



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

**No. 87**

**November 2014**

This and earlier issues of the Newsletter can be downloaded from our website

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

These and other news of the HPM group are also available on the website

<http://grouphpm.wordpress.com/>

(the online and on time version of this newsletter).

## **HPM Executive Committee**

### **Message from the HPM Chair**

I am glad to inform the HPM community about the recent creation of a **HPM Executive Committee** (ExC). The creation of the ExC will provide HPM with a flexible structure to facilitate the preparation and implementation of the quadrennial HPM meeting and ESU as well as the planning and execution of other HPM activities, along the lines of inputs and recommendations of the Advisory Board (AdB).

### **Composition of the ExC:**

The ExC is composed of the HPM Chair and four members of the AdB. In order to ensure a convenient flux of information between HPM and the local quadrennial HPM and ESU organizing committees, two additional members from the

Organizing local committees will join the ExC, as non-voting liaison members.

The names of the four members of the ExC, approved recently by the AdB, are: Evelyn Barbin, Fulvia Furinghetti, Jan van Maanen, and Costas Tzanakis

### **Mandate:**

The mandate of the ExC is as follows:

- To consult with the AdB in order to determine themes and plenary and panel speakers for the quadrennial HPM conference and ESU.
- To decide about the quadrennial HPM and ESU conferences' locations, themes and speakers.
- To appoint editorials teams to organize the reviewing process of papers submitted to the quadrennial HPM and ESU meetings and the publication of the Conference Proceedings.
- To help the Chair with various HPM matters, such as representation of the HPM in

conferences, the Newsletter, inclusion of new AdB members, etc.

### **Duration of the ExC**

A new ExC is created with the arrival of a new Chair.

In the 2016 HPM meeting, which will take place in Montpellier, France, the process of electing the Chair and the ExC, as well as the composition of the ExC will be discussed.

I would like to thank Evelyn Barbin, Fulvia Furinghetti, Jan van Maanen, and Costas Tzanakis for accepting to be part of the first HPM ExC.

*Luis Radford*

Université Laurentienne, Canada

### **7<sup>th</sup> European Summer University on the History and Epistemology in Mathematics Education**



<http://conferences.au.dk/ESU-7/>

At this site you can **Listen to Plenary Speakers and Panel Debates** (mp3 files).

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### **Obituary**

HPM sadly notes the passing of...

#### **Jacqueline Stedall**

(1950 - 2014)

<http://www.theguardian.com/education/2014/oct/24/jacqueline-stedall>

#### **Paulus Gerdes**

(1952 - 2014)

<https://networks.h-net.org/node/7926/discussions/52190/obituary-paulus-gerdes-mathematician-and-professor>

## **PAULUS GERDES – In Memoriam**

**Ubiratan D'Ambrosio**

(Translation: Sofia Gonçalves, Laurentian University, Canada)



Paulus Gerdes and Ubiratan D'Ambrosio  
(Source: <http://www.etnomatematica.org/home/>)

The world was saddened by the death of Paulus Pierre Joseph Gerdes, on November 11th, the day he would have reached 62 years of life. In a broad sense the world is deprived of a great educator, of an interesting and rigorous thinker and researcher, and a great friend for those who had the opportunity to meet him and be with him. Our condolences to the family and to his disciples, colleagues and friends.

My relationship with Paulus was very special. I met Paulus, in the mid-70s, a young man of just over 20 years. He was one of the first adherents to the ethnomathematics movement, which was being initiated; he became a leader in the area.

His life trajectory was very special. He was born in the Netherlands, in a traditional family. His father was the equivalent to a minister of state for religious cults. Paulus studied at the University of Nijmegen, where he received a Bachelor's Degree (with honors)

in Mathematics and Physics in 1972. He had a humanitarian mission experience in Vietnam, returned to Nijmegen, did a Baccalaureate in Cultural Anthropology in 1974 and in 1975 finished a Master in Mathematics. Still in the Netherlands, he became a professor in the "Centro do Terceiro Mundo", with links with the liberation movements and the anti-apartheid in Southern Africa. By the end of 1976 he went to Mozambique, becoming a Mozambican citizen and creating a family. Since his arrival, he was a professor at the University Eduardo Mondlane until 1989, when he transferred to the Pedagogical University, remaining there until the end of his life.

