



# NEWSLETTER

International Group for the Psychology  
of Mathematics Education



**JUNE 2018**  
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## Message from PME President

*Dear Colleagues from PME,*

As per usual, the time between fall and spring newsletters has been filled with preparation work for the annual conference, administration of the surplus policy, and preparing for the upcoming AGM.

The year began with the 1st International Program Committee (IPC) meeting at the Umeå University in Sweden. The local organizing committee (LOC), chaired by Ewa Bergqvist and Magnus Österholm, and including Carina Granberg and Lovisa Sumpter were generous hosts as we initiated the review process, toured the conference facilities, and discussed the finer details of the forthcoming PME 42 conference. This was my second 1st IPC meeting with the first having been in Singapore in January 2017. Geographically and meteorologically, the two locations could not have been more different. Whereas Singapore had been warm and green, Umeå was cold and white.

In April we reconvened in Umeå for the 2nd IPC meeting, this time joined by the rest of the IPC - Laurinda Brown (UK), Stanislaw Schukajlow-Wasjutinski (Germany), and Hamsa Venkatakrishnan (South Africa). Our work at this meeting was to look through the almost 1600 reviews that had been completed on the 416 research reports (RR), 219 oral communications (OC), 91 poster presentations (PP) submissions, as well as the working group (WG), colloquium (CO), and seminar (SE) submissions.

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## Message from the Editors

Dear PME colleagues,

Welcome to the June 2018 Newsletter! In this issue, we look forward to the upcoming PME 42 conference in Sweden. You can find information about the conference in the message from PME President Peter Liljedahl, in the welcome from the PME 42 conference organisers, and in the introductions to the plenary speakers and the plenary panel. Here also is the agenda for the Annual General Meeting (AGM) which takes place at the PME 42 conference.

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## Message from PME President (continued)



Like last year, these numbers speak both to the commitment of PME members to participate in the conference irrespective of where it is held and to the commitment of its members to participate in the important work of peer-reviewing. As with each 2nd IPC meeting, we also toured the conference venue, reviewed the excursions, the conference budget, and finalized the 2nd announcement. Having grown up in Sweden,

these two meetings in Umeå were especially joyous for me as I was able to re-immense myself in the culture of my childhood and to enjoy the flavours of a long-ago homeland.

The scientific program for PME 42 is looking impressive with over 180 RRs, 216 OCs, and 120 PPs in addition to 3 Research Fora (RF), as well as 14 WGs, 1 SE, and 2 CO. Along with this we are very excited to see plenary presentation on the conference theme of ***Delight in Mathematics Education*** by Nathalie Sinclair (Canada), Kim Beswick (Australia), Markku Hannula (Finland), and Mogens Niss (Denmark) as well as an Oxford Debate involving Wee Tiong Seah (Australia), Francesca Morselli (Italy), Wim Van Dooren (Belgium), Qiaoping Zhang (Hong Kong), and moderated by Márcia Pinto (Brazil). And as has been part of the PME annual conference since 2014, we begin the event with the Early Researchers' Day, organized by Anke Lindmeier (Germany) and Johan Lithner (Sweden).

As mentioned, PME 42 is being hosted at Umeå University on a portion of the campus that is centred around a picturesque pond with plenty of outdoor seating to enjoy the weather and each other's company. Notwithstanding the ample (and easy-to-use) public transportation, the campus is a relaxed walk from any part of Umeå city centre. In addition, both the city centre and the conference venue are within easy access to nature, and the conference dinner is being hosted in an idyllic setting in the forests.

Aside from the work of preparing for PME 42, the IC has also been busy enacting the surplus policy voted in at PME 40. Some of the projects approved prior to PME 41 have now taken place. Look for reports in this, and future, issues of the newsletter for details of the good work that the surplus policy has allowed us to support.

Finally, we have been preparing the agenda for the upcoming AGM (see a draft copy of the AGM in this issue). Like every year, one of the most important items on the agenda is elections. This year Cris Edmonds-Wathen (Australia), Kim Beswick (Australia), Csaba Csikos (Hungary), and Stanislaw Schukajlow-Wasjutinski (Germany), are stepping down after their four years of service to the IC and we are looking to elect four members of the PME community to succeed them. If you are interested, or know someone who is willing to work on behalf of PME, and you would like more information please email the Administrative Manager ([info@igpme.org](mailto:info@igpme.org)) or any member of the IC for more information. Nominees have to complete the [Nominee Form](#). In addition, after eight years of service our administrative manager, Bettina Rösken-Winter, is stepping down. The process of identifying a successor has commenced and the new administrative manager is to be announced at the AGM.

