

Guidelines for conducting an ICMI Study

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What is an ICMI Study?

ICMI Studies are a central and influential activity of the International Commission on Mathematical Instruction since they were launched in the mid-80s. An ICMI Study addresses a theme of particular significance to contemporary mathematics education, and is conducted by an international team of leading scholars and practitioners. The team is appointed by the Executive Committee of ICMI and it is expected to conduct the Study according to the goals and operational steps described in the next sections. ICMI Studies seek to advance knowledge on a particular area and to put it at the service of the global community as a reference and as a source of inspiration for theory, research and practice. The ICMI Studies aspire to be of the highest scholarly quality, supported by evidence and available references. The Study can take a diversity of forms according to the theme of the Study, its specific aims, the state of development of research and educational realisations in the area at stake. Also, it can include possible collaborations with other cognate institutions or communities.¹

An ICMI Study is the joint product of a community of colleagues led by an International Program Committee (IPC) over three-four years of joint work which includes the following steps to be detailed below: establishment of the IPC, delineation of the theme and a call for papers (in a Discussion Document), selection of papers to be discussed in the Study Conference and published in the Study Conference proceedings, writing the chapters of the Study Volume under the leadership of the IPC, and collective review and approval of the final version of the Study Volume for publication. After the publication, efforts should be taken to disseminate the Study and its results.

What are the goals of an ICMI Study?

- 1- To bring together international scholars (representative of diverse cultural contexts, perspectives, and backgrounds) to exchange knowledge, collectively reflect and discuss a specific theme, topic or issues in mathematics education;
- 2- To produce a substantial critical review, a meta-analysis or a synthesis of a particular domain;
- 3- To integrate and/or to contrast multiple theoretical, methodological, empirical and contextual perspectives on the same theme;
- 4- To enhance state of the art knowledge, understanding and resolution of challenges faced by a certain domain of mathematics education in diverse contexts and cultures;
- 5- To consider and facilitate multi- and interdisciplinary approaches to advance research and development in mathematics education on a certain area;
- 6- To envision, identify and anticipate future trends, challenges and needs in a certain domain;

- 7- To establish agendas for discussion and action at the international, regional or institutional level;
- 8- To provide a high quality resource for researchers, curriculum developers, teacher educators, policy makers and practitioners of mathematics education;
- 9- To disseminate scholarship in mathematics education – research, methodologies, theories, findings and results, practices, and curricula.

¹ See as example ICMI Study 18 on Statistics Education jointly organised by ICMI and IASE, ICMI Study 20 on Educational Interfaces between Mathematics and Industry jointly organised by ICMI and ICIAM.

How to conduct an ICMI Study?

Step 1: There are two pathways towards the first step in conducting an ICMI Study, which involves the Executive Committee (EC) of ICMI in considering the value and timeliness of potential themes for a Study.

In the first pathway, the EC of ICMI identifies and considers one or more themes on its own initiative and decides to launch a Study.

In the second pathway, the EC may receive and consider proposals from individuals or teams of leading scholars in the field representing the proposed theme. Such a proposal should be no more than one page in length. It should address the following essential elements that are taken into account by the EC when considering a theme for an ICMI Study:

- (1) The theme is of broad international interest;
- (2) There is sufficient substance in terms of research, literature and practice, in a diversity of contexts and cultures, to ensure productive work and to provide a coherent and useful vision of the theme at stake;
- (3) There is a critical mass of scholars of renowned expertise in the theme who can provide leadership, vision and experience and are committed to invest the effort involved in the production of a Study.

The selection of a Study theme is the responsibility of the ICMI Executive Committee. Thus, regardless of the pathway the EC discusses and explores carefully before deciding the launching of a new study. This includes not only the theme, but also the possible composition of the leading team to carry out the job. If the theme is decided following the second pathway, the EC may redefine the scope and focus of the theme as well as the appointment of co-chairs who may be different from those who proposed the study. In any case, the EC may decide to accept, modify or reject the suggested theme, or to set the proposal aside for consideration at a later date.