In 1986, he completed a Doctorate at the University of Dresden, Germany, with a thesis on *O Despertar do Pensamento Geométrico* and in 1996 he returned for a second Doctorate with a thesis on *Geometria Sona: Reflexões sobre tradições de desenhar na areia entre os povos da África ao Sul do Equador*, at the University of Wuppertal, Germany.

As an academic, Paulus was responsible for numerous contributions to the theorization of craft and the formulation and solution of mathematical questions of the imaginary and folk craft. All his contributions have important implications for pedagogy with strong socio-cultural roots.

Paulus was one of the most important researchers on Ethnomathematics, always trying to analyze the historical and epistemological foundations of mathematics and proposing important pedagogical innovations. He managed to organize a very active group of young researchers, bringing together mathematicians and educators. The publications of the group, mainly in

Portuguese and English, are an important resource for those interested in conducting research on Ethnomathematics worldwide. Many of these publications are generously available to all interested parties, for free or at low cost, in the publisher's website "Lulu.com" where Paulus published almost all of his books.

In addition to academic activities of research, Paulus has always been involved with Education, especially Mathematics Education. The way he associated research and education is exemplary. In Maputo in 1989, he founded the "Centro de Pesquisas em Etnomatématica – Cultura, Matemática e Educação" and, thanks to his innovative proposals, he was very successful in attracting to Mozambique academics from around the world, interested in his research projects.

As a historian, Paulus Gerdes contributed significantly to the understanding of the history of mathematical ideas, theories and practices, in the African continent. His concern was to organize the historical context of existing practices and theories found in various African cultures. His main focus was a wide bibliographic research on the History of Mathematics in Africa. The results of his research have been crucial to mathematics historians worldwide.

His concerns went beyond identifying other Mathematical thinking models. He felt that creativity could be improved if cultural dignity was restored. The post-apartheid period in South Africa had many repercussions throughout the African continent. It represented a new and important space for the development of the creative potential of the native populations. Ethnomathematics proved to be an important strategy for the rebirth of

African creativity and Paulus Gerdes was always extremely skilled at channeling that potential to form a numerous generation of researchers in Mathematics Education.

He was responsible for a change of attitude in regards to crafts and folklore. Crafts have been considered of minor importance in reflections on science and mathematics in the world, and its use in education have been neglected. Paulus recovered, from his search with artisans, the fundamental importance of craft as a basis for the historical development of mathematics. The most important primary sources for his research were artisanal practices. The research on these practices reveal the theoretical foundation of Paulus' work.

Paulus Gerdes acknowledged that the culture of people, of artists, of artisans constitutes an endless source for mathematical research and Mathematics Education. Mathematics professors of all levels can learn, from their students, what is characteristic of their cultures. The students can show the way to achieve a practice. The makings of artisans, fishermen, peasants, in short, of all the groups that master a practice, are based on knowledge that has been developed by arduous paths, over generations. I emphasize in a very special way the exemplary attention that Paulus dedicated to women in the evolution of African cultures.

As Paulus Gerdes highlighted well in his writings and in his lectures, when studying a demonstration, it is rarely understood how the result was discovered. The path that leads to a discovery is, in general, very different from the paved road of deduction. In poetic language, Paulus tells us that "A via da descoberta abre-se serpenteando por um

terreno de vegetação densa e cheio de obstáculos, às vezes aparentemente sem saída, até que, de repente, se encontra uma clareira de surpresas relampejantes. E, quase de imediato, a alegria do inesperado “heureka” (gr. “achei”, “encontrei”) rasga triunfantemente o caminho.”

In fact, Paulus was a poet in his thinking as a philosopher, mathematician, anthropologist, and educator.

To mourn a poet of life so dear to all of us and irreplaceable, I ask for help to a very beloved poet who also left us prematurely, Facundo Cabral. His farewell to a friend expresses very well my feelings.

