

# PME NEWSLETTER

**May/June 2010**

## PME 34 KICKING OFF IN BELO HORIZONTE

### *PME Message from President Fou-Lai Lin*



I'm sure that you are all making preparations for attending this year's PME conference, this year I'd say that a very important change is that we have transferred from the PME database to a new conference manager, ConfTool. After sur-

mounting some technical difficulties, we can now successfully use the system with ease. I'd like to thank Laurie Edwards, Cristina Frade, Peter Liljedahl, members of the local committee and Marcia Fusaro Pinto, the Chair of IPC, for their hard work and their endeavors in making the transfer from PME database to ConfTool.

**Football, Football, Brazil!** This year, the World Cup is taking place, and if you are not able to go to South Africa to join in the excitement, then I'm pleased to tell you that during the period of the PME conference, there will be at least two football matches held in the stadium of Belo Horizonte. Those who are interested can make arrangements to experience the thrilling event.



Photo: Flickr jrgoody

Also, please remember to get the needed vaccinations for entering Brazil, if you haven't done so already. Brazil is a fabulous country of cultural diversity with a range of excellent food, music and dance - and of course soccer.

Since most participants are not familiar with the Portuguese language, when you are experiencing the wonderful cultural charms of Brazil, remember that it is best to be accompanied by someone when you are outside the university premises.

We'd like to have a call for a bid for hosting PME 37 in 2013, especially welcoming members based in Europe or North America to make the bid. If any of

you are interested, please contact Jarmila for further details ([info@igpme.org](mailto:info@igpme.org))

### *PME Message from the Editors*

Greetings and bem-vindos (welcome in Portuguese) to our second Newsletter of 2010 and final issue before we see you at PME 34 in Belo Horizonte. Cristina is busy preparing to host the PME 34 so Cynthia has taken the lead editing the past few issues of the Newsletter. In this issue we bring highlights from our PME 34 Plenary Speakers and Panel Members, the PME 34 AGM agenda, features of Mathematics in Different Settings, opinion on a PME Ombudsperson and more.

For our next issue (November/December) we are seeking ideas for feature articles that we could start while in Brazil.

Hope you enjoy this issue and look forward to seeing you all at Belo Horizonte!

*Cristina Frade, Zhonghe Wu & Cynthia Nicol – Editors of PME Newsletter*

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## PME 34 Plenary Speakers Get Personal

We invited all PME 34 plenary speakers to contribute to this issue by responding to the questions: How many PMEs have you attended? Where and when was your first PME? and How does your research life connect with the conference theme: Mathematics in Different Settings



### Ubiratan D'Ambrosio

Professor, UNIBAN/Universidade Bandeirantes de São Paulo, Brazil

**Number of PMEs attended:** This is my first international PME

I graduated as a school teacher in 1954, at the University of São Paulo, Brazil. I taught Elementary and Secondary schools for a few years and published some papers in Mathematics Education in the late fifties and early sixties. In 1963 I completed my doctorate in Pure Mathematics (Calculus of Variations) in the University of São Paulo, Brazil, with research stages in Italy (Genoa) and the USA (Ithaca and Providence). Since then, I devoted my time to research and teaching at both undergraduate and graduate levels, in Brazil, the United States, Africa (Bamako, Mali), up to the late eighties. In the early seventies, I got involved with Mathematics Education and my activities were research in the socio-cultural bases of Mathematics (History/Ethnomathematics), curriculum development and teacher training (undergraduate and graduate levels) in Brazil, in several Latin America and Caribbean and in Africa. Currently, my work is in the theoretical framework that supports my proposal of Ethnomathematics as a research program in History and Philosophy of Mathematics and its pedagogical implications.



### Brent Davis

Professor, Distinguished Research Chair in Mathematics Education  
University of Calgary, Canada

**Number of PMEs attended:** 3

**Year and place of first PME:** PME 27 Honolulu, Hawai'i 2003

How does your research life connect with the conference theme: Mathematics in Different Settings? I'll answer this two ways. First the obscure response: I draw on theories of embodied learning and complex dynamics to study how we might promote profound individual understanding within spaces of collective mathematical action in which mathematics itself is understood as a complex, emergent system. Or, in friendlier terms, my work is organized around 'concept study', a setting in which participants pool expertise to investigate, interrogate, and elaborate their knowledge of mathematics – an approach that, for teachers, seems to activate their formal mathematics knowledge while prompting a more engaged, interpretative sort of listening when working with students.

