



International Study Group on the Relations Between
the HISTORY and PEDAGOGY of MATHEMATICS
An Affiliate of the International Commission on
Mathematical Instruction

**8th EUROPEAN SUMMER UNIVERSITY
ON HISTORY AND EPISTEMOLOGY IN MATHEMATICS EDUCATION**

ESU-8

**20-24 July 2018,
Oslo & Akershus University College of Applied Sciences
Oslo, Norway**

<https://esu8.edc.uoc.gr>

FIRST ANNOUNCEMENT

The initiative of organizing a *Summer University* (SU) on the *History and Epistemology in Mathematics Education* belongs to the French Mathematics Education community in the early 1980's. From those meetings emerged the organization of a SU on a European scale, as the *European Summer University* (ESU) *on the History and Epistemology in Mathematics Education*, first organized in Montpellier (France), 1993. Since then, ESU was successfully organized in different places in Europe: Braga (Portugal), 1996; Louvain-la-Neuve and Leuven (Belgium), 1999; Uppsala (Sweden), 2004; Prague (Czech Republic), 2007; Vienna (Austria), 2010; Copenhagen (Denmark), 2014¹. By now, it has been established into one of the main international activities of the HPM Group, which - from 2010 onwards - is organized every four years, so that every two years at least one major international meeting of the Group takes place; namely, ESU and the HPM Satellite Meeting of ICME.

1. Aim

The ESU mainly aims

- to provide a forum for presenting research in mathematics education and innovative teaching methods based on a historical, epistemological and cultural approach to mathematics and their teaching, with emphasis on actual implementation;
- to give the opportunity to mathematics teachers, educators and researchers to share their teaching ideas and classroom experience related to this perspective;
- in this way, to motivate further collaboration along these lines, among members of the mathematics education community in Europe and beyond.

¹ A brief account of the history of ESU, is available at <http://www.clab.edc.uoc.gr/HPM/HPMinME-TopicalStudy-18-2-16-NewsletterVersion.pdf> §2.1.2.

2. Rationale

ESU attempts to reveal the following aspects of mathematics:

- Mathematics is a human intellectual enterprise with a long history and a vivid present. Besides its “polished” products that form the part of mathematical knowledge that can be communicated, criticized and serve as the basis for new knowledge, the process of “doing mathematics” is equally important, especially from a didactical point of view;
- In this perspective, the meaning of mathematical knowledge is determined, not only by the circumstances in which it becomes a deductively structured theory, but also by the procedures that led, or may lead to it and which are indispensable for its understanding.
- Therefore, learning mathematics includes the understanding of implicit motivations, the sense-making actions and the reflective processes, which are aimed at the construction of meaning, while teaching mathematics should give the learners the opportunity to “do mathematics.”
- As a consequence, perceiving mathematics both as a logically structured collection of intellectual products and as processes of knowledge production, should form both the core of the teaching of mathematics, and the image of mathematics spread to the outside world.

Along these lines, putting emphasis on integrating historical and epistemological issues in mathematics teaching and learning constitutes a possible natural way for exposing mathematics in the making, which may lead to a better understanding of specific parts of mathematics and to a deeper awareness of what mathematics as a discipline is. This is important for mathematics education, helping to realize that mathematics:

- is the result of contributions from many different cultures;
- has been in constant dialogue with other scientific disciplines, philosophy, the arts and technology;
- has undergone changes over time underlied by shifting views of what mathematics is and how it should be taught and learnt;
- has constituted a constant force for stimulating and supporting scientific, philosophical, technical, artistic, and social development.

In this way, learning mathematics and stimulating students’ interest in it can be enhanced at all levels of education, at the same time helping to realize that although mathematics is central to our modern society and a mathematically literate citizenry is essential to a country’s vitality, historical and epistemological issues of mathematics are equally important. The harmony of mathematics with other intellectual and cultural pursuits also makes the subject interesting, meaningful, and worthwhile. In this wider context, history and epistemology of mathematics have an additional important role to play in providing a fuller education of the community: not being a natural science, but a formal science closer to logic – hence to philosophy – mathematics has the ability inherent in itself to connect the humanities with the sciences. Now that societies value and want young people educated in the sciences – though it is difficult determining how to get people to “move” from humanities to the sciences – integrating history and epistemology in mathematics education can make this connection visible to students. This is most important, especially today when there is much concern about the level of mathematics that students are learning and about their decreasing interest in mathematics, at a time when the need for both technical skills and a broader education is rising.

3. Focus and main themes of ESU-8

The ESU is more a collection of intensive courses than a conference for researchers. More specifically, it is a place where teachers and researchers meet and work together. It is also a place where beginners, more experienced researchers and teachers present their teaching experience to the benefit of the participants and get a constructive feedback from them. It refers to all levels of education – from

primary school, to tertiary education – including in-service teachers' training.

The programme and activities of ESU-8 are structured around the following *main themes*:

Theme 1: Theoretical and/or conceptual frameworks for integrating history and epistemology of mathematics in mathematics education;

Theme 2: History and epistemology in students and teachers mathematics education: Curricula, courses, textbooks, and didactical material of all kinds - their design, implementation and evaluation;

Theme 3: Original historical sources in teaching and learning of and about mathematics;

Theme 4: Mathematics and its relation to science, technology, and the arts: Historical issues and socio-cultural aspects in relation to interdisciplinary teaching and learning;

Theme 5: Topics in the history of mathematics education;

Theme 6: History of mathematics in the Nordic countries.