### **Cuando Un Amigo Se Va (Facundo Cabral)**

Cuando un amigo se va, queda un espacio vacio  
Que no lo puede llenar la llegada de otro amigo  
Cuando un amigo se va, queda un tizón encendido  
Que no se puede apagar ni con las aguas de un rio  
Cuando un amigo se va, una estrella se a perdido  
La que ilumina el lugar donde hay un niño  
dormido

Cuando un amigo se va, se detienen los caminos  
Y se empieza a revelar el duende manso del vino  
Cuando un amigo se va, salopando su destino  
Empieza el alma a vibrar por que se llena de frio  
Cuando un amigo se va, queda un terreno baldío  
Que quiere el tiempo llenar con las piedras del  
astillo

Cuando un amigo se va, se queda un árbol caído  
Que ya no vuelve a brotar por que el viento a  
vencido

Cuando un amigo se va, queda un espacio vacio

Que no lo puede llenar la llegada de otro amigo.

*Ubiratan D'Ambrosio*

## **MAA Convergence Celebrates Ten Years of Mathematics, History, and Teaching**

Founded in 2004 by well-known mathematics historians and educators, Victor Katz and Frank Swetz, *Convergence* is both an online journal on mathematics history and its use in teaching and an ever-expanding collection of online resources to help its readers teach mathematics using its history.

*Convergence* is celebrating ten years of publication by continuing to bring you interesting articles and features on the history of grades 8-16 mathematics and exciting ideas and resources for sharing this history with your students.

Articles published this year include:

“Proofs Without Words and Beyond” includes history and philosophy of visual proofs, along with dynamic, interactive “proofs without words 2.0.”

“David Hilbert’s Radio Address” features an audio recording, transcription, and translation into English of Hilbert’s 4-minute radio version of his longer 1930 address with its famous finale, “Wir müssen wissen; wir werden wissen.”

“Cubes, Conic Sections, and Crockett Johnson” shows how author and illustrator Johnson painted his answer to his own question, “What do the straightedge lines and compass arcs do when two parabolas and a hyperbola double a cube, just stand watching?”

“An Investigation of Subtraction Algorithms from the 18<sup>th</sup> and 19<sup>th</sup> Centuries” is based on a study of handwritten cyphering books as well as printed arithmetic texts.

We are honoring the best of our ten-year publication history by presenting new, more interactive versions of some of our favorite articles.

“Van Schooten’s Ruler Constructions,” by Ed Sandifer, was among the articles that appeared in the first issue of *Convergence* in April of 2004.

“Historical Activities for the Calculus Classroom” (2007), by Gabriela Sanchis, consists of three modules that present curve-sketching, tangent lines, and optimization in the context of historical aims and problems, with the aid of 24 interactive applets and 10 animations.

“When Nine Points Are Worth But Eight: Euler’s Resolution of Cramer’s Paradox” (2011), by Rob Bradley and Lee Stemkoski, features a translation of a long lost letter from Euler to Cramer, along with an interactive presentation of Euler’s “elegant example” resolving the paradox.

See all of these articles and more at *MAA Convergence*:

<http://www.maa.org/publications/periodicals/convergence>

*Convergence* is published by the Mathematical Association of America (MAA).

*Janet Beery*, Editor, *MAA Convergence*



## Have you read these?

M. K. Siu, Proof in the Western and Eastern traditions: Implications for mathematics education, in "Proof and Proving in Mathematics Education: The 19th ICMI Study", edited by G. Hanna, M.de Villiers, Springer-Verlag, New York-Heidelberg, 2012, 431-440.

Y.C. Chan, M.K. Siu, Facing the change and meeting the challenge: Mathematics curriculum of Tongwen Guan in China in the second half of the nineteenth century, *Zentralblatt für Didaktik der Mathematik – The International Journal of Mathematics Education*, 44(4) (2012), 461-472.

Y.C. Chan, M.K. Siu, The Malfatti Problem in nineteenth-century China, *Mathematics Today*, 49(5), (2013), 229-231.