## PME 34 Plenary Speakers continued....



### Anne Watson

Professor of Mathematics Education, University of Oxford, UK

**Number of PMEs attended:** 6, this is my favourite conference

**Year and place of first PME:** PME 21 Lahti, Finland 1997

My main research focus is how mathematics teaching and learning can improve for students from social and economically disadvantaged backgrounds. In UK mathematics is nearly always taught in so-called ‘ability’ groups but these always turn out to reflect the structure of society, with certain middle class groups in the ‘highest’ sets and less advantaged children in the ‘lowest’ sets. Most of my research and teaching has been exploring how to raise the attainment of those who are otherwise disadvantaged by this system. Part of this work has been about how teachers can draw on those ways of thinking that are employed in life outside school in order to learn more mathematics, and a complementary body of work is about how mathematical ways of thinking that are empowering, but which we do not encounter in our outside lives, can be taught better to more students. I have edited two collections of papers on how the perspective of situated cognition illuminates these questions. More recently have returned to think about the mathematics classroom as a setting in which ways of thinking that students might not meet anywhere else – and how this happens.



### João Filipe de Matos

Professor of Education

Institute of Education, University of Lisbon

**Number of PMEs attended:** 22

**Year and place of first PME:** PME 10 London, UK 1986

I see scientific knowledge existing within specific communities of practice that reclaim a field of scientific production. And when I come to decide what counts as knowledge I claim that the criteria used to recognize it stays with the community of practice where it is produced. Therefore I take ‘mathematics knowledge’ as inherent to the practices where it is produced – the communities of mathematicians or any other group that sustains a practice giving coherence to a community and therefore producing and attaching legitimacy to the knowledge developed. My research life draws on trajectories of participation in projects, initiatives and enterprises where education is understood in systems of activity where mathematics operates as an artifact not only emerging from specific actions and interactions but itself creating opportunities for participation. And when I look 25 years back in time – and I understand links of my research trajectory to specific settings and people – I come to recognize how much I’m part and result of my interactions with others and how they are part of my research trajectories



## Fou-Lai Lin

Research Chair Professor,  
Institute of Education, University of London, UK

**Number of PME's attended:** 22

**Year and place of first PME:** PME 11 Montreal, Canada 1987.

Mathematical tasks designing for learning settings in which participants are encouraged to construct and think actively is the major concern of my research. I have been engaged in developing and studying several learning settings, such as diagnosing conceptual understanding, mathematical modelling, conjecturing and proving, reading comprehension of proof and national entrance exams.

With respect to each setting, participants' (students or teachers) cognitive behavior and affective reaction were pre-analyzed, observed, reflected and reported. Participants in TIMSS and PISA studies, Taiwanese students are very good in mathematics tests but very poor in learning interests and self-efficacy about mathematics. Mathematics classrooms in which everyone is involved in thinking and constructing actively shall be a resolution of our problematic situation. A workshop for in-service teachers aiming to enhance their competencies in task designing for students to think actively has been designed and studied. It is a multi-tiers study. Studying the complex interactive learning process among the participants in three tiers: researchers, in-service teachers and students, one can analyse and compare the learning difficulties of participants between each tier and resolution of them. Consideration of variety of learning settings makes the integration of multi-tiers study meaningful.

## Meet the PME 34 Plenary Panel

The theme for this year's plenary panel is the conference theme:  
**Mathematics in Different Settings**



### Jeff Evans (convenor)

works at Middlesex University, London, and has undertaken research into the meaning of context-specificity and the 'transfer' of learning; attitudes, emotion and motivation related to mathematics learning and use; and the public understanding of mathematics and statistics. Current interests include images of mathematics in popular culture; adult numeracy, financial capability and decision-making; and development work on the new international survey of adults' competencies, including numeracy (PIAAC).



### Silvia Alatorre (panel member)

is a researcher at the National Pedagogical University in Mexico City, interested in mathematics education at the elementary level, adult numeracy, and elementary teachers' knowledge and professional development. She is a member of the Mexican Researchers System, of the Numeracy Expert Group of the OECD's Programme for the International Assessment of Adult Competencies (PIAAC), and of IGPME's IC. Her panel contribution addresses the relevance of Mathematics in issues of social justice.