There is to be a number of items coming forth to the AGM for information and, more importantly, items coming forward to be voted on. For sure, there is to be a vote on a regional conference proposal as well as a Special Project, both of which came to us via the surplus policy and both of which exceed 5000 euros. Please keep your eye on the [Path to the AGM](#) for details and to offer your comments on these projects. I look forward to seeing you at PME 42.

Sincerely,  
Peter Liljedahl



## Message from the Editors (continued)

In preparation for the AGM, the newsletter provides updates from the Portfolio Groups of the PME International Committee (PME IC) who organise the activities of PME on behalf of all of us members. The upcoming conference provides opportunities at the Policy Meeting and the AGM to discuss all the things that the Portfolio Groups are doing for PME.

Also in this issue you can find reports from the PME Special Projects and an invitation to the first PME Regional Conference. Our thanks go to all the colleagues who organized these activities for PME.

The Newsletter is completed by a reflection on attending PME 41 in Singapore, and a reminder about the Announcements Forum on the PME website.

We hope that you enjoy this issue of the newsletter and find it informative and thought-provoking.

**Maïke Vollstedt, Igor' Kontorovich & Keith Jones**

Feedback on the newsletter is always welcome!  
([newsletter@igpme.org](mailto:newsletter@igpme.org))

# PME 42

## Update on the upcoming PME conference



**Ewa Bergqvist and Magnus Österholm, PME 42 LOC co-chairs**

The Local Organizing Committee of the 42nd Annual Meeting of the International Group for the Psychology of Mathematics Education looks forward to welcoming you to PME 42 held in Umeå, Sweden, from July 3 to July 8, 2018. The conference is hosted by Umeå University, Sweden. The university was founded in 1965 and is Sweden's fifth oldest university.

The theme of the conference is "Delight in Mathematics Education" and it refers to the joy, pleasure, and beauty in both mathematics and mathematics education. It includes issues on how both teaching and learning mathematics can be fun, meaningful, and inspiring, for teachers as well as for students. The theme also encompasses how mathematics and mathematics education can connect to individual students and teachers; for example, through aspects of motivation, creativity, and usefulness, and how individuals can see themselves as able in mathematics.

The light (de-light) in the conference theme also alludes to the truly magical summertime in the north of Sweden. The lovely bright summer nights, when the sun barely sets, and it is just as light in the late evening as it is in the middle of the day, make a truly spectacular experience that no visitor can ever forget.

The scientific programme of the conference comprises plenary lectures by four eminent scholars, a plenary panel that takes the challenge of what needs to come first, positive feelings or high performance,

three Research Forums, 14 Working Groups, one Seminar, and many Research Reports, Oral Communications and Poster Presentations. The conference provides for challenging and intellectually-stimulating conversations amongst participants for the entire span of the conference.

The social programme of the conference has been carefully put together so that all conference participants can experience the de-lights of Swedish culture and hospitality.

Welcome to Umeå and PME 42!



*Umeå University Campus*



*Umeå city and river*

## Introducing the Plenary Speakers



**Kim Beswick**

I am Professor of Mathematics Education at the University of Tasmania, Australia

I have attended a total of eight PME conferences beginning in 2004 in Bergen. Contributions have included 10 research reports, 3 working/discussion groups, and chairing and co-editing the proceedings of the

39th PME conference in 2015 in Hobart. I finish my term on the International Committee at PME 42.

My research interests centre on the beliefs and knowledge that underpin the practice of teachers of mathematics and how professional learning can provide a catalyst for change. I am particularly interested in how teacher beliefs and knowledge relate to teacher expectations of and aspirations for their students. Recent research projects have focussed on these areas in the context of Science, Technology, Engineering and Mathematics (STEM) and, most recently, the role of school principals in leading STEM in their schools.

My talk at PME 42 explores links between teacher beliefs about different categories of their students and other aspects of their practice, and examines the implications for the opportunities afforded students to experience and enjoy mathematics. I draw upon established understandings of belief systems and more recent ideas from complexity, and suggest ways in which it might be possible to influence teachers' beliefs.



**Markku Hannula**

I am Professor of Mathematics Education in the Faculty of Educational Sciences, University of Helsinki, Finland, and a Visiting Professor at Volda University College, Norway.

My first PME was PME 21, which was organized in Lahti, Finland in 1997. I remember I loved Shlomo Vinner's plenary. Even more I was excited by the possibility to take part in profound discussions with international colleagues who were welcoming me as one of them (special thanks to Laurinda and David). I have attended 17 PME conferences in total. I served on the PME

International Committee from 2003-7.

