ICMI Column

Jean-Luc Dorier (Université de Genève, Switzerland)

Review of ICMI studies: some initial findings

Merrilyn Goos[1]

The aim of the review of ICMI Studies is to obtain structured feedback from the wider ICMI community on whether the stated goals for ICMI Studies remain relevant and the extent to which these are being realised. Each ICMI Study is built around an international conference of invited experts in a specific field of contemporary interest in mathematics education, and results in a published Study Volume that communicates the main outcomes as well as proposals for future research and action. At the time of writing, 23 ICMI Studies have been completed, and an additional two Studies are in progress.

The first phase of the review comprised an online anonymous survey of past ICMI Study participants (for Studies 12 to 25). The survey asked the following broad questions:

- How relevant are current goals of ICMI Studies?
- To what extent are these goals being met?
- Is the time frame for completing a Study (up to 3 years) feasible for ensuring that the Study Volume is an up-to-date resource?
- What evidence is there of the impact of ICMI Studies on theory, policy, practice, research community development and individual careers?
- What is the distinctive contribution of a particular ICMI Study to growth of that field?
- What is the cumulative contribution of ICMI Studies to the field of mathematics education?
- To what extent are the Studies "international" in intention and enactment/
- How can participation and voice of developing countries be broadened in ICMI Studies?

There were 171 responses to the online survey, 41% of whom were male and 59% female. The geographical distribution, years of research experience and ICMI Study distribution of the respondents are shown in Figures 1, 2 and 3 respectively. Almost half (45.6%) of the survey respondents came from Europe, and a little more than one-quarter (27.5%) from the Americas, with 13.5% from Asia, 7.0% from Oceania, 5.3% from Africa and 1.2% from other regions. Half the respondents had more than 20 years of research experience. The number of respondents who had participated in each Study varied from 6 (for Study 16: *Challenging mathematics in and beyond the classroom*) to 51 (for Study 25: *Teachers of mathematics working and learning in collaborative groups*). While 71.3% of respondents had participated in only one Study, 12.2% had been involved in two, 8.8% in three, and 7.6% in four or more Studies. The respondents included Study Conference participants who had a paper accepted, conference co-chairs, IPC members, invited speakers and ICMI Executive Committee members.

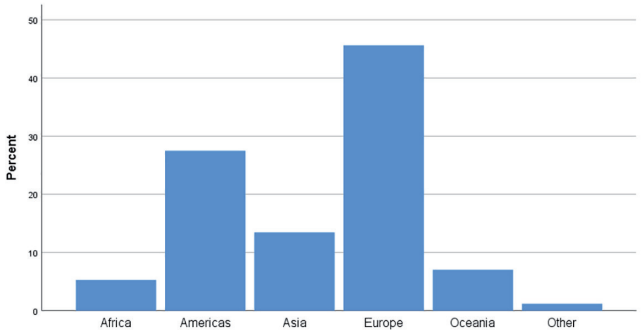


Fig 1. Geographical distribution of survey respondents.

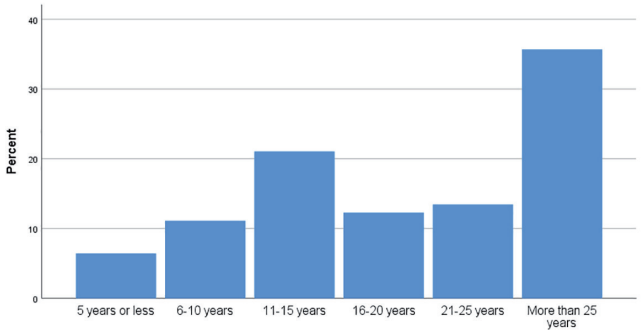


Fig. 2. Years of research experience of survey respondents.

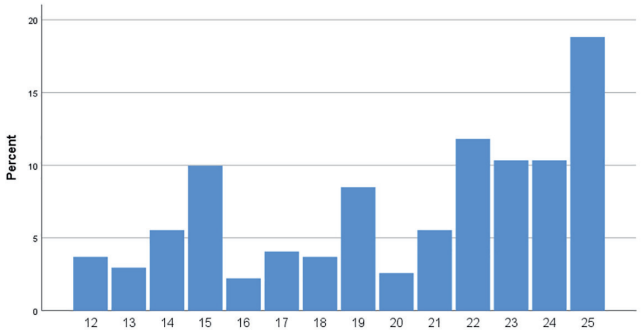


Fig. 3. ICMI Studies attended by survey respondents.