*and more* **PME 34 Plenary Panel Mem-**



**Andy Noyes** (panel member)

is at the University of Nottingham, UK. His research interests currently centre on policy, participation and progression in 14-19 mathematics education and he is working with colleagues at Nottingham and UC Berkeley on the College Ready Mathematics project. An interest in curriculum purposes underpins his panel contribution 'Resetting School Mathematics'.



**Despina Potari** (panel member)

is at the University of Athens, Greece and her main research interests have been in the development of mathematics teaching and learning and teacher development. Her research focus has been on the role of different contexts and tools in the classroom setting and more recently in the workplace setting. She is a member of Editorial board of two international Journals. The title of her presentation in this panel is 'Making connections in two different settings: The role of tools'.



**Henk van der Kooij** (panel member)

works at the Freudenthal Institute, Utrecht University, the Netherlands. He has been involved in several curriculum reform programs in general and vocational education. His main recent interest is the relation between competencies and mathematical skills, with regard to a threefold qualification: for work, further education and citizenship. The title of his presentation is 'Mathematics in Work'.

**NEW BOOK to be released August 2010**



**Combinatorics and Reasoning: Representing, justifying and building isomorphisms. New York: Springer**

Maher, C. A., Powell, A. B., & Uptegrove, E. B. (Eds.). Series: Mathematics Education Library, Vol 47. <http://www.springer.com> ISBN: 978-0-387-98131-4

Based on the accomplishments of a cohort group of learners from first grade though high school and beyond, concentrating on their work on a set of combinatorics tasks. By studying these students, the Editors gain insight into the foundations of proof building, the tools and environments necessary to make connections, activities to extend and generalize combinatoric learning, and even explore implications of this learning on the undergraduate level.

## Featuring Mathematics in Different Settings

### Mathematics and Culture in Micronesia: Integrating Societal Experiences

*invited submission by Sandy Dawson, University of Hawai‘i—Mānoa*

The MACIMISE Project [Mathematics and Culture in Micronesia: Integrating Societal Experiences, pronounced as if spelled as ‘maximize’] is a collaborative effort funded by a National Science Foundation (NSF) grant between Pacific Resources for Education and Learning (PREL) and the College of Education, University of Hawai‘i—Mānoa (UHM) with PREL as the lead organization.

The setting for the project is the northern Pacific Ocean from Hawai‘i west to the Republic of the Marshall Islands (RMI) and across the Federated States of Micronesia (FSM) which includes the states of Kosrae, Pohnpei, Chuuk and Yap, Guam, the Commonwealth of the Northern Mariana Islands (CNMI), farther west to the Republic of Palau, and south of the equator to American Samoa. The 5- year Project began September 2009.

The goal of the MACIMISE Project is to capture/uncover/recover mathematical ideas that exist in the everyday local practices of the dominant language groupings across the Pacific region noted above. The recapture of local mathematical thought and its transformation into school curricula requires local experts in the teaching and learning of mathematics who are familiar with of the mathematical practices in their own cultures and who in the years ahead will provide leadership in the development of curricula sensitive to local mathematical thought. In order to maximize (MACIMISE) its impact the goals of the Project are to:

- Develop and assess local mathematics curriculum units for grades one, four, and seven;
- Rediscover/uncover the indigenous mathematics of eight Pacific island language communities;
- Build local capacity by offering advanced degree opportunities to local mathematics educators.

One major question facing the Project was the following: Who will do this work, who knows the language and local practices of each language group and can search out the mathematics that exists in the areas? The answer chosen was to seek out 2-3 individuals from each jurisdiction to be the ‘prime’ searchers and curriculum developers. Across the region that means we looked for 20 people who had very strong interests in mathematics

and experience in teaching mathematics at some level (K-20), and who are also knowledgeable about the cultural practices of their home island. Once selected, these people are to be enrolled in a Masters or Doctorate degree program through the University of Hawai‘i—Mānoa. The Internet-based Elluminate software is a primary tool for the offering of courses and maintaining contact with graduate students across the region.



Questions now faced by the Project are:

- How to use technology to assist in the education of the graduate students who come with diverse languages groups and cultures?
- What research techniques are appropriate and respectful when working with the elders of a variety of indigenous communities in variable settings across the Pacific?
- What are the foremost social equity issues when doing research in settings where the community’s economic existence operates at a subsistence level?