Step 2: The EC decides to launch a Study and appoints two **co-chairs** to lead it and agrees with them on the precise formulation of the theme and its goals.

Step 3: The EC, in consultation with the co-chairs, appoints the **International Programme Committee (IPC)** of the Study (about 10 members), which on behalf of ICMI is responsible for conducting the Study. The composition of the IPC must ensure (a) established scholarship (b) diversity of theoretical and/or practical perspectives (c) awareness of the scope of the task and strong commitment from the selected IPC members to work on the Study. The IPC includes the President and Secretary-General (SG) as ex-officio members. In the case where either is not available, the President can appoint an EC member for this role. The President and SG are the Study Volume series editors. Hence they will participate in the meetings of the IPC but they will not take on any tasks related to the study. Concurrently with the appointment of the IPC, a country that is willing to host the corresponding Study Conference should be identified.

- Step 4: A 3-day meeting of the IPC is held, normally within 6 months of appointment of its members. The meeting is chaired by the Study co-chairs. Key aims of the IPC meeting are to: (a) agree on the respective roles and responsibilities of the co-chairs, IPC, and ICMI EC in conducting the Study, as set out in these Guidelines and summarised in the section below on “Important considerations for conducting an ICMI Study”; (b) draft the Discussion Document (DD), in which a number of key issues and sub-themes related to the theme of the Study are identified and described in a preliminary manner.
- Step 5: The co-chairs, in consultation with the IPC, finalise the Discussion Document which includes a call for papers on the theme and sub-themes of the Study. The Discussion Document is widely distributed to the international community. A short version (about 1500 words) of the DD should be also prepared.
- Step 6: The IPC carefully reviews the papers submitted and makes a selection taking into account scholarly quality and relevance to the theme of the Study as described in the DD. The inclusion of submitted scholarly reviews of past work should also be considered. Emphasis will be given to bring together to the ICMI Study Conference both experts in the field and newcomers with promising work in progress, as well as to gathering representatives with a variety of backgrounds from different regions, traditions and cultures.
- Step 7: The **ICMI Study Conference** will take place within a year and a half from the dissemination of the DD in a location to be decided by the IPC. The conference will be a working forum on the theme of the Study organised around parallel workshops according to the subthemes previously established. Therefore, the number of invited authors will be limited (to around 100), which may result in inviting only one author per paper. Participation in the Study Conference is limited only to these authors of accepted papers. **The ICMI Study Conference** will serve as the basis for the production of the Study Volume.
- Step 8: The **Conference Proceedings** will be prepared by the IPC to include all the accepted papers and the invited plenary activities. The proceedings will be published online on the ICMI website and will have an ISBN number, so that it will become a publication to be cited.
- Step 9: Following the ICMI Study conference, an **ICMI Study Volume** will be edited by the co-chairs with the assistance of the IPC. Although both the Proceedings and the Study Volume are important records of a Study, they have different purposes and designs (see section below on “Important considerations for conducting an ICMI Study”). The ICMI Study Volume appears as a book in the New ICMI Studies Series (NISS) whose general editors are the President and the Secretary-General of ICMI. The volume should include:
- an Executive Summary (2-4) pages to capture concisely the key themes and conclusions of the Study, and to be of interest also to a general audience.
 - Chapters collectively and consensually produced by each of the groups (under the guidance of their co-leaders, who are members of the IPC) integrating the outcomes from the parallel workshops of the ICMI Study Conference. (Different options for authorship of chapters are suggested in the section below on “Important considerations for conducting an ICMI

Study”.)

- Co-chairs are encouraged to include one or two commentary chapters written by renowned international scholars who were not part of the process of the Study and can offer an external perspective to enrich the spectrum of the volume.
- References, subject and names indices.