Most of my research has focused on despair, delight, and desire of mathematics learners. Mathematics anxiety, boredom, and lack of self-confidence are the destiny of all too many students, sometimes leading to disengagement and destruction of their self-concept as learners. In contrast, problem solving that leads to flow and Aha!-experiences may bring joy and delight for students and lead to a desire to engage again with similar activities. I dream of designing teaching approaches that would let everyone engage with mathematics in a deeply satisfying and enjoyable way. In my talk, I delve deeper into the origins of the concept of mathematics anxiety and outline some recent developments in the area of collaborative engagement in mathematics. Specifically, I share some results about the synchrony of student gaze during collaborative problem solving.



**Nathalie Sinclair**

I am Professor and Canada Research Chair in the Faculty of Education at Simon Fraser University, Canada. My first PME was PME 25 in Utrecht, The Netherlands, in 2001.

The central theme of my research relates to the role of the body in mathematics thinking and learning. This has led me to create, implement and experiment with various types of digital technologies, each of which brings new sensory modalities to play in mathematics activity and changes—sometimes in subtle ways—the very nature of mathematical concepts. It has also led to more theoretical investigations related to embodied and distributed cognition and, more recently, the interplay of the body with socio-political concerns around what makes sense.

My interest in sensory knowing relates strongly to aesthetics and thus, to the theme of the conference "Delight in Mathematics Education". Although aesthetic concerns are often marginalised in the mathematics education literature, they play a significant role in the affective, cognitive, political and ethical aspects of mathematics teaching and learning. My continued research aims to pursue the practical and theoretical implications of aesthetics as first philosophy of mathematics education.



### Mogens Niss

I am an Emeritus Professor of Mathematics and Mathematics Education at Roskilde University, Denmark, of which I was a founding staff member in 1972. I retired from my professorship in 2016 but remain an active researcher. Unfortunately, I have never

attended a PME before, apart from the founding meeting at ICME-3 in Karlsruhe in 1976. This is mainly due to the fact that for decades I have been invited as a speaker, or an organiser, at so many other international meetings which has kept me more than busy.

Since I have been 'in business' for half a century, I have cultivated a number of different research interests. My primary foci are: The didactics of mathematical modelling; The issue of justification of mathematics education from historical and societal perspectives; Assessment in mathematics education; The nature and place of

research in mathematics education; Mathematical competencies as a foundation for descriptive and normative approaches to the teaching and learning of mathematics, including curriculum development. In recent years I have, together with my colleague Uffe Jankvist, invested a lot of interest in work to understand the nature of mathematics specific learning difficulties, and how our insights from research can help counteract them.

My talk at PME in Umeå, "The very multifaceted nature of mathematics education research" is closely connected with a special interpretation of the conference theme "Delight in Mathematics Education", namely "delight in mathematics education research". The point I make in my talk is that it is detrimental to our field that many journals, by their publication policies, have adopted a very narrow perception of mathematics education research which corresponds to a prematurely stereotypical and congealed, and hence potentially dangerous, understanding of our field, which contributes to reducing "delight in mathematics education research".

## Introducing the Plenary Panelists



### Márcia Maria Fusaro Pinto (chair of the Plenary Panel)

I am a Professor in the Mathematics Department, and in the Graduate Program in Mathematics Teaching, at the Institute of Mathematics at the Federal University of Rio de Janeiro, Rio de Janeiro, Brazil. I have attended a total

of 17 PME conferences, beginning with PME 18 in 1994 in Lisbon, Portugal.

The focus of my research is on mathematics classroom practices and technologies, following students' affective/conceptual change

and development, with a special interest in the diverse processes of knowing that are related to different strategies of making sense of mathematics. More particularly, I am also interested in those mathematics departments' initiatives in my country concerning the democratization policies, at the tertiary education level such as embracing the distance education model implemented in Brazilian universities, and the challenges of expanding the university system. Independently of the mode of education, a long-term goal of my research has been to support classroom practices that, while most of the time being demanding for both students and teachers, help to provide meaning and engagement in mathematical experience - thus, to provide delight in mathematics education.



### Francesca Morselli

I am Associate Professor in the Department of Education Sciences at the University of Genoa, Italy.

My first PME paper was at PME 28 in 2004 in Bergen. I have papers at seven further PME conferences.

My research interests are the interaction between affective and cognitive factors in the teaching and learning of mathematics, the teaching and learning of argumentative competence and proof, and mathematics teacher education.



### Wim Van Dooren

I am an Associate Professor at the Centre for Instructional Psychology and Technology at the University of Leuven, Belgium, and, currently, associate editor of Educational Studies in Mathematics.

My first PME was PME 25 in Utrecht, The Netherlands. I have attended 15 PME conferences so far. I served on the PME International Committee from 2012-16.

My research is situated at the intertwining of educational psychology, cognitive psychology, and mathematics education, which means that besides my engagement in PME, I am also active in organisations on educational psychology more generally. My research involves learners of various ages and expertise levels (from Kindergartners to expert mathematicians), investigating how they reason on problems in various areas of mathematics (word problems, arithmetic, geometry, proportionality, probability, statistics,), as well as related domains (physics, STEM, economics ...).