M. K. Siu, “Zhi yi xing nan (knowing is easy and doing is difficult)” or vice versa? — A Chinese mathematician’s observation on HPM (History and Pedagogy of Mathematics) activities, in "The First Sourcebook on Asian Research in Mathematics Education: China, Korea, Singapore, Japan, Malaysia and India", edited by B. Sriraman, J.F. Cai, K. Lee, L. Fan, Y. Shimuzu, C. Lim, K. Subramanian, Information Age Publishing, Charlotte, 2014, 27-48.

M. K. Siu, Looking at HPM (History and Pedagogy of Mathematics) through an old chestnut: Sum of the angles of a triangle, *Journal for History of Mathematics*, 26 (5-6) (Nov. 2013), 345-353; with an addendum in *Journal of History of Mathematics*, 27(1) (Feb.2014), 3.

*Man Keung Siu*



**(October 2014)**

Archibald, T.; Tazzioli, R. (2014). Integral equations between theory and practice: the cases of Italy and France to 1920. *Archive for History of Exact Sciences*, Vol. 68 (5), 547-597.

Cogliati, A. (2014). Early history of infinite continuous groups, 1883–1898. *Historia Mathematica*, 41 (3), 291-332.

Feke, J. (2014). Meta-mathematical rhetoric: Hero and Ptolemy against the philosophers. *Historia Mathematica*, 41 (3), 261-276.

Fischer, J.; Ruess, B. (2014). Napier revisited or A new look at the computation of his logarithms. *BSHM Bulletin: Journal of the British Society for the History of Mathematics*, Vol. 29 (3), 167-183.

Furinghetti, F.; Menghini, M. (2014). The role of concrete materials in Emma Castelnuovo's view of mathematics teaching. *Educational Studies in Mathematics*, Vol. 87 (1), 1-6.

Groetsch, C. W.; Yost, S. A. (2014). Vertical Projection in a Resisting Medium: Reflections on Observations of Mersenne. *The American Mathematical Monthly*, June/July.

Hollings, R. (2014). Integral equations between theory and practice: the cases of Italy and France to 1920. *Archive for History of Exact Sciences*, Vol. 68 (5), 641-692.

Mattmüller, M. (2014). The difficult birth of stochastics: Jacob Bernoulli's *Ars Conjectandi* (1713). *Historia Mathematica*, 41 (3), 277-290.

Verburgt, L. M. (2014). Remarks on the idealist and empiricist interpretation of frequentism: Robert Leslie Ellis versus John Venn. *BSHM Bulletin: Journal of the British Society for the History of Mathematics*, Vol. 29 (3), 184-195.

Whiteside, D. T. (2014). 'And John Napier created logarithms...'. *BSHM Bulletin: Journal of the British Society for the History of Mathematics*, Vol. 29 (3), 154-166.

Wilson, R. (2014). In the footsteps of Euler and MacMahon: combinatorics, the mathematics that counts. *BSHM Bulletin: Journal of the British Society for the History of Mathematics*, Vol. 29 (3), 196-209.





## Announcements of events



### *Forthcoming BSHM meetings*

(The British Society for the History of Mathematics)

<http://www.dcs.warwick.ac.uk/bshh/events.html#forthcoming>

#### **1. A BSHM Public Lecture by Robin Wilson to launch a new Portuguese/UK postage stamp website**

"The history of mathematics in 300 stamps"  
2:30 pm at the Andrew Wiles building, Oxford, 21th November 2014.

The lecture will last about an hour, and will then be followed by the UK launch of the mathematical stamps website. The event will be over by 3.45 pm.

#### **2. BSHM Annual Christmas Meeting**

The Birmingham and Midland Institute, Margaret Street, Birmingham, B3 3BS. Saturday 6th December 2014.

Guest Speaker: **Professor Lisa Jardine, CBE**

'MORE LIVES THAN A CAT': PUTTING WOMEN'S ACHIEVEMENTS BACK INTO THE RECENT HISTORY OF MATHEMATICS

Abstract: The title of this lecture is taken from Marie Curie's close mathematician friend Hertha Ayrton's remark — when the two women's important work was consistently credited to their husbands — that 'An error that ascribes to a man what was actually the work of a woman has more lives than a cat'.

