigation of the effect of gender in millions of scientific publications; and (iii) the compilation of best practices to encourage girls and young women to enter STEM fields, available as a website.

The study developed innovative methodologies and tools together with a set of recommendations addressed to different constituencies – instructors and parents; educational institutions; scientific unions and other organizations responsible for science policy – in order to reduce and possibly eliminate the gender gap. A first version of the final report titled "A Global Approach to the Gender Gap in Mathematics, Computing and Natural Sciences: How to measure it, How to reduce it?" is available to the public at large at https://gendergapinscience.files.wordpress.com/2020/02/final_report_20200204-1.pdf



If you organize an event, then announce it at <http://www.idm314.org>, if you have not yet done so. Your event will then join the many other dots on the map. If you have not done so, you may then register for the IDM newsletter to be informed about new developments.

ICMI thanks Professor Christiane Rousseau for sharing the above information. Professor Rousseau is the Chair of the IDM Governing Board, on behalf of IMU.

ICMI is represented in the Board by ICMI member-at-large Anita Rampal.

7. Once upon a time... Historical vignettes from the ICMI Archives: The first ICMI Study (1985) Bernard R. Hodgson, Curator of the ICMI Archive and former ICMI Secretary-General

Among the various components of the ICMI activities, the series of so-called ICMI Studies stands as a particularly significant and successful one. The first of these studies took place in Strasbourg 35 years ago, on March 25-30, 1985. It may be worth, on the occasion of this anniversary, to recall the context in which this programme was initiated.

In January 1983, a new ICMI Executive Committee (EC) took office under the presidency of Jean-Pierre Kahane, with Geoffrey Howson as Secretary. An implicit parameter of their appointment, from the perspective of the International Mathematical Union, was to revitalise ICMI and put it back on solid ground: the “inefficient administration” under the previous EC, to use the terms of the IMU Secretary of the time, Olli Lehto [1, p. 258], had left the Commission in a somewhat fragile state. The difficulty of the situation is transparent from the minutes of the 1981 meeting of the IMU EC: “Points concerning ICMI: Much concern concerning the difficulties that arose in the EC. An extensive discussion was set on the way of election for the next EC of ICMI.” [2, p. 25]

Howson [3] mentions that the idea of the ICMI Studies developed from conversations he had in the years 1980-82 with Bent Christiansen, who was then acting for a second term as ICMI Vice-President – Christiansen was eventually appointed to the Kahane-Howson EC for a third term as VP. In December 1982, just before the beginning of his presidency, Kahane hosted at his home in Paris a small meeting attended by both Howson and Christiansen, and also by Ed Jabcobsen, the math specialist at UNESCO. It is there, writes Howson, that the formal development of the studies started. Kahane “immediately supported the idea and proposed that we began with a study on the impact of computers.” [3, p. 2] Kahane also established the contacts for this first ICMI Study to be held in Strasbourg.

