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ICMI News 14 : February 2010

- Extra-muros -



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Mathématiques

ICMI News 14 : February 2010

A Bimonthly Email Newsletter from the ICMI-International Commission on Mathematical Instruction Editor : Jaime Carvalho e Silva, Dep. Matematica, Universidade de Coimbra, Portugal

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1. Editorial : Welcome to ICMI with the 2010-2012 Executive

A new Executive, a new ICMI ? I think not. Rather, a new Executive will bring some new thinking to bear on our recurring issues, and will, perhaps, initiate one or two new projects. But mostly it will be business as usual : progressing our ICMI Studies ; supporting international and regional conferences and activities ; linking with IMU, ICSU, UNESCO, and similar bodies ; enlarging and maintaining our worldwide networks ; and continuing the ICME sequence.

One recurring issue to which we will bend our minds (and one that is becoming ever more urgent) is funding. Another is our development work in areas where external support is needed to maintain robust mathematics education. A third issue is representation in some countries where the mathematics education community is small or disconnected.

What new projects may emerge ? Apart from the (more or less) annual establishment of a new ICMI Study, any novel initiative will be up to the new Executive. I can say that, even before we meet for the first time, we have already started an email discussion about whether ICMI has a role in relief efforts after major disasters like recent major earthquakes and tsunami. This Executive has but a three-year term (to complete the alignment with ICME instead of ICM as when our elections take place), so we may not have time for radical impact. Nonetheless, we intend to make this term a significant one as we enter ICMI's second century.

Who is this new Executive ? On 1st January, 2010, there was a changeover from the Executive headed by Michèle Artigue to an Executive with 5 new members. From the old Executive, Jaime Carvalho and Bill Barton remain as the new Secretary-General and President respectively, Michèle remains ex officio as Past President, and Mariolina Bartolini-Bussi also continues to represent us. Among the new faces are the new Vice-Presidents Mina Teicher (Israel) and Angel Ruiz (Costa Rica), and new members Sung Je Cho (South Korea), Roger Howe (USA), Renuka Vithal (South Africa), Zhang Yingbo (China).

Two of the new Executive already hold significant international roles in Mathematics Education : Sung Je Cho is the Convenor for ICME-12 in Seoul in 2012 ; and Angel Ruiz is currently President of CIEAM-IACME (Inter-American Committee of Mathematics Education).

The Executive of ICMI also has two other ex officio members, the President and Secretary-General of IMU. In practice, a nominee usually attends - at the first Executive meeting (to be held in Auckland, NZ, in April, 2010) Cheryl Praeger (Australia) will be the IMU nominee.

As your Executive, our priority is to represent our members in pursuance of the aims of the organisation. We can only represent you if we hear from you, and each of us welcome, at any time, comments, ideas, criticisms, offers of help, requests for services, and any other kind of contribution. Our emails are on the website.

Finally, I experience the international mathematics education community as a group of deeply committed people, working selflessly and often un- (or under-)paid, towards an ideal we hold to be important : a quality mathematical education for all. I give thanks for all your work - it is noticed and hugely appreciated.

Bill Barton, President of ICMI, barton@math.auckland.ac.nz

2. ICMI Study 21 - Discussion Document - short version

MATHEMATICS EDUCATION AND LANGUAGE DIVERSITY

EXECUTIVE SUMMARY

Around the world, mathematics is learned and taught in situations of language diversity. Whether through historical multilingualism, migration, colonization, globalisation or other factors, mathematics classrooms frequently involve multiple language use, learning through second or additional languages, learning through minority or oppressed languages, or through majority or dominant languages. Increasing recognition and awareness of this long-standing reality have led to a growing body of research that seeks to understand the relationship between different facets of language diversity and mathematics learning and teaching. It is time to critically review this work, consider implications for mathematics classroom practices, and set an agenda for future research. The principal aims of ICMI Study 21 "Mathematics education and language diversity" are :

- ▶ To gather together a community of researchers who are currently addressing issues of language diversity as they relate to mathematics education ;
- ▶ To reflect on the current state of research on these issues and propose a research agenda for the future ;
- ▶ To disseminate findings from research to date and issues for future work to the wider mathematics education research community and to practitioners. In order to fulfil these aims and following the tradition and example of past ICMI Studies, the International Programme Committee is planning and conducting the following activities :
- ▶ The publication of this Discussion Document lays out the background, theoretical foundations, focus, rationale, and orientation for the Study, along with sample research questions ;
- ▶ The organization of an invitational "working conference" to gather researchers who work on language diversity issues in mathematics education ;
- ▶ The preparation and publication of a Study Volume to present the 'state of the art' and set out an agenda for future research ;
- ▶ The preparation and publication of materials for practitioners to share key findings, concepts and issues and thereby inform mathematics classroom practice. Note that, although this work is referred to as a 'study', neither ICMI nor the IPC will be conducting an empirical research project. PARTICIPATION IN THE STUDY Design of the Study - The ICMI Study 21 on Mathematics education and language diversity is designed to enable researchers and practitioners around the world to share research, theoretical work, projects descriptions, experiences and analyses. It will consist of two components : the Study Conference and the Study Volume.