Can we do better today? Might the visibility of women help overcome that annoying casual admission to mathematical illiteracy ('I never could do sums') that continues to dog maths's fortunes in Britain?

Latest provisional programme:

<http://www.dcs.warwick.ac.uk/bshh/meetings/BSHMXmas2014.pdf>

#### **3. Research in Progress**

The Queen's College, Oxford OX1 4AW, Saturday 21 February 2015.

Annual meeting for research students in the history of mathematics to speak about their work. The keynote guest speaker is Professor Adrian Rice (Randolph-Macon College, Virginia, USA).

#### **4. 'Histories of Symmetry'**

Birkbeck College, London, Saturday 23rd May 2015.

This is a new initiative for BSHM to try a spring meeting in London. The topic will be symmetry. Speakers include Sarah Hart and Norman Biggs.

#### **5. BSHM/CSHPM Joint Meeting in North America 2015**

Washington, DC, USA, 5th-8th August 2015.

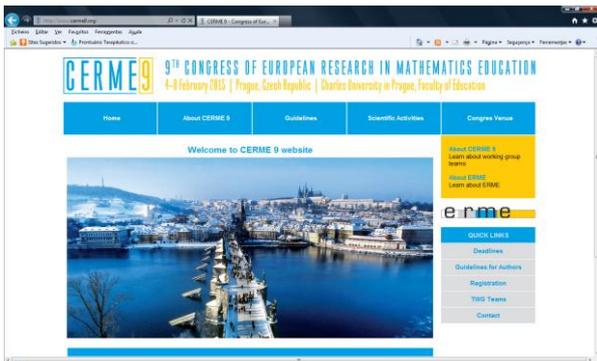
Call for Papers from the Canadian Society for History and Philosophy of Mathematics (CSHPM) to be presented at this joint meeting. Abstracts (250 words or less) should be submitted by the deadline of 15 February 2015.

<http://www.dcs.warwick.ac.uk/bshh/meetings/CallforPapersMathFest2015FINAL.pdf>



## CERME 9

February 4-8, 2015  
Prague, Czech Republic



<http://www.cerme9.org/about-cerme-9/>

### Thematic Working Groups Teams

The following is the list of thematic working groups.

1. Argumentation and proof
2. Arithmetic and number systems
3. Algebraic thinking
4. Geometrical thinking
5. Probability and statistics education
6. Applications and modeling
7. Mathematical potential, creativity and talent
8. Affect and mathematical thinking
9. Mathematics and language
10. Cultural diversity and Mathematics Education
11. Comparative studies in Mathematics Education
- 12. History in Mathematics Education**
13. Early Years Mathematics
14. University mathematics education

15. Teaching mathematics with resources and technology
16. Students' learning mathematics with resources and technology
17. Theoretical perspectives and approaches in mathematics education research
18. Mathematics teacher education and professional development
19. Mathematics teaching practices and resources for teaching

### Thematic Working Group 12 History in Mathematics Education

#### Leaders

Uffe Thomas Jankvist (Denmark) [utj@dpu.dk](mailto:utj@dpu.dk)

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Jan van Maanen (The Netherlands)  
[J.A.vanMaanen@uu.nl](mailto:J.A.vanMaanen@uu.nl)

#### Scope and focus of the Thematic Working Group

History of mathematics in mathematics education has received much attention during the last decades. However, empirical research and coherent theoretical/conceptual frameworks within this area have been emerging relatively recently. The purpose of this CERME TWG is to provide a forum to approach mathematics education in connection with history and epistemology dedicated primarily to theory and research on all aspects of the role, effect, and efficacy of history and epistemology as elements in mathematics education.