Step 10: The **dissemination** of the ICMI Study volume will be conducted in five parallel channels:

- The volume is usually launched during an ICME Conference and announced in ICMI publications and promoted in mathematics education forums worldwide.
- An ICMI Study Practitioners’ Guide should be prepared either as a section of the volume or as a stand-alone document. This Guide should include succinct implications drawn from the Study that can be implemented by curriculum designers, teacher educators, teachers and other practitioners engaged in the teaching and learning of mathematics.
- An ICMI Study Policy Guide will be prepared by the co-chairs as a stand-alone document (2-4 pages) addressed to policy makers and to other relevant decision-makers. It should include operational and implementable recommendations.
- In order to facilitate its dissemination among the mathematical community, the co-chairs, in collaboration with the ICMI SG and administrator, will prepare a feedback document (about 4000 words) synthesising the main issues and results of the Study.
- In order to facilitate its dissemination among the general public, the co-chairs in collaboration with the IMU Secretariat will prepare an ICMI Study Media Release (about 400 words), in jargon-free language and highlighting conclusions of general interest. ICMI will support its translation to several languages.

Step 11: There are several possible ways to **follow-up** an ICMI Study. One possible way would be post-Study meetings (2-3 years after publication of the volume) to review its influence, update conclusions etc. Co-chairs are encouraged to think creatively in order to ensure a long lasting influence of the study. Approximately 10 years after an ICMI Study is published, a follow-up or review may be made of the topic or issue that was the main focus of the Study.

Important considerations for conducting an ICMI Study

Timeline: Within four months of acceptance of their role, the co-chairs should propose and commit themselves to a timeline (not exceeding 3-4 years up to the publication of the ICMI Study Volume). The timeline should include dates for at least the following: IPC meeting; dissemination of Discussion Document and call for papers; submission of papers; notification of acceptance of papers; Study Conference; publication of Study Conference proceedings; publication of Study Volume. The timeline will be subject to approval of the ICMI EC.

Budget: In order to conduct an ICMI Study, there are two main expenses to be taken into

account: the pre-conference meeting of the IPC (travel expenses, accommodation, food, facilities) and the ICMI Study Conference (expenses similar to any other international conference, e.g. travel expenses for plenary presenters, accommodations, facilities, etc.).

Upon acceptance of their role, the co-chairs should be fully aware of the following financial aspects:

- The IPC meeting must be self-funded. IPC members should make all attempts to seek funding for their expenses from their home institutions (or from elsewhere). If required, ICMI will cover the lowest economy airfare and accommodation for the duration of the meeting in individual cases of need. The co-chairs are responsible for organising the IPC meeting, preferably at one of their home institutions. It is recommended that they seek funding or in-kind support from their home institutions for this purpose.
- The ICMI Study Conference must be self-funded. ICMI can contribute, upon request, up to 5000 Euros (subject to the financial stability of the organisation at the time of the request) to be spent for supporting travel expenses of participants in the conference. However, if the conference makes a profit, ICMI will expect reimbursement of its support.
- ICMI will be in charge of the agreements with the publishers as well as the negotiations of its terms.

ICMI is very grateful to the scholars worldwide who voluntarily invest time and efforts to be part of the IPC. ICMI recognises and highly values the generosity of the academic institutions which allow their faculty members to pursue this international endeavor on top of their obligations.

Proceedings: The Proceedings record the work that takes place at the Study Conference, including all accepted papers and invited plenary activities. When authors have a paper accepted for the Study Conference they should be informed that it will be published in the Proceedings, but that this does not guarantee they will be named as authors of any chapters in the Study Volume.

To capture the human dimension of the Conference, the Proceedings might also include a small selection of photographs of significant activities and groups of people, such as the International Program Committee. There are several options for producing this enhanced, illustrated, record of the Study Conference:

- Include photographs in the Proceedings that are published online;
- Create a section of the Study website for photographs and a separate section where the Proceedings can be downloaded;
- Create an illustrated pamphlet in electronic and print formats that captures the activities of the Study Conference. The electronic version could be downloadable from the Study website and the print version, if produced, could be inserted in the published Study Volume.