- ▶ 1. The Study Conference will be held in São Paulo, Brazil, on 16 - 20 September, 2011, the number of

participants to be invited being limited to at most 120. It is hoped that the Conference will attract not only established researchers but also some “newcomers” to the field and mathematics teachers with interesting and refreshing ideas or promising work in progress, as well as participants from countries usually under-represented in mathematics education research meetings.

Participation in the Study Conference is only by invitation, based on a submitted contribution. Proposed contributions will be reviewed and selections made according to the quality of the work, the potential to contribute to the advancement of the Study, with explicit links to the themes and related questions outlined in this Discussion Document, and the need to ensure diversity among the perspectives. Accepted papers will appear in the Conference Proceedings that will be published by ICMI as a CDROM, and will form the basis of the Study's scientific work.

An invitation to the Conference does not imply that an oral presentation of the submitted contribution will be made during the Conference, as the International Program Committee (IPC) may decide to organize it in other ways that facilitate the Study's effectiveness and productivity. This will be a working conference, every participant being expected to make a scientific contribution. We therefore hope that the participants will represent a variety of backgrounds, expertise, experience and nationalities that will lead to a suitable coverage of the Study theme, its different topics and the related questions.

It is the IPC's hope that the Conference will attract mathematics education researchers, mathematics teacher educators, policy makers and linguists who are interested and do work in the area of mathematics education and language diversity as well as mathematics teachers in multilingual classrooms.

Unfortunately an invitation to participate in the Conference does not imply financial support from the organisers, and participants should finance their attendance at the Conference. It is hoped that this invitation will help participants to get appropriate support from their own countries. Funds are being sought to provide partial support for participants from non-affluent countries, but the number of such grants will be limited.

- ▶ 2. The Study Volume, a post-conference publication, will appear in the New ICMI Study Series (NISS), published by Springer. Acceptance of a paper for the Conference does not ensure automatic inclusion in this book. The Study Volume will be based on selected contributions as well as on the outcome of the Conference. The exact format of the Study Volume has not yet been decided but it is expected to be an edited coherent book that can hopefully serve as a standard reference in the field for a foreseeable future. A report on the Study will be presented during the 12th International Congress on Mathematical Education (ICME-12), to be held in Seoul, Korea, on July 8-15, 2012.

Call for Contributions - The International Programme Committee hereby invites individuals or groups to submit original contributions on specific questions, problems or issues related to the topic of the Study for consideration by the Committee. A submission should represent a significant contribution to knowledge about the Study topic and may address questions from one or more of the Study themes below, or further issues relating to these, but it should clearly identify its primary focus.

- ▶ Teaching mathematics in diverse language contexts
- ▶ Teacher education for diverse language contexts
- ▶ Researching mathematics teaching and learning in multilingual contexts
- ▶ Mathematics, multilingualism and society
- ▶ Student mathematics learning and experiences in multilingual classrooms

The IPC welcomes high-quality proposals from researchers and practitioners who can make solid practical and scientific contributions to the Study. New researchers in the field, teachers and participants from countries under-represented in mathematics education research meetings are especially encouraged to submit contributions. To ensure a rich and varied scope of resources for the Study, participation from countries with different economic

levels or with different cultural heritage and practices is encouraged.

Those who would like to participate should prepare a paper addressing matters raised in this document or other issues related to the topic of the Study. Papers concerning work that is ongoing or yet to be carried out are also welcome. Research questions should be carefully stated and expected results should be formulated, if possible with reference to earlier and related work. These papers should be submitted no later than 30 November 2010, to both co-chairs of the Study by e-mail. All such documents will be regarded as input to the planning of the Study Conference and will assist the IPC in making decisions on the invitations, to be issued no later than 28 February, 2011.

General Guidelines on Submission of Papers The papers must be written in English.