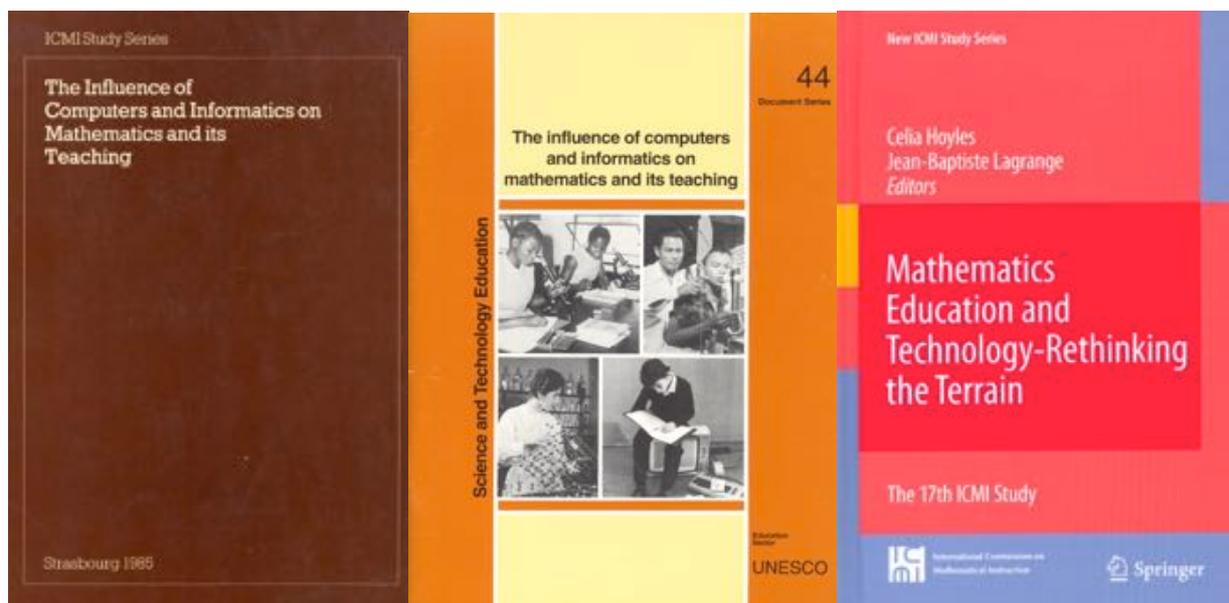
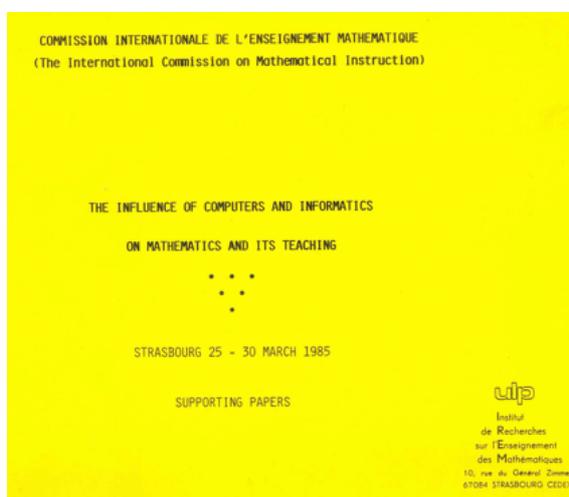
In the minutes of that 1982 meeting, one finds, under the item “Possibilities for future actions”, the outline of a proposed programme of ICMI “symposia” (the name “studies” was introduced later), the first of which was simply described as follows: “Mathematics and computation: How should mathematics curricula be reoriented in order to meet the new opportunities presented by calculators and computers?” [4, p. 7]

Preliminary information about the first ICMI “study” (this term then being used in quotes) was published in the ICMI Bulletin in a report about the first meeting of the new ICMI EC, held during the (postponed) International Congress of Mathematicians (Warsaw, 1983). The theme is there presented as “Mathematics, computers and computations” [5, p. 5].

The first ICMI Study was finally officially launched publicly with the appearance of the so-called discussion document [6], delineating the scope of the Study. The theme is there phrased, in its definitive form, as “The influence of computers and informatics on mathematics and its teaching” – the choice of the wording owing a lot, as I understand, to Kahane himself. Also typical of Kahane’s influence is the caveat: “ICMI studies do not aim to find an ‘ICMI approved’ solution to any particular problem. Rather we wish to encourage the discussion in depth of key issues and the sharing of knowledge and experience.” [6, p. 159] The study is presented as focusing on three aspects: the influence of computers and informatics on mathematics as a science, on curricula, and on teaching.

As is typical of many ICMI Studies, the Strasbourg conference resulted in two publications: a volume of “supporting papers” accepted for the conference [7], published by the host university—more than 300 double pages; and a “study volume” [8], published by Cambridge University Press, containing a survey article reporting on the outcome of the conference and a selection of papers from the conference or subsequently written by invitation. What is highly peculiar however is that this first Study had two important offshoots. On the one hand, a second edition of the study volume was published a few years later by UNESCO [9], with the main report and five of the papers from the first edition being updated, and four new papers being added. On the other hand, the decision was made by the ICMI EC in 2002 to revisit the theme of mathematics education and technology with another ICMI Study, whose conference was held in Hanoi in 2006 [10].

I end this note with a personal memory from the first ICMI Study. This was the occasion of my first real implication in an international setting and at some point during my presentation I was using the then fashionable topic of fractals as an illustration of the impact of technology on mathematics. With who else but Benoit Mandelbrot, the “father” of fractals and a special guest at the conference, sitting on the very front row... A bit intimidating, I must say, for the rather young faculty member I was then! But thanks to the warm atmosphere of the meeting, that episode flowed rather smoothly.