Emphasis is put on work and conclusions based on actual classroom experiments and/or produced teaching & learning materials, but insightful theoretical ideas and/or historical analysis with visible didactical implications are also welcome.

4. Activities during ESU-8

All activities should refer to the ESU-8 *main themes*. Its scientific program will be structured along these themes, consisting of a few *plenary lectures & panels*, as well as, parallel sessions of *oral presentations*, *short communications* and *posters*, for participants, who want to speak about their own experience, or research. A major part of the programme, however, consists of *workshops*.

- There will be at most one *plenary lecture* per theme, normally conceived as an introductory lecture for related workshops.
- In the *panels*, participants will work together well in advance, so that during the panel session there is a real discussion among them and/or with the panel coordinator.
- *Workshops* consist in studying a specific subject and having a follow-up discussion. The workshop organizer prepares, presents and distributes the historical/epistemological or didactical/pedagogical material, which motivates and orients the exchange of ideas and the discussion among the participants. Participants read and work on the basis of this material (e.g. original historical texts, didactical material based on such texts, students' worksheets etc). Workshops will be scheduled in parallel sessions and will vary in duration (1.5 hours for workshops based on didactical/pedagogical material; 2 hours for workshops based on historical/epistemological material).
- *Oral presentations* will be allocated a 30-minute time slot each (25 minutes for presentation and 5 minutes for discussion), scheduled in parallel sessions. It is an activity in the spirit of a conventional research conference.
- Parallel sessions for 10-minutes *short oral communications* and *poster presentations*, as well as *exhibitions* of books and other didactical material will also be possible.

5. Target population

The majority of the participants is expected to be (elementary or secondary) schoolteachers, who may wish to gain new ideas on how they can integrate the history of mathematics into their teaching. Special effort will be made so that each session includes activities relevant and interesting for schoolteachers; for instance activities with focus on useful resources and didactical material available in Norwegian, or other national languages. However, there will be also university teachers and students, interested in the integration of the history and epistemology of mathematics into mathematics education, as well as, historians of mathematics, who may give a limited number of lectures to inform others about recent

developments in their domain, and mathematicians with an interest in the relation between mathematics, its history and epistemology, and its role at present and in the past.

6. Time and place

The ESU-8 will take place from **20 to 24 July 2018 (Friday – Tuesday)** at the **Oslo & Akershus University College of Applied Sciences**, Oslo, Norway.

7. Official Languages

The official languages of ESU-8 are English, Norwegian and French.

More specifically:

- All *plenary talks* and *panel discussions* will be in *English*.

Other activities can be delivered in any of the official languages. However, presenters and workshop organizers should keep in mind that all activities should in principle be targeted to an international audience and that many participants will not be native speakers of any of these languages.

Consequently:

- For *Oral presentations* and *Short Oral Communications* not in English, presenters will be asked to use necessarily **two sets of transparencies**; one set in the language they are going to give their presentation, and **one set in English**.

- It is preferable to organize *Workshops* in English. Nevertheless, workshop organizers who intend to organize their workshop in another language are advised and encouraged to prepare **copies in English** of the material to be distributed to the participants (e.g. transparencies, worksheets etc). This will certainly increase participation and will greatly facilitate communication among participants.

8. Submission of proposals

31 October 2017: deadline for submitting **Abstracts** of proposals for all types of activities.

15 December 2017: Notification of acceptance or not of the submitted proposals.

The members of the *Scientific Program Committee* (SPC) will review the submitted abstracts. At this stage, acceptance of a proposal means that the proposed activity will be included in the ESU-8 Scientific Programme. However, this does not imply automatically that a full text based on this activity will be included in the ESU-8 Proceedings, which are going to be published after ESU-8. Full texts for inclusion to the ESU-8 *Proceedings* will be submitted after ESU-8 and will be further reviewed by members of the SPC at the usual international standards. For more details, see *Proceedings*, §9 below.

Important: Submissions of proposals and full texts, the reviewing process, and authors' notification will be realized online via <https://esu8.edc.uoc.gr/submission> and following the guidelines therewith.

9. Proceedings

Publishing the Proceedings of the ESU is also a major task. In fact, Proceedings of the previous ESU have become standard references in this area (cf. reference in footnote 1).

The Proceedings will be published **after** ESU-8, so that authors are given the opportunity to enrich their text as a result of the feedback they will gain during ESU-8.

Each submitted full text for a workshop, or an oral presentation will be reviewed by at least one member of the SPC at the usual international standards.

Details on the procedure and the deadline for submitting full texts, their size, the format guidelines and the expected date by which the proceedings will be available to all registered participants, will be announced in due course from the ESU-8 and HPM websites

<https://esu8.edc.uoc.gr>

<http://www.clab.edc.uoc.gr/hpm/meetings>

10. The web site

Making known the ESU worldwide, is a major task. To this end, a web site is being developed under the URL <https://esu8.edc.uoc.gr> It will be regularly updated as an effective tool for providing updated practical information, allowing for online registration, submission of proposals and full texts, supporting the reviewing process, etc.

11. The (international) Scientific Program Committee (SPC)

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For more detailed and regularly updated information, visit

<https://esu8.edc.uoc.gr> <http://www.clab.edc.uoc.gr/hpm/meetings>