The format of papers must be as follows :

- ▶ A maximum of 8 pages, including references and figures.
- ▶ Times New Roman 14-point font, 16-point line space, and 6 points between paragraphs ; occupying a frame of 170 by 247 mm.
- ▶ The title (in 16-point bold capitals), author(s) name(s) (in 14-point bold), and affiliation(s) of author(s) (in 14-point italics) should appear in this order centered, all in Times New Roman.
- ▶ The paper must begin with an abstract of up to 10 lines, single-spaced, in italics.
- ▶ Video clips may be referred to in the paper and a link should be provided.

Further technical details about the format of submissions will be available on the Study website as soon as it is launched on 28 February 2010. This website will be progressively updated with all study and travel information.

INQUIRIES Inquiries on all aspects of the Study and suggestions concerning the content of the Study Conference should be sent to both co-chairs :

Mamokgethi Setati setatrm@unisa.ac.za or funkymaths@yahoo.co.uk Maria do Carmo Santos Domite mcdomite@usp.br or mcdomite@gmail.com

3. ICMI Study 21 website

The 21st ICMI Study has recently launched its website. Please go to

<http://www.icmi-21.com/>

The full version of the Discussion Document is available on this website here :

http://www.icmi-21.com/userfiles/Study_21_Discussion_Document.pdf

4. The Klein Project

The Klein Project April, 2010

The Klein Project now has a live “wiki” website at kleinproject.org.

The first Klein Conference was held in Madeira in October, 2009. The second Klein Conference will be held in Castro-Urdales, Spain in the first week of June.

The Design Group has just held its second meeting (in Auckland, this April). The main work was the development of the idea of "Klein Articles". These short articles are now solicited from anyone wishing to make a contribution. Please see the website.

Other types of contributions are also welcomed. The website has a category for "Recommended Reading" and for "Related Links". You are welcome to add items to these lists. Please include a sentence or two about the item.

The Design Group would like to hear from anyone, or any organisation, that is interested in hosting a Klein conference or workshop.

Bill Barton, Chair of the Design Group, barton@math.auckland.ac.nz

5. ICMI Study 20 Conference postponed

Given the eruption of the Islandic volcano, the clouds of ashes floating all over Europe and the chaos and partly non-existence of air traffic over Europe, the co-chairs and the chair of the LOC, Alain Damlamian, Rudolf Strässer and José Francisco Rodrigues, respectively, have decided to postpone the Study Conference of ICMI Study 20, "Educational Interfaces between Mathematics and Industry (EIMI)", planned for Lisbon for the 19-23 of April. The Study Conference will be organized at a later date. The updates will be posted on the EIMI website :

<http://www.cim.pt/eimi/>

6. Proceedings of the Symposium Celebrating the Centennial of the ICMI

ISTITVTO DELLA ENCICLOPEDIA ITALIANA FONDATA DA GIOVANNI TRECCANI

The First Century of the International Commission on Mathematical Instruction (1908-2008). Reflecting and Shaping the World of Mathematics Education

Edited by M. Menghini, F. Furinghetti, L. Giacardi, F. Arzarello

- ▶ CONTENTS
- ▶ Introduction
- ▶ HYMAN BASS, Moments of the life of ICMI
- ▶ JEREMY KILPATRICK, The development of mathematics education as an academic field - Reaction by JEAN LUC DORIER
- ▶ DINA TIROSH and PESSIA TSAMIR, Intuition and rigor in mathematics education - Reaction by ALDO BRIGAGLIA
- ▶ MOGENS NISS, Perspectives on the balance between application & modelling and "pure" mathematics in the teaching and learning of mathematics - Reaction by TOSHI IKEDA
- ▶ JO BOALER, The relationship between research and practice in mathematics education : International examples of good practice - Reaction by JOAO DA PONTE
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- FULVIA FURINGHETTI, MARTA MENGHINI, FERDINANDO ARZARELLO, LIVIA GIACARDI, ICMI Renaissance : The emergence of new issues in mathematics education
- ▶ BIENVENIDO NEBRES, Centres and peripheries in mathematics education - Reaction by GELSA KNIJNIK
 - ▶ Panel on ICMI's challenges and future : MORTEN BLOMHOJ ; MAMOKGETHI SETATI
 - ▶ MICHÈLE ARTIGUE, ICMI : One century at the interface between mathematics and mathematics education - Reflections and perspectives
 - ▶ BERNARD R. HODGSON, Some views on ICMI at the dawn of its second century
-
- ▶ Short Talks (Coordinators Alan Bishop and Lee Peng Yee) EILEEN F. DONOGHUE - The inception of ICMI : David Eugene Smith and the founding of ICTM ; ALAN BISHOP - The past four decades : consolidation and diversification ; DEREK HOLTON - The process of an ICMI Study : The teaching and learning of mathematics at university level ; FREDERICK K.S. LEUNG - The significance of the ICMI Study on mathematics education in East Asia and the West ; UBIRATAN D'AMBROSIO - ICMI and its influence in Latin America ; JILL ADLER - The development of AFRICME ; CLAUDI ALSINA - What is the impact of hosting an ICME for the organizing country ? - The case of ICME8 in Spain ; LIM-TEO SUAT KHOH - ICMI Activities in East and Southeast Asia : Thirty years of academic discourse and deliberations