One of the themes cutting across my research is that learners make errors on problems in cases where they have all the required knowledge to come to a correct solution. I look for explanations (and solutions) from a broad range of perspectives, including the classroom experiences of learners, the socio-mathematical norms in classrooms, the mathematical concepts (and their historical development), the architecture and functioning of the human mind, and cognitive development. I use a variety of methods, ranging from experimental laboratory studies to designing games or classroom interventions.



### Qiaoping Zhang

I am Assistant Professor in the Department of Mathematics and Information Technology at The Education University of Hong Kong, Hong Kong SAR, China.

My first PME was PME 36 in 2012 in Taipei. I have attended four PME conferences so far.

My major research interests focus on affect in mathematics education, specifically on teachers and students' beliefs about mathematics and values in mathematics education, as well as how these affective factors influence teachers' teaching approaches and the mathematics classroom environment. My research subjects include teachers and students in primary and secondary schools as well as pre-service and in-service teachers in universities. In this conference, my presentation explores further the impact of students' motivation and values in mathematics learning, which help us to understand how to create a delightful mathematics learning environment for students.



### Wee Tiong Seah

I am Associate Professor of Mathematics Education, and Head of the Mathematics Education Group, at Melbourne Graduate School of Education at the University of Melbourne, Australia.

Thinking about my first PME conference brought me on a memory-filled journey through my professional history, enriched by memorable episodes of PME moments. My first paper in a PME proceedings was a co-authored piece at PME 25 in 2001, although I was not able to attend. The first PME I attended was PME 29 in 2005 in Melbourne, Australia. Since 2005, I have attended nine PME conferences, in 2005, 2007, 2009, 2011, 2012, 2013, 2014, 2015, and 2017. I have yet to find a mathematical pattern underlying these PME attendance years!

My main research interest relates to the conative aspect of mathematics pedagogy. In particular, I have been investigating how the construct of valuing (that is, that which is considered important in mathematics learning and teaching) complements what we know in the cognitive and affective aspects. The valuing by students and teachers of the appropriate mathematical and mathematics pedagogical attributes might well motivate them to 'want to do mathematics', thus creating opportunities for engagement, fulfilment, and delight.

# PME 42

## AGM Agenda

1. Opening of the meeting
2. Adoption of the agenda
3. Adoption of the minutes of the 2017 AGM held in Singapore
4. Elections: New members of the International Committee; president-elect
5. President's report
6. Portfolio Group reports
7. Treasurer's report
8. Proposal: membership fee increase
9. Proposals: special projects
10. Proposals: regional conferences
11. Proposal: charitable status
12. Other items
13. Brief report on future conferences

# PME International Committee Reports

## Secretary Portfolio Group (SPG)

### Submitted by Einat Heyd-Metzuyananim (Israel)

During 2017-18, the Secretary Portfolio Group (SPG) comprised Einat Heyd-Metzuyananim (Israel, Secretary) together with Esther Man Ching (Hong Kong SAR China/Australia), Berinderjeet Kaur (Singapore), and Stanislaw Schukajlow-Wasjutinski (Germany).

The SPG is responsible for facilitating communication within PME members, including future conferences organisers, for communicating with external organisations such as the ICMI, and for keeping records of all PME activities. In this report is a summary of our activities during the year from PME 41 through to PME 42.

### Communication with future conference organisers

We have maintained ongoing communication with the organisers of PME 42 (Magnus Österholm and Ewa Bergqvist, Umea, Sweden) and with PME 43 (Johann Engelbrecht, Pretoria, South Africa). In addition, the SPG communicates with groups of PME members interested in preparing to bid for future PME conferences.

### PME website

The SPG group has been busy this year improving the PME website. This was done by first executing a 'needs inventory' based on feedback



from PME membership, through the IC meetings held in Singapore, and through discussions within the executive group of the IC. Based on this inventory, we established that the menu accessibility is one of the first things to improve. Please browse the renewed menu and see whether there are still items that need to change or could be improved. Please send suggestions to [einat.metz@gmail.com](mailto:einat.metz@gmail.com). I wish to thank Esther Man Ching for her hard work on this project.

### Indexing of PME proceedings

This year, the SPG group has taken upon itself to look into the issue of indexing of conference papers and proceedings. Issues include the use of ISSN/ISBN and DOI numbers. So far we have not been able to make much progress around this, since it seems all indexing procedures are built around a specific country where the publisher is located. Currently, PME is not officially located in any country. It thus may be that we will need to wait until we obtain societal status in the UK for this to be solved. However, we are extending a call to anyone in the membership who has experience with indexing of publications to please contact us at [einat.metz@gmail.com](mailto:einat.metz@gmail.com) and share their knowledge with the SPG.