### **Call for papers and poster proposals**

TWG12 in particular welcomes empirical and theoretical research papers, but to some degree also methodological and developmental papers (10 pages maximum), and poster proposals (2 pages) related to one or more of the following issues – although any paper/poster of relevance to the overall focus of the group will be taken into consideration:

1. Ways of integrating original sources in classrooms, and their educational effects, preferably with conclusions based on classroom experiments;
2. Surveys on the existing uses of history or epistemology in curricula, textbooks, and/or classrooms in primary, secondary, and tertiary levels;
3. Design and/or assessment of teaching/learning materials on the history of mathematics;
4. The role of history or epistemology of mathematics at the primary, secondary, and tertiary level, and in pre- and in-service teacher education, from cognitive, pedagogical, and/or affective points of view;
5. Investigations or descriptions of the historical instances of research cultures and cultures of teaching and learning in mathematics;
6. Relationships between (frameworks for and empirical studies on) history in mathematics education and theories and frameworks in other parts of mathematics education;
7. Possible parallelism between the historical development and the cognitive development of mathematical ideas;
8. Theoretical, conceptual and/or methodological frameworks for including history in mathematics education;
9. The potential role of history of mathematics/mathematical practices in relation to more general problems and issues

in mathematics education and mathematics education research.

Papers and poster proposals should use the CERME word template, and conform to the guidelines at <http://www.cerme9.org/guidelines/guidelines-for-authors/>. To submit, you need to email your proposal as a WORD document to **Uffe Thomas Jankvist**, [utj@dpu.dk](mailto:utj@dpu.dk), AND at the same time, to the conference secretariat at [submission@cerme9.org](mailto:submission@cerme9.org). If possible, please also send a pdf version in addition to the WORD document.

### **Reviews and decisions**

Each paper will be peer-reviewed by two persons from among those who submit papers to this Thematic Working Group. Please expect to be asked to review up to three papers. It may be necessary for you to revise your paper before final acceptance. The group leaders will decide about the acceptance of posters.

### **Important dates**

September 15, 2014: Deadline for submission of papers

October 1, 2014: Deadline for submission of poster proposals

November 25, 2014: Deadline for reviewers to submit their reviews

December 5, 2014: Decisions about paper or poster acceptance

December 20, 2014: Reduced fee registration deadline

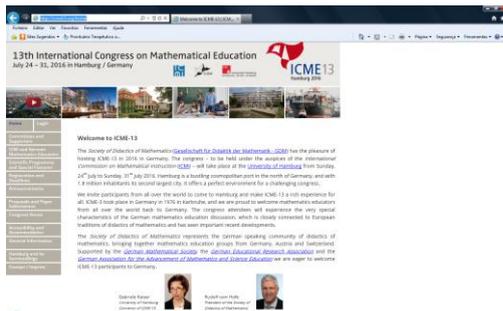
January 10, 2015: Deadline for revisions of papers

January 20, 2015: Papers for presentation at the congress available on the CERME website.



# ICME-13 International Congress on Mathematical Education

July 24-31, 2016  
Hamburg, Germany



<http://icme13.org/home>

## Topic Study Groups at ICME-13

A Topic Study Group (TSG) is designed to gather a group of congress participants who are interested in a particular topic in mathematics education. A Topic Study Group will serve as mini-conference and will display the progress of the discussion in the intervening years since ICME-12. Topic Study Groups will therefore promote the discussion of a variety of perspectives on the theme of the Group. The TSG will consist of high-standard discussions enabling the newcomer to get a broad overview on the state-of-the-art and allowing the experts to lead discussions at a high level. The team will provide the audience of their TSG not with a nationally framed insight into the strands of the discussion of the theme, but will give an overall overview on the international discussion as broadly as possible and allowing for insight into less well-known strands of the discussion from under-represented countries. For ICME-13, the

TSG is the major arena for participation. Participants are expected to associate themselves with one TSG and to stay in that group for all sessions.