Working Groups - Reports BILL BARTON & FREDERIC GOURDEAU : Disciplinary mathematics and school mathematics ; DEBORAH BALL & BARBRO GREVHOLM : The professional formation of teachers ; HILARY POVEY & ROBYN ZEEVENBERGEN : Mathematics education and society ; MARCELO BORBA & MARIOLINA BARTOLINI BUSSI : Resources and technology throughout the history of ICMI ; GILAH LEDER & LUIS RADFORD : Mathematics education : An ICMI perspective.

ORDERING THE VOLUME The proceedings of the Symposium held on the occasion of the Centennial of ICMI in Rome, from March 5th to March 8th, 2008, are now being published. The price of the volume comes to 60 Euros (about 90 USD) shipping fees included.

Participants of ICME's and of conferences of the affiliated groups of ICMI, in the period 2004 - 2008, may enjoy a special 33 % reduction.

To receive the volume, we ask that you send in the following request :

I would like to receive a copy of the volume : ## The First Century of the International Commission on Mathematical Instruction (1908-2008). # Reflecting and Shaping the World of Mathematics Education ## * at the price of 40 Euros, shipping and handling included ; I was a participant of # ICME/PME/HPM.....in the period 2004 - 2008 # * at the price of 60 Euros, shipping and handling included ## Please send the volume to the following address : ## I will be paying by : # * Credit Card # Amount to Charge : Type of Card : __ # Name on Card : __ Card Number : __ # Expiration Date : __ Signature : # Bank transfer (please send a copy) to : Istituto della Enciclopedia Italiana # IBAN IT48 L010 0503 2060 0000 0007 699

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By Email : venditadiretta@treccani.it

By fax : +39 06 68982294

For all other information, please use the above addresses. The request form is also available at the Symposium's website : <http://www.unige.ch/math/EnsMath/Rome2008> »

7. "Dig where you stand"

- ▶ Proceedings of the Conference on Ongoing Research on the History of Mathematics Education, held in Iceland, June 20 - 24, 2009

The first international conference, exclusively on ongoing research in the field of the history of mathematics education, was held during June 20-24, 2009 in Garaboer, in the vicinity of Reykjavík, Iceland. The conference was attended by nineteen prominent researchers who gave eighteen presentations. The proceedings of the conference, "Dig Where You Stand", have now been published, A copy may be purchased by contacting the bookstore of the School of Education, University of Iceland, email address : boksala@khi.is. The price is IKR 2785, which by the current rate is 15,50 Euros. The mailing cost will be added. The bookstore will send an invoice.

The contributions to the proceedings are listed below : Amy Ackerberg-Hastings : John Playfair in the natural philosophy classroom Kristín Bjarnadóttir : Björn Gunnlaugsson - Life and work. Enlightenment and religious philosophy in nineteenth century Icelandic mathematics education Fulvia Furinghetti : The evolution of the journal L'Enseignement Mathématique from its initial aims to new trends Livia Giacardi : The Italian contribution to the International Commission on Mathematical Instruction from its founding to the 1950s Hans Christian Hansen : From descriptive history to interpretation and explanation-a wave model for the development of mathematics education in Denmark Bernard R. Hodgson : ICMI in the post-Freudenthal era : moments in the history of mathematics education from an international perspective Iason Kastanis and Nikos Kastanis : Toward a cognitive historiography of mathematics education Jeremy Kilpatrick : The social efficiency movement in the United States and its effects on school mathematics José Manuel Matos : Changing representations and practices in school mathematics : the case of Modern Math in Portugal Marta Menghini : The teaching of intuitive geometry in early 1900s Italian Middle School : Programs, mathematicians' views and praxis Johan Prytz : Professional debate and social structure in Swedish mathematics education, 1905-1962. The case of geometry instruction at the lower secondary level Pauline Romera-Lebret : Teaching new geometrical methods with an ancient figure in the nineteenth and twentieth centuries : the new triangle geometry in textbooks in Europe and USA (1888-1952) Gert Schubring : How to relate regional history to general patterns of history ? - The case of mathematics Man Keung Siu : Mathematics education in East Asia from antiquity to modern times Harm Jan Smid : Foreign influences on Dutch mathematics teaching Wagner Rodrigues Valente : History of mathematics education in training teachers of mathematics : considering its potentialities Thorsteinn Vilhjálmsson : Budding mathematical science : An example from the Old Norse