## Policy Portfolio Group (PPG)

**Submitted by Lovisa Sumpter (Sweden)**

The PPG is led by Lovisa Sumpter (Sweden), with Richard Barwell (Canada), Kim Beswick (Australia), and Miguel Ribeiro (Brasil).

A primary task for the PPG is to document the different policies that have been decided upon at the AGM or during PME International Committee (IC) meetings. This is an ongoing task. During the past months, the PPG has addressed different areas of policy, including both short-term and long-term goals.

One permanent interest of PME is the participation of early career researchers. As a first step, we have compiled a list of how other conferences and international groups invite, and take care of, this important group. As a second step, we are looking into how to interpret and transfer some of these modes of participation in order possibly to implement some of them in to PME. What we have seen is that different conferences have their own system, but since



PME is a rather big conference, we need to take the scale into account.

A related issue is the pre-registration fee which for some members from some countries could prevent them from participating. The PPG needs to look into this in relation to the Skemp fund.

We are still working on developing supporting guidelines for conference organisers regarding registration and payment and this issue could be included in these guidelines.

Another important issue that we have analysed is the current voting system in regards to creating the 'most democratic' system. As a first step, we have interpreted this as 'which system creates as little segregation as possible?' and looked at this through mathematical modelling. More information about this is to be presented during the AMG at PME 42 in Umeå, Sweden.

## Treasurer Portfolio Group (TPG)

**Submitted by Cris Edmonds-Wathen (Australia)**

Current members of the Treasurer Portfolio Group (TPG) are Cris Edmonds-Wathen (Australia, Treasurer), Laurinda Brown (UK), Yiming Cao (China) and Kai Lin Yang (Taiwan).

The TPG responsibilities include managing the financial transactions of IGPME (e.g., making payments and deposits, responding to financial queries, issuing confirmations), maintaining records, advising on fiscal questions from present and future conference organizers, and preparing annual financial reports.

In addition to managing the regular financial transactions of IGPME, the TPG has been managing the proposals for regional conferences and special projects initiated under the surplus policy.



Decisions about grants are made by the whole PME International Committee (IC) for grants of up to 5000 EUR, or by the whole PME membership at the AGM for grants above 5000 EUR. Prior to this, the TPG conducts an initial evaluation of each proposal to determine whether each fits the guidelines for possible approval.

The TPG has also been working on IGPME's operating budget and ensuring that our income from membership fees matches our regular expenses. Some of our regular expenses have increased substantially in recent years. It is important to ensure that we do this as we are on track to have spent most of the accumulated surplus within the next year or two.



## Vice President Portfolio Group (VPPG)

Submitted by David M. Gómez (Chile)

The Vice President Portfolio Group (VPPG) oversees the scientific matters of PME. and is led by currently composed of Csaba Csikos (Hungary), Mellony Graven (South Africa), and Maria Mellone (Italy), led by David M. Gómez (Chile).

During the Annual General Meeting at Singapore, PME members approved the integration of two of our conference group presentation formats into a single Working Group format. This change has been implemented for PME 42, and a number of submissions were received. This interest, and participation, are important for our community to enjoy a dynamic and fruitful experience, as we have come to expect from PME conferences.

Members are also able to attend our very first Colloquia in Umeå. Colloquia are a novel group presentation format that aims at discussing together a group of research reports, which we have had available for a few years already but have proved elusive to implement. In the past, our reviewing procedure required all individual contributions within each Colloquium proposal to be evaluated independently. For this year's conference, we experimented with a different procedure that



allowed us to focus on the scientific quality and cohesion of each proposal as a whole. We look forward to your thoughts on this novel format.

Since PME 39, our conferences have included a seminar specially aimed at early career researchers with the aim to help them to become reviewers for future PME conferences. I want to take this opportunity to thank

Anke Lindmeier, Michal Tabach, and Anika Dreher for this important service to our community. For this year's version, we start systematizing this experience to assess and improve its contribution for PME. If you are an experienced PME reviewer who wants to get involved, please contact us!

Regarding personal presentations at the conference, PME has traditionally asked that each Research Report (RR) has a single presenting author. However, research nowadays is increasingly becoming a team effort. Perhaps the time has come to allow for co-presentation of RRs. We have been working on possible guidelines for this, and we would like to hear your feedback. Please attend the Open Forum at the conference, or get in touch.

## PME Special Projects Report

Submitted by Cris Edmonds-Wathen (Australia)



IGPME is on track to have spent, or to have committed to spend, all of the current accumulated surplus by the end of 2019. At the 2016 AGM, we agreed to a planned spending of 120,000 EUR over three years.