The Study Conference Proceedings are issued with an ISBN and can be cited as a refereed publication, but are published online. One print version of the Proceedings will be retained

for the ICMI archives. The IPC may consider producing a limited number of additional print copies for conference participants upon request.

An issue to be considered by the co-chairs and IPC is the stability of the Study website and its link to the main ICMI website. This needs to be assured so that the Proceedings are always accessible and able to be downloaded.

Study Volume: The Study Volume is a high quality scholarly publication that synthesises the themes and papers that were discussed and collectively elaborated during the Study Conference working group sessions. An ICMI Study Volume should adhere to accepted standards of academic publishing in its contents and format.

To elaborate on the guidelines in Step 8 regarding chapter authorship, there are different options for acknowledging the contribution of participants to each working group, for example:

- Each chapter could be co-authored by all the participants of a working group;
- Each chapter could be (co-)authored only by the IPC member(s) who led the relevant working group;
- Each chapter could be co-authored by the working group leader(s), whose names are followed by “with” and then the names of relevant working group members.

It is important for the co-chairs and the IPC to make a decision early in the process as to how chapter authorship will be determined, and to publicly communicate to Study Conference participants how their contributions will be acknowledged. This will ensure that there is a uniform and agreed format for chapters, even though the format may differ between Study Volumes.

The Study Volume is edited by the Study co-chairs with oversight by the series editors of the New ICMI Study Series (the ICMI President and Secretary-General, and/or someone appointed by them). Several important processes should be established to enhance the quality and value of the Study Volume. The first of these is the selection of Study co-chairs who have the necessary leadership, vision, and experience to not only conceptualise the Study and organise the conference but also edit the Proceedings. Previous editorial experience of potential co-chairs should be taken into account when considering candidates for this role.

A second process involves the reviewing of chapters to achieve a high level of quality in content and presentation. Options for reviewing and editing could include the following:

- Each chapter is reviewed by authors of other chapters in the Study Volume;
- Each chapter has one internal and one external reviewer, the former being an author of another chapter in the Study Volume and the latter selected for their expertise in the field;
- The co-chairs might organise the Study Volume in sections corresponding to working groups from the Study Conference, with each section edited by the relevant working group leader;

- The co-chairs might invite a section editor with English language proficiency to assist with the overall editing of the Study Volume.

A third process may involve inviting one or two prominent scholars who did not participate in the Study Conference to write commentary chapters from different perspectives. These scholars should be identified and invited early in the process. Before writing their commentaries they should be sent the penultimate version of the Study Volume with all chapters in final form, that is, after reviewing, revision, and proof reading.

The Study's co-chairs are expected to be thoroughly familiar with the Study Volume publisher's requirements. The role of the co-chairs includes careful proof reading of chapters to ensure that the scientific content and English expression are of high quality.

The role of the series editors (the ICMI President and Secretary-General) is to provide advice and support to the co-chairs in meeting ICMI's expectations regarding the Study Volume.

Summary of roles and responsibilities

Task	Responsibility		
	ICMI EC	Co-Chairs	IPC
Select co-chairs			
Formulate Study themes and goals			
Prepare and approve Study time line	Approve	Prepare	
Appoint IPC (including Secretary-General and President)			
Decide on location of IPC meeting			
Decide on and approve location of Study Conference	Approve		Decide
Raise funds for IPC expenses	Support if required		
Raise funds for Study Conference	Support if required		
Chair IPC meeting			
Prepare Discussion Document and call for papers			
Review and select papers for Study Conference			
Decide on format and structure of Study Conference			
Prepare Study Conference proceedings			
Prepare and approve Study Volume	Select publisher & negotiate terms. Provide oversight and approval of Study Volume.	Editing, proof reading, quality assurance	Agree on format and authorship of chapters

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