(Source: IMU Archive)

Sources

[1] Lehto, O. (1998). Mathematics without borders: A history of the International Mathematical Union. New York : Springer.
www.mathunion.org/organization/imu-history

[2] IMU EC Minutes (1981). Minutes of the 42nd meeting of the Executive Committee of the International Mathematical Union. (Paris, April 27-28, 1981). IMU Archive, Box 4D – Executive Committees, 1979-1982.

[3] Howson, A.G. (2007). Some notes on the early ICMI Studies.
www.mathunion.org/icmi/publicationsicmi-bulletin/papers-unpublished-issues-icmi-bulletin

- [4] Howson, A.G. (1982). Minutes of a meeting held in Paris on 3 December 1982 between J.-P. Kahane, B. Christiansen and A.G. Howson. IMU Archive, Box 14C – International Commission on Mathematical Instruction, 1981-1982.
- [5] Howson, A.G. (1983). ICMI Executive Committee. ICMI Bulletin 14, 5-8.
- [6] ICMI (1984). An introduction to the ICMI Study on the computer and informatics. *L'Enseignement Mathématique* 30, 159-172.
- [7] ICMI (1985). The influence of computers and informatics on mathematics and its teaching. (Supporting Papers for the ICMI Symposium) Strasbourg: IREM, Université Louis-Pasteur.
- [8] Churchhouse, R.F. et al. (Eds.) (1986). The influence of computers and informatics on mathematics and its teaching. (ICMI Study Series) Cambridge: Cambridge University Press.
- [9] Cornu, B. & Ralston, A. (Eds.) (1992). The influence of computers and informatics on mathematics and its teaching. 2nd edition. (Science and Technology Education No. 44) Paris: UNESCO.
- [10] Hoyles, C. & Lagrange, J.-B. (Eds.) Mathematics education and technology – Rethinking the terrain. The 17th ICMI Study. (New ICMI Study Series Vol. 13) New York: Springer.

8. CIEAEM



The International Commission for the Study and Improvement of Mathematics Teaching (CIEAEM) is an ICMI affiliated organization. The last issue of their Newsletter can be found at

<http://www.cieaem.org/?q=system/files/Newsletter-November-2019-10.pdf>

9. Searching for ICMI Studies documents – in languages other than English

Some of the publications pertaining to the ICMI Studies – for instance discussion documents or study volumes –, originally written in English, have been translated to other languages. Such is the case, for instance, of the book

A.G. Howson and B. Wilson, *Las matemáticas en primaria y en secundaria en la década de los 90*. Valencia: Mestral Libros, 1987

which is a translation to Spanish of the Study volume of ICMI Study 2 on School mathematics in the 1990s (original version: Cambridge University Press, 1986).

The ICMI Archive is searching for translations of books and other relevant documents resulting from the series of ICMI Studies. Such translations have reportedly appeared (a least) in CHINESE, JAPANESE and SPANISH, but we unfortunately do not have a full list of all these documents.

If you have information about translations related to the ICMI Studies, please contact the ICMI Archive Curator, Bernard Hodgson (Bernard.Hodgson@mat.ulaval.ca).

Donators of books to the Archive may be rewarded by an ICMI book (available in stock).

10. News in Brief

- **The study volume for ICMI Study 24 on “School Mathematics Curriculum Reforms: Challenges, Changes and Opportunities” is in preparation.** The aim is to present the volume at ICME14.
- **The ICMI Nomination Committee** is in the latest stages of its work. The slate from which the next Executive Committee will be elected by the Country Representatives at the General Assembly (July 12, 2020, Shanghai) will be made public in May 2020.

SUBSCRIBING TO ICMI NEWS

There are two ways of subscribing to ICMI News:

1. Click on <http://www.mathunion.org/mailman/listinfo/icmi-news> and go to the "Subscribe" button to subscribe to ICMI News online.
2. Send an e-mail to icmi-news-request@mathunion.org with the Subject-line: Subject: subscribe

In both cases you will get an e-mail to confirm your subscription so that misuse will be minimized.

ICMI will not use the list of ICMI News addresses for any purpose other than sending ICMI News, and will not make it available to others.

The Newsletter in PDF starting from July 2014 can be found here:

[https://www.mathunion.org/icmi/publications/icmi-newsletter/icmi-newsletter-archive-starting-july-2014 version/](https://www.mathunion.org/icmi/publications/icmi-newsletter/icmi-newsletter-archive-starting-july-2014%20version/)

All previous issues can be seen at:

<https://www.mathunion.org/pipermail/icmi-news/>