The PME community is invited to share their insights, experiences, and stories that would assist MACIMISE Project staff to find answers to these questions.

Sandy Dawson can be reached at <[dawsons@prel.org](mailto:dawsons@prel.org)>

## PME 34 AGM Agenda (Draft)

Belo Horizonte, Brazil

Additions and changes accepted until July 9 2010

Possible Agenda items should be sent to PME President Fou-Lai Lin <[linfl@math.ntnu.edu.tw](mailto:linfl@math.ntnu.edu.tw)>

1. Opening of the meeting
2. Adoption of the Agenda
3. Adoption of the minutes of the 2009 AGM held in Thessaloniki, Greece
4. Elections
  - a. President
  - b. Members of the PME International Committee
5. Brief reports of the President Portfolio Group, Vice-President Portfolio Group and Secretary Portfolio Group.
6. Treasurer Portfolio Group report and vote on Treasurer Portfolio Group report
7. Policy analysis report
8. Report on the Usage of the Conference Management System
9. Vote on Path to AGM
10. Vote on Form of Proceedings (printed vs. CD)
11. Vote on Maximal Number of Contributions per Conference Participant
12. Vote on Ombudsperson (for the review process)
13. Brief report on future conferences
14. Closing of the meeting

### Wheeler Island: A Virtual World to communicate and collaborate in mathematics education



The David Wheeler Institute for Research in Mathematics Education at Simon Fraser University in Vancouver, BC, Canada, has constructed a virtual facility "Wheeler Island" within a virtual world called Second Life <[www.secondlife.com](http://www.secondlife.com)>.

Wheeler Island has been conceived and created first and foremost to help facilitate communication, collegiality, and collaboration amongst the international mathematics education research community. We are currently conducting research on how effective Wheeler Island may prove to be toward fulfilling this purpose. Mathematics education researchers interested in more information pertaining to this initiative and potentially participating in this research are invited to contact Stephen (Sen) Campbell, Associate Professor, Faculty of Education, Simon Fraser University <[sencael@sfu.ca](mailto:sencael@sfu.ca)>."

### New Resource

Gueudet, G., & Trouche, L. (Eds.). (2010)



Ressources vives. Le travail documentaire des professeurs en mathématiques. Rennes: PUR. édition en 2010, Presses Universitaires de Rennes et INRP.

[http://educmath.inrp.fr/Educmath/recherche/approche\\_documentaire/Livre](http://educmath.inrp.fr/Educmath/recherche/approche_documentaire/Livre)

## Opinion: Do we need an Ombudsperson?

*submitted by Kath Hart, UK*



The Concise Oxford Dictionary says that ‘an ombudsman’ (ombudsperson) is an official appointed to investigate complaints of an individual against a public/civic authority. The post is given to somebody who commands respect, is important and who has limited time, certainly none to spend on trivialities.

Perhaps PME needs such a person.

Over a long period there have been arguments and complaints over the procedure and results of the review process for papers/proposals submitted for a conference and its proceedings. We have lost members because they considered the judgement on their submission to be unfair.

At present a paper receives three reviews. The First Announcement provides a list of categories in which papers can fit and the author chooses. The reviewer is matched to a paper on the basis of the same categories. The categories are general and both author and reviewer may fit only the very edge of a category. For example the paper may be about pre-school but need to be put under ‘Primary Education’ and the reviewer may be an expert on early secondary mathematics but decides late ‘Primary’ is similar. Already, the reviewer may know little about the topic of the article.

There have been stories of papers being given to students to review and papers receiving three rejections one year and three acceptances one year later with no changes being made to the paper. The author receives the written reviews but if they total three rejections then the only al-

ternative is to submit a poster or short oral. It was suggested last year that the author if dissatisfied could approach the Vice President, but this route is not emphasised in the conference literature and he /she may know nothing of the topic.

My suggestion is that a member who has received three rejections AND considers this unfair, should be able to appeal to the ombudsperson. Some grounds for appeal might be:

1. The review shows lack of knowledge of the topic or the bibliography.
2. The article is rejected on the basis of one or two typographical errors or use of an acronym etc.
3. The reviewer makes statements of political/nationalistic/biased nature. i.e. non academic grounds
4. The reviewer makes a statement which can be shown to be untrue.