## TARGET GROUPS FOR MATHEMATICS TEACHING, AS REFLECTED IN EDUCATIONAL LEVELS AND SPECIAL CATEGORIES OF STUDENTS

1. Early childhood mathematics education (up to age 7)
2. Mathematics education at tertiary level
3. Mathematics education in and for work
4. Activities for, and research on, mathematically gifted students
5. Activities for, and research on, students with special needs
6. Adult learning of mathematics – lifelong learning
7. Popularization of mathematics

## MATTERS AND ISSUES PERTAINING TO CONTENT-RELATED ASPECTS OF MATHEMATICS CURRICULA, ACROSS EDUCATIONAL LEVELS, AND TO TEACHING AND LEARNING IN RELATION TO THESE ASPECTS

8. Teaching and learning of arithmetic and number systems (focus on primary education)
9. Teaching and learning of measurement (focus on primary education)
10. Teaching and learning of early algebra
11. Teaching and learning of algebra
12. Teaching and learning of geometry (primary level)
13. Teaching and learning of geometry – secondary level
14. Teaching and learning of probability
15. Teaching and learning of statistics
16. Teaching and learning of calculus
17. Teaching and learning of discrete mathematics (including logic, game theory and algorithms)

18. Reasoning and proof in mathematics education
19. Problem solving in mathematics education
20. Visualisation in the teaching and learning of mathematics
21. Mathematical applications and modelling in the teaching and learning of mathematics
22. Interdisciplinary mathematics education
23. Mathematical literacy

THE OVERARCHING PERSPECTIVES AND FACETS OF MATHEMATICS EDUCATION THAT ARE PRESENT ACROSS DIFFERENT EDUCATIONAL LEVELS AND DIFFERENT CURRICULA

**24. History of the teaching and learning of mathematics**

**25. The Role of History of Mathematics in Mathematics Education**

26. Research on teaching and classroom practice
27. Learning and cognition in mathematics
28. Affect, beliefs and identity in mathematics education
29. Mathematics and creativity
30. Mathematical competitions
31. Language and communication in mathematics education
32. Mathematics education in a multilingual and multicultural environment
33. Equity in mathematics education (including gender)
34. Social and political dimensions of mathematics education
35. Role of ethnomathematics in mathematics education
36. Task design, analysis and learning environments
37. Mathematics curriculum development

38. Research on resources (textbooks, learning materials etc.)
39. Large scale assessment and testing in mathematics education
40. Classroom assessment for mathematics learning
41. Uses of technology in primary mathematics education (up to age 10)
42. Uses of technology in lower secondary mathematics education (age 10 to 14)
43. Uses of technology in upper secondary mathematics education (age 14 to 19)
44. Distance learning, e-learning, blended learning

TEACHER KNOWLEDGE AND EDUCATION

45. Knowledge in/for teaching mathematics at primary level
46. Knowledge in/for teaching mathematics at secondary level
47. Pre-service mathematics education of primary teachers
48. Pre-service mathematics education of secondary teachers
49. In-service education and professional development of primary mathematics teachers
50. In-service education, and professional development of secondary mathematics teachers

META-ISSUES CONCERNING MATHEMATICS EDUCATION ITSELF, AS A FIELD OF PRACTICE, AND AS A DISCIPLINE OF RESEARCH

51. Diversity of theories in mathematics education
52. Empirical methods and methodologies
53. Philosophy of mathematics education
54. Semiotics in mathematics education

**TSG 24**  
**History of the teaching and learning of**  
**mathematics**

**Co-chairs:**

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Alexander Karp (USA)  
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**Team members:**

Henrike Allmendinger (Germany)  
Harm Jan Smid (Netherlands)  
Johan Prytz (Sweden)

**IPC Liaison person:** Alain Kuzniak (France)

The aim of the TSG is to provide a forum for the discussion of findings and unsolved problems in the history of mathematics education as well as of issues in methodology of research in this field. During the last years research in the history of mathematics education has been actively developed – important books and articles, specialized conferences, specialized journals, and special issues of some major serials have been devoted to the relevant topics. Still, it is very clear that many themes are not explored sufficiently and sometimes almost nothing is known about some periods and regions. Additionally, the history of mathematics education is often explored from a local (or national) point of view only. Often connections with similar processes happening elsewhere need to be revealed and understood. This TSG is supposed to help researchers in identifying new topics and new techniques for studies and in establishing fruitful collaboration in their work. Meetings of the TSG will offer presentations on a variety of topics including the following (but not limited to them):

- History of reforms in mathematics education
- History of tools in mathematics education (including textbooks, manipulatives, calculators, etc.)
- Mathematics teachers: history of professionalization
- Local, national, and international dimensions in the history of mathematics education
- History of mathematics education and other directions in mathematics education (for example, teacher education)

In addition, a panel discussion on past and future developments will be organized.