8. Calendar of Events of Interest to the ICMI Community

AFRICME 3 - 2010 "Mathematics as a Leading edge in the Education for All (EfA) Framework" Gaborone, Botswana, May 18-21, 2010 Chairperson : Luckson Muganyizi Kaino, KAINOL@mopipi.ub.bw information : dmse@mopipi.ub.bw

Tenth Maghrebian Colloquium on the History of Arab Mathematics Tunis, Tunisia, May 29-31, 2010 information : mahdi.abdeljaouad@gmail.com

ICOTS8 : 8th International Conference on Teaching Statistics Data and context in statistics education : towards an evidence-based society Ljubljana, Slovenia, July 11-16, 2010 <http://icots8.org>

5th International Conference on Origami in Science, Mathematics and Education Singapore Management University, Singapore, July 13-17, 2010 information : Eileen Tan (origamiwolf@gmail.com), Patsy Wang-Iverson

(pwangiverson@gmail.com)

Eleventh Iranian Mathematics Education Conference Sari-Iran, July 18-21, 2010 <http://www.imec11maz.ir/>

PME 34 - CONFERENCE OF THE INTERNATIONAL GROUP FOR THE PSYCHOLOGY OF MATHEMATICS EDUCATION Belo Horizonte, Brazil, July 18-23, 2010 <http://pme34.lcc.ufmg.br/>

ESU-6 - 6th EUROPEAN SUMMER UNIVERSITY ON THE HISTORY AND EPISTEMOLOGY IN MATHEMATICS EDUCATION Vienna, Austria, July 19-23, 2010 <http://www.algebra.tuwien.ac.at/kronfellner/esu6/>

ICEM-4 - Fourth International Conference on Ethnomathematics Towson University, Baltimore, Maryland, July 25-30, 2010 <http://icem-4.org/>

6th International conference on "Creativity in Mathematics Education and the Education of Gifted Students" Riga, Latvia, August 1-5, 2010 <http://nms.lu.lv/MCG/>

EARCOME5 - The Fifth East Asia Regional Conference on Mathematics Education Tokyo, Japan, August 18-22, 2010 <http://www.earcome5.jp/>

YESS-5 - FIFTH YERME SUMMER SCHOOL Palermo, Italy, August 18-25, 2010 http://math.unipa.it/grim/YESS-5/Home_YESS-5.html

ICM - International Congress of Mathematicians Hyderabad, India, August 19-27, 2010 <http://www.icm2010.org.in/>

epiSTEME - 4 : Fourth international conference to review research on Science, TEchnology and Mathematics Education Homi Bhabha Centre for Science Education (TIFR), Mumbai, India, January 5-9, 2011 <http://www.hbcse.tifr.res.in/episteme4>

CERME 2011 - Conference of the European Society for Research in Mathematics Rzeszow, Poland, February 9-13, 2011

XIII CIAEM Inter-American Conference on Mathematics Education Recife, Brasil, June 26-30, 2011. <http://www.ciaem-iacme.org/>

ICTMT10 - 10th International Conference on Technology in Mathematics Teaching University of Portsmouth, July 5-8, 2011 <http://www.ictmt10.org/>

PME 35 - CONFERENCE OF THE INTERNATIONAL GROUP FOR THE PSYCHOLOGY OF MATHEMATICS EDUCATION Ankara, Turkey, July 10-15, 2011

SEMT 11 - SYMPOSIUM ON ELEMENTARY MATHS TEACHING Prague, Czech Republic, August 21-26, 2011 <http://kmdm.pedf.cuni.cz/Default.aspx?PorZobr=7&PolozkaID=-1&ClanekID=267>

ICMI Study 21 Conference São Paulo, Brazil, September 16-20, 2011 <http://www.icmi-21.com/>

ICME-12 - Twelfth International Congress on Mathematical Education Seoul, Korea, July 8-15, 2012
<http://www.icme12.org/>

9. SUBSCRIBING TO ICMI News

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1. Click on <http://www.mathunion.org/index.php?id=674> with a Web browser 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.

Previous issues can be seen at : <http://www.mathunion.org/pipermail/icmi-news>

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ICMI-News mailing list ICMI-News@mathunion.org <http://www.mathunion.org/mailman/listinfo/icmi-news>