If the ombudsperson considers that the author has been unfairly treated they can suggest to the Conference Committee that the paper be accepted. This would need to be done quickly but allow the ombudsperson time to consult an expert on the topic if need be. If it seemed suitable the reviewer could be cautioned and urged to reconsider the categories for which he/she volunteered.

We could try this out for a year, perhaps even allowing complaints from those who were rejected for the 2010 PME, for practice. There might be no response or so much that the ombudsperson would be unable to cope.

**Post a response to the PME wiki at**  
<http://pme-communication.wikispaces.com/>

### MASTER AND DOCTORAL PROGRAMME 2010-11

**RESEARCH ON THE TEACHING AND  
LEARNING OF EXPERIMENTAL SCIENCES,  
SOCIAL SCIENCES AND MATHEMATICS**

**(taught in Spanish)**

**Coordinated by:**

University of Huelva (Spain) (UHU). Departamento de  
Didáctica de las  
Ciencias y Filosofía

Masters offers 3 paths: Experimental Sciences Education (ES), Social Sciences Education (SSE) and Mathematics Education (ME).

The first pre-registration period is open at the University of Huelva  
<http://distritounicoandaluz.cica.es>.

For more information <http://www.uhu.es/> or contact the Master Coordinator, Dr. José Carrillo ([carrillo@uhu.es](mailto:carrillo@uhu.es)).



## See you in Belo Horizonte Brazil July 18-23

Organizing a PME conference is an unforgettable experience, as it is an incredible opportunity to learn about millions of things. Thus it is worthy living it. On behalf of the organizing committee, I am grateful to the PME community for relying on us and accepting our proposal to host the conference at our University, in Brazil.

Almost no one would clearly have in advance an image of the various small and big issues we faced throughout the way, since our proposal to host a PME conference was accepted. On the other hand, stepping back and contemplating the final product shape, the conference project as it is now, any hidden tensions and conflicts fade away.

The PME34 Organizing Committee is pleased with the 382 registrations in the conference – which matches our hostage capacity and initial expectations. Our online agenda announces that there will be 7 RF, 9 DG, 2 WS, 120 RR presentations, 126 SO and 44 PP. A fifth Plenary is the Farewell speech of PME president Dr. Fou-Lai Lin. During the AGM meeting, we will vote for a new PME president. We are now confident our annual meeting will be as profitable as the previous ones, focusing especially on its social and scientific relevance.

We are also pleased to inform that we organized three PME satellite meetings with the support of our LOC National Component. Some PME34 participants were invited and agreed to join research groups in universities in Rio de Janeiro, São Paulo and Ouro Preto. We expect this initiative will provide an opportunity to promote and exchange scientific information between PME researchers

and Brazilian professors, school teachers and graduate students who, for academic and/or financial reasons, would not be able to participate of PME34 conference.

No less excited with the conference than the National Component members is the Local Organizing Committee. LOC members are taking care of each detail of the five days programme, with all the efforts being directed to make our 2010 conference socially enjoyable.



Belo Horizonte, Minas Gerais, Brazil

In the few moments I personally have at present to reflect on the overall process we experienced to organize PME34, I consider that PME conference organizers, and thus the entire community, should be ever in debt to Dr. Joop Van Dormolen's careful weave of the Guidelines for Conference Organizers.

We are also grateful to Dr. Fou-Lai Lin and the IC for supporting the piloting of a new management tool for conference organization. We are grateful for the tremendous efforts of Dr. Laurie Edwards and Dr. Cristina Frade in orchestrating the move to a new system. In the breakthrough of the unknown route, we were never alone - we express here our special thanks to the IPC/IC members and Dr. Jarmila Novotna for their interest and attention during the whole year. At the end, we understand that the risky disruptions related to the change we put into practice are distinguishing PME34 as a mark for the conferences in the future.

On behalf of the Organizing Committee and the LOC, I wish all of you a smooth flight to PME34, this July.

*Marcia Maria Fusaro Pinto, PME34 Conference Chair*



### New Book!!!!

M. Walshaw (Ed.), (April, 2010). *Unpacking Pedagogy: New Perspectives for Mathematics*. Greenwich, CT: Information Age Publishing. <http://infoagepub.com/products/Unpacking-Pedagogy>

This volume represents a serious attempt to understand what it is that structures the pedagogical experience. The book contains substantial essays that draw on postmodern philosophies of the social to explore theory's relationship with the practice of mathematics pedagogy.