In 2017, four special projects were funded from the IGPME surplus following the first call in 2017; these were:

- *Bridging the Gap between Gender and Mathematics: Psychology of Mathematics Education in Uganda*, by Betty K Nannyonga (Uganda);
- *Fostering Professional Development of Early Career Researchers*

*in Ghana*, by Emmanuel Adu-Bofah and Forster D Ntow (Ghana);

- *Eye-tracking workshop for the Early Researchers' Day at PME41 (Singapore)*, by Wim Van Dooren (Belgium) and Boon-Liang Chua (Singapore);
- *Building Research Capacity at SIMC 2017*, by Mary Ochieng (USA).

Reports from those projects are included in this newsletter.

A regional conference was also approved at the AGM at PME 41. The event is being held from 14-16 November 2018 in Rancagua, Chile. An invitation to the event is included in this newsletter.

In 2017, a call for special project proposals was again issued. Since there was only one response to the first call, it was reissued, which resulted in four more proposals under 5000 EUR (making a total of five small proposals) and two larger proposals over 5000 EUR.

Two small projects were approved in 2018 by the PME International Committee (IC) for funding:

- *Supporting the Early Researchers' Day at PME 42*, by Johan Lithner, Ewa Bergqvist, and Magnus Österholm (Sweden) and Anke Lindmeier (Germany);
- *Promoting Equal Access and Success in a Mathematics Learning Environment and the Implications Thereof - Psychology of Mathematics Education in Uganda*, by Betty K. Nannyonga (Uganda).

The IC reviewed and discussed the two proposals which were over 5000 EUR. These proposals are to be voted on at the PME 42 AGM.

There were also two proposals for regional conferences. These are also to be voted on at the AGM.

The reasons that some projects were rejected include:

- There was no detailed budget;
- The budget items were not appropriate for the proposal;
- The project was a research project, and PME does not fund research projects;
- The proposed scientific activity did not benefit a broad enough sector of the PME community;
- It was difficult to see a direct link to the lines of action from the proposal;
- The alignment of proposed expenses and the lines of action of the call for special projects was not clear, and we could not see a chance of aligning it.

## Workshop on Bridging the Gender Gap in Mathematics Education

Submitted by **Betty Kivumbi Nannyonga (Uganda)**

A two-day workshop on bridging the gender gap in mathematics education took place from 1-2 May 2017 at Makerere University, Uganda. Participants included representatives from

Kenya, Tanzania, Rwanda, Sweden, and local universities within Uganda. We partnered with colleagues from the College of Education and External Studies, School of Women and Gender Studies, and parents of girl-majors in mathematics. In all, over 500 students, 50 teachers/lecturers, and 8 parents attended the two day event.



Workshop participants observed that gender and its roles are socially determined. For example, embedded in Uganda's social and educational structure is the view that males have power and superiority, and are biologically and intellectually superior to women. To them, women in mathematics is like climbing mount Elgon, or cutting a muvule tree.

Even so, participants were of the view that, increasingly, parents and teachers are becoming sensitized to encourage girls to appreciate mathematics, and the boys alongside the girls are being taught to de-link themselves from gender oppressive attitudes. For teachers, the

cycle is that they are produced to go and teach mathematics but are not necessarily good role models. While students might acknowledge that although mathematics is an international subject, there is a persistent attitude that it is a gender-based subject.

This led to the general question of how to improve the girls' confidence and encourage them see the relevance of mathematics to their development. The suggestion is to start with improving the atmosphere in the mathematics classroom, with teachers sensitized about gender roles and equity to provide equal access and success for all. This led to the theme this year during the marathon on Pi-day, and now the regional conference to be held in the third quarter of 2018.

In addition, the gender workshop had sessions where four group discussions were formed to look at applications of mathematics. The groups were: bio-mathematics, mathematics in the social sciences, pure and good mathematics, and financial mathematics. The two-day workshop ended with presentations from the four groups who managed to come up with ideas for five projects.



*A student during one of the workshop activities*

## Fostering Professional Development of Early Career Researchers in Ghana

Submitted by Emmanuel Adu-Bofah and Forster D. Ntow (Ghana)



The five-day professional development (PD) workshop was held from 16-20 October 2017 at the University of Cape Coast, Ghana, with funding support from the International Group for the Psychology of Mathematics Education (IGPME). A major objective of this PD was to begin a process of building a mathematics education research community in Ghana focusing on Early Career Researchers. Some of the activities during the five-day workshop focused on research methodology and scientific writing, an introduction to IGPME, and one-to-one writing support for participants with three mentors from outside Ghana assisting in this direction.