**References**

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- Schubring, G., Furinghetti, F., & Siu, M.K. (2012). Turning points in the history of mathematics teaching – Studies of National Policies. *ZDM - The International Journal on Mathematics Education*, 44(4).

**TSG 25**  
**The Role of History of Mathematics in**  
**Mathematics Education**

**Co-chairs:**

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Xiaoqin Wang (China)  
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**Team members:**

Kathleen Clark (USA)  
Tinne Hoff Kjeldsen (Denmark)  
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**IPC Liaison person:** Alain Kuzniak (France)

### **Aim**

TSG 25 aims to provide a forum for participants to share their research interests and results, as well as their teaching ideas and classroom experience in connection with the integration of the History of Mathematics (HM) in Mathematics Education (ME). Special care is taken to present and promote ideas and research results of an as broad as possible international interest, while still focusing due attention to the national aspects of research and teaching experience in this area. Every effort will be made to allow researchers to present their work and to get fruitful feedback from the discussion, and at the same time to stimulate the interest of the newcomers by giving them the opportunity to get a broad overview on the state-of-the-art in this area.

The discussion within this TSG refers to all levels of education—from primary school, to tertiary education, including in-service teachers' training—preferably on work and conclusions based on actual classroom experiments and/or produced teaching & learning materials.

### **Rationale**

Putting emphasis on integrating historical and epistemological issues in mathematics teaching and learning constitutes a possible natural way for exposing mathematics in the making that may lead to a better understanding of specific parts of mathematics and to a deeper awareness of what mathematics as a whole really is. This is important for ME, 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; there have been shifting views of what
- mathematics is; and
- has constituted a constant force for stimulating and supporting scientific,
- technical, artistic and social development.

### **Focus**

The programme of TSG 25 will be structured around the following main themes:

1. Theoretical and/or conceptual frameworks for integrating history in mathematics education;
2. History and epistemology implemented in mathematics education: Classroom experiments & teaching materials, considered from either the cognitive or/and affective points of view;
3. Surveys on the history of mathematics as it appears in curriculum and/or textbooks (including the history of mathematics in old mathematics textbooks);
4. Original sources in the classroom, and their educational effects;
5. History and epistemology as a tool for an interdisciplinary approach in the teaching and learning of mathematics and the sciences; unfolding fruitful interrelations; and
6. Cultures and mathematics fruitfully interwoven.



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## Table of contents

HPM Executive Committee	1
ESU – 7	2
Obituary	2
PAULUS GERDES – In Memoriam	3
<i>MAA Convergence</i> Celebrates Ten Years of Mathematics, History, and Teaching	5
Have you read these?	6
Announcements of events	8
HPM Administrative Structure	15

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(the online and on time version of this newsletter).

Items for the Newsletter should be sent to the editors, preferably by email (see addresses below).

The Newsletter appears three times a year with the following deadlines for next year.

No.	Deadline for material	Sent to distributors
88	12 February 2015	1 March 2015
89	12 June 2015	1 July 2015
90	12 October 2015	1 November 2015

The Newsletter is the communication of the International Study Group on the Relations between the History and Pedagogy of Mathematics, an affiliate of the International Commission on Mathematical Instruction.

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## A note from the Editors

The Newsletter of HPM is primarily a tool for passing along information about forthcoming events, recent activities and publications, and current work and research in the broad field of history and pedagogy of mathematics. The Newsletter also publishes brief articles which they think may be of interest. Contributions from readers are welcome on the understanding that they may be shortened and edited to suit the compass of this publication.