There was strong endorsement of the *relevance* of ICMI Study goals, with at least 65% of respondents rating all nine goals as being of either high or very high relevance. Based on these responses, the most relevant is Goal 1: To bring together international scholars (representative of

[1] This report made by Merrilyn Goos (ICMI vice-president) was first published in the July 20 ICMI Newsletter. It is reprinted here with her authorisation.

diverse cultural contexts, perspectives and backgrounds) to exchange knowledge, collectively reflect and discuss a specific theme, topic or issues in mathematics education (endorsed by 87.7% of respondents). More than three-quarters of respondents (76.1%) considered that ICMI Study *goals were met* to a large extent or in full.

In contrast to these positive assessments of the value of ICMI Study goals, the survey respondents were less certain of the impact that ICMI Studies have on *theory, policy and practice*. However, the Studies were thought to have substantial impact on *research community development* and, to a lesser extent, an impact on *individual careers* (65.5% and 39.2% of respondents, respectively, rated these as high or very high impact).

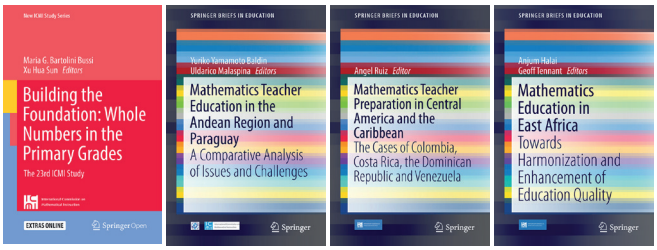
ICMI Study participants who responded to the survey identified many distinctive contributions of ICMI Studies to the field of mathematics education, in particular the fostering of international participation across diverse contexts, cultures and theoretical perspectives. Respondents also recognised ICMI's efforts to achieve greater inclusion of participants from low income or developing countries, while acknowledging the challenges of fully realising this intention.

We would like to thank everyone who responded to the survey, and especially Dr George Ekol for his contribution to quantitative analysis of survey responses. In this article, we have deliberately refrained from presenting any commentary on the survey responses, because we would like to invite readers to contact us with your own interpretations. (Please send your views to both merrilyn.goos@ul.ie and jill.adler@wits.ac.za.) Your additional contributions will inform our analysis and discussion with the ICMI Executive Committee, as well as subsequent phases of the review that will involve interviews with key participants in past ICMI Studies.

CANP – Open access publications (New!)

With the publication of ICMI Study 23, ICMI has decided to make relevant publications accessible to all (Open Access). Readers can find the Volume of ICMI Study 23 at https://www.springer.com/gp/book/97833196355457

ICMI has signed a contract with Springer to publish the upcoming ICMI Study Volumes (24 and 25) as open access as well as the existing books published by CANPs 2, 4 and 5, which will be available very soon.



Gender gap in science book now available

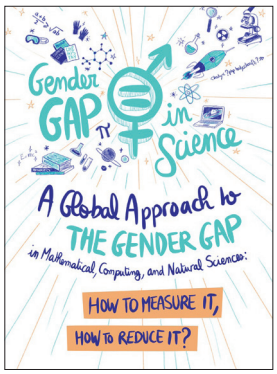
The Gender Gap in Science project's final report can be downloaded at: https://gendergapinscience.files.wordpress.com/2020/02/final_report_20200204-1.pdf).

This was a three-year project funded by the International Science Council (see https://council.science/) together with eleven scientific partner organisations 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 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 organisations responsible for science policy – in order to reduce and possibly eliminate the gender gap. See the project website at https://gender-gap-in-science.org/ for details.

The Gender Gap in Science book is now available in hard copy format through the low-cost print-on demand service of IngramSpark. It can be ordered through many retailers worldwide (e.g., Book Depository, €10.41).

Here are the publication details for the book:



Authors: Colette Guillopé, Marie-Françoise Roy
A Global Approach to the Gender Gap in Mathematical, Computing, and Natural Sciences. How to Measure It, How to Reduce It?
Publisher: International Mathematical Union, June 2020.
Paperback, 244 pages.
ISBN 978-3000655333