Participants during some of the workshop sessions

The participants for the workshop were mostly graduate students pursuing PhD and Master's degree programmes in Mathematics Education from the University of Cape Coast and University of Education, Winneba. In all, about 45 participants benefitted from the Workshop thereby exceeding the 30 budgeted for. There were six mentors namely; Markku Hannula (Finland), Erika Löfström (Finland), Tony Essien (South Africa), Damian Mereku (Ghana), Douglas D. Agyei (Ghana) and Jonathan Fletcher (Ghana).



Mentors from left to right: Tony Essien (South Africa), Markku Hannula (Finland), Erika Löfström (Finland) and C. K. Agezo (Ghana)

Successes resulting from the workshop were:

- Introducing participants to IGPME community; at least one mentee has registered to be a member of PME and gone on to submit a RR for PME 42;
- Three mentees were identified as having a paper ready for submission for PME 42 (including the mentee who has gone on to submit). These three individuals continued to receive writing support from their mentors after the workshop.

The programme was very educative and insightful. Participants appreciated the focus of the programme and requested that it is institutionalized. Also, the support of PME through this Special Projects Initiative had ensured that there should be two new Ghanaian participants at PME 42 in Sweden.

## Eye-tracking Workshop at PME 41, Singapore

Submitted by Wim Van Dooren (Belgium)



As part of the Early Researchers' Day that took place immediately before the PME 41 conference in Singapore, a workshop was held on the use of eye-tracking technology in mathematics education research. While the workshop was initially intended for participants of the Early Researchers' Day, it was also opened to all PME participants.

Eye-tracking technology has become an important tool for gathering information in psychological research, and is also getting increasing attention from mathematics education researchers. More and more conference contributions (including studies that use qualitative methods) make use of this technique, or suggest further research using it in order to progress our understanding. At the PME 38 conference in Vancouver, a discussion group was devoted to eye-tracking, with a focus on reflecting on the potentials and limitations of this technique. However, there was no opportunity for concrete, hands-on experience, nor to develop ideas for participants' own research.

This research technique is upcoming, but it is not easy for some researchers to get started using it, due to a circular process: researchers lack experience and available equipment, and therefore decide not to try using it. And because they never use it, they do not gain experience with the technique. The high cost of the equipment is of course one of the possible barriers.

The workshop was one possible step to break this cycle, and, at the same time, provide some interested researchers with the opportunity to get some initial experience. With the help of funding from the PME Special Projects Fund, we were able to set up a workshop with eye-tracking materials, assisted by a well-known eye-tracking retailer. This

allowed participants to get hands-on experience with the equipment and software, and to reflect on the usefulness of this technique for their research, or for mathematics education research more generally, and was particularly beneficial.

In the workshop, after an overview of the different modern eye-tracking technologies (desk-mounted and wearables) currently available, we looked at how the technology can be used in mathematics education research. Topics covered were how these eye-trackers work, eye-tracking research design in mathematics education research, the setting-up of eye-trackers, recording a session, and a brief overview of the different data points available for analysis.

Attendees were asked to reflect on how they think they could use eye-tracking data in a particular study that they would like to do, and these proposals were discussed in the workshop. There were also hands-on demos with the two types of eye-trackers and attendees could experiment with the equipment. Finally, a critical discussion was held on the added value of eye-tracking data in relation to other research techniques.

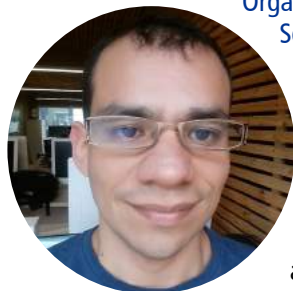


## First PME Regional Conference South America



Submitted by David M. Gómez (Chile)

Organizing team, PME Regional Conference  
South America



It is our pleasure to invite you to submit contributions to, and attend, the first *PME Regional Conference* taking place in Rancagua, Chile, from 14-16 November 2018. Our goal is to make this event an invaluable opportunity for the South American Mathematics Education community to share their work and build collaboration networks within South America as well as with the broader PME community.

The theme of the conference is *Understanding and promoting students' mathematical thinking*, and it emphasizes the role of Mathematics Education research in helping educators to foster mathematical thinking in their classrooms. The theme reflects how the conference deals not only with how Mathematics Education can be made more effective, but also more inclusive and equitable.

The conference is being hosted by Universidad de O'Higgins, a new Chilean institution. Thanks to the support of PME, researchers working in South America may apply for travel support to attend. We invite you to check the conference website at <http://www.uoh.cl/pme-regional/>

We look forward to welcoming you to the PME Regional Conference in Rancagua!

## PME 41 experience: Building Networks During PME

Submitted by Rahmah Johar (Indonesia)

I had the opportunity to participate in PME 41 as it was not far from my city of Banda Aceh, Indonesia. PME 41 was the largest conference I ever attended. Previously, I had been to big conferences such as ICSEI in Cyprus and MERGA 37 in Melbourne, as well as some international mathematics conferences held in Malaysia and Indonesia. PME 42 was very different. Not only was the conference longer, at six days, but it was also attended by participants from so many countries. There were many interesting research topics presented by mathematics education experts and I often had a dilemma in deciding which presentation I would attend.

One valuable benefit I obtained from participating in such a large conference as PME was networking. During the conference, I had discussions and agreed on various collaborations. These included inviting Sitti Maesuri Patahuddin (Australia) to be a present at a workshop and national conference at Syiah Kuala University, Aceh, in October 2017 and Berinderjeet Kaur (Singapore) as a keynote speaker at the 6th South East Asia Design Research (SEA-DR) International Conference in June 2018. My networking also involved collaborating with Tom Lowrie (Australia).

Unfortunately, I am not able to participate in PME 42 in Sweden as it is scheduled very close in time to the SEA-DR conference in Aceh. Hopefully, I can join the next PME in 2019.



The first visitor to my poster was Julia Joklitschke (Germany)



ELPSA project team during dinner.

Left to Right: Rika Febrilia (IKIP Mataram), Destina (University of Canberra/UC), Siti Rohkmah (IKIP Mataram), Sitti Maesuri Patahuddin (UC), Tracy Logan (UC), Tom Lowrie (UC), Rahmah Johar (Unsyiah), together with a member from Singapore

# Looking towards PME 43 in South Africa in 2019

## Supporting newcomers to the PME research community

Submitted by David Wagner (Canada)



In my second year of the role of pre-submission support coordinator for PME, I am more keenly aware of the challenges newcomers have in our research field. In my role I set up new contributors with mentors who can help them navigate their first submission to PME. This support is for authors with limited experience in writing

research reports (or journal articles) and limited access to expert advice. I have also received requests for help from people at major universities, and with substantial experience, who apparently don't understand the description of the support. Their questions are serious too. This reminds me that many of us have questions about how to contribute to, and participate in, PME effectively.

I reflect here on the questions and disorientation of the people among us from the most novice to the very experienced, from regions with low to high representation. We all need support in a community. Without such systems of support we do not have a community. From the PME website, I notice that we are a "group of mathematics educators and researchers who gather..." That sounds like a community, and suggests responsibility to each other in addition to our goals to "further a deeper and more correct understanding of [...] teaching and learning mathematics and [its] implications."

How can we take our responsibilities to each other seriously? Between conferences, we can take invitations to review the work of others

seriously, whether this is for journals within our field or for PME papers. Let us read submitted work thoroughly and give constructive guidance for authors about how to improve their reporting and what other mathematics education research warrants their attention. Let us aspire to be better than the reviewers many of us have experienced—reviewers who say little or who show that they did not read carefully.

Another way to take our responsibility to each other seriously is to offer our services to organizations that promote dialogue among mathematics education researchers and between researchers and practitioners. This means that we orient ourselves around service rather than choosing positions because of their prominence.

At the PME conference we have a special opportunity to further community and thus support the development of our field. It is nice to see old friends at conferences, but we need to be intentional about drawing new scholars into conversations as well (and experienced scholars new to PME). Let us reach out to potentially new friends, engaging them in dialogue about their contributions and inviting them to informal conversations over meals. These new relationships make PME strong because they draw people to return to their community and they are the backbone of future collaborations that bring together diverse perspectives.

If you are interested in pre-submission support, please see the guidance on the PME website:

<http://www.igpme.org/index.php/annual-conference/pre-submission-support>

# PME Announcements Forum on the PME Website

The PME website ([www.igpme.org](http://www.igpme.org)) is the main portal for all communication and information regarding PME. A useful feature for PME members is the Announcements Forum as this is the place to post items of information for PME members such as job announcements, conference announcements, and so on. To access the Announcements Forum, please log in to the PME website using your 'conftool' login. You can then find the forum in the 'Communication' section. By clicking on 'subscribe' in the forum, you then receive an email each time an announcement is posted in the forum.

Since the previous PME Newsletter, the following items have been posted on the PME Announcements Forum:

1. *SERC Spatial Reasoning Conference 2018, 30th January - 1st February 2018, QT Canberra, Australia.*
2. *2017 Call for IGPME Special Projects - Extended.*
3. *2017 Call for IGPME Regional Conferences - Revised.*
4. *Preliminary Announcement and Call for Papers for 15th International Conference of The Mathematics Education for the Future Project, 4-9 August 2019, Maynooth University, Kildare, Ireland.*
5. *Lectureship at the University of Edinburgh, Scotland.*
6. *Call for Papers for a Special Issue on the topic of Language and Mathematics for the Journal für Mathematikdidaktik.*
7. *New book: International perspectives on the teaching and learning of geometry in secondary schools.*

