NEWSLETTER

International Group for the Psychology of Mathematics Education

November 2017

In this issue

Message from PME President

Dear Colleagues from PME,

PME 41 was a great success with over 513 participants from universities in 51 different countries. Berinderjeet Kaur and Ho Weng Kin, and their collegial team, did a wonderful job hosting the participants of PME 41. The conference venue at the National Institute of Education, with its delightful blend breezeways, the open-air cafeteria, and high-tech air-conditioned presentation rooms created a marvellous atmosphere for us to engage in our scientific work. For the social program Berinder and Weng Kin made sure that the best of Singapore showcased. From the excursions, to the river cruise, to the conference dinner, all the views and atmosphere were amazing. And the food, all through the conference, but especially at the conference dinner, allowed us all to experience the best of all the cultures that make Singapore such a multicultural and harmonious country.

With those strong and abiding memories, it is already time to start looking forward to PME 42 and all the wonderful experiences that Ewa Bergqvist and Magnus Österholm, and their team, have in store for us. The conference website is already active and can be found at www.pme42.se. As the President of PME, one of my most joyous duties is to open the PME conferences.

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Message from the Editors

Dear PME members,

welcome to our November 2017 Newsletter! In this issue, we remember the PME 41 conference in Singapore and bring reports from across the conference. Our thanks go to all the colleagues who organized group activities at PME 41. You can find their reports in this issue, along with the experiences of some PME members at the conference.

Many exciting developments are taking place in our community, including the decision to hold the first PME regional conference in Chile in 2018. You can read the advance information on the Chile Regional Conference, and much more in the message from the President and the reports from each of the Portfolio Groups of the International Committee (IC).

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Message from PME President (continued)

In Umeå that duty is especially joyous as I will be welcoming participants, not just to PME 42, but also to my homeland. Although my registration badges always say Canada, I was born and raised in Sweden, and still hold a Swedish passport. More specifically, I have been to Umeå before and know, first hand, that it is an amazing location for a conference. It is very different to Singapore, but just as intriguing and scenic.

There will be some serious business during the AGM at PME 42. First and foremost, we hope to vote on a new constitution and bylaws that, if approved, would allow us to file for legal status as a charitable organization in the UK. This may require us to break from some of our traditions in order to meet the legal requirements necessary for such status. Chief among these is a requirement always to have a PME member from the UK on the International Committee (IC). This requires some changes to our voting procedures to guarantee that this requirement is met. More information about this will be forthcoming in the next issue of the newsletter as well as on the forum on the IGPME website (www.igpme.org). Also of great importance we will be electing four new members of the IC, as well as the president elect. This is the first time we will be enacting this new procedure, which was voted in at PME 40 and is intended to give a one year overlap between the outgoing president and the incoming president. The new president will still serve a three years as president, but they are now being elected into that position one year prior to assuming the role of president.

On a related note, PME 41 saw the election of four new members to the IC: Richard Barwell (Canada), Laurinda Brown (United Kingdom), Esther Chan (Australia), and Maria Mellone (Italy). At the same time, we said good-bye to: Keith Jones (United Kingdom), Oh Nam Kwon (South Korea), Anke M. Lindmeier (Germany), and Michal Tabach (Israel). I wish to express my deepest gratitude to all four of these outgoing IC members and especially Anke and Michal who, as vice-president and secretary, were of great help to me in my first year as president. I look forward to reporting on the progress of the new constitution and bylaws, as well as the preparations for PME 42 in the next newsletter. Utay up to date through the IGPME website as well as the PME 42 website.

Message from the Editors (continued)

As always at the AGM (which, as always, takes place at the PME conference) we thanked the departing members of the IC for their contribution to PME especially over the past four years: Keith Jones (UK), Oh Nam Kwon (Korea), Anke Lindmeier (Germany) and Michal Tabach (Israel). And we welcomed the new-elected IC members and look forward to their work on the IC: Richard Barwell (Canada), Laurinda Brown (UK), Man Ching Esther Chan (Australia) and Maria Mellone (Italy).

With wonderful memories of PME 41 in our minds, we look forward to PME 42 in Umeå, Sweden in July 2018. In the newsletter you can find information in advance of the first announcement.

We hope that you enjoy this issue of the newsletter and find it informative and provoking. To help us with this challenging endeavor, we encourage you to send us your contributions that might be of interest to the PME community. Given that some news items such as announcements about jobs, new books, calls for papers, other conferences, and so on, are best posted on the Announcements Forum on the PME website (a summary appears in the newsletter), suitable newsletter contributions might, for instance, be reports on projects that report innovations in methodologies or that combine approaches, cultures or age groups, or that introduce a PME member who has been presented with some kind of academic award.

Feedback on the newsletter is always welcome!

Maike Vollstedt, Igor' Kontorovich & Keith Jones

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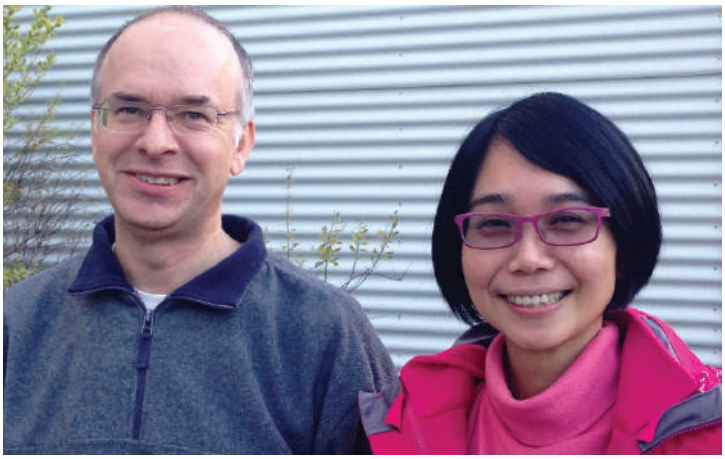
PME 41 Reports

Discussion Group Report: How to Research Cultural-Societal Factors Influencing Mathematics Education?

Submitted by Aiso Heinze (Germany) and Kai-Lin Yang (Taiwan)

Over the past 20 years, results of international large scale assessments (PISA, TIMSS, TEDS-M etc.) and international comparative studies (e.g., Learner's Perspective Study) have provided empirical evidence for substantial differences between so-called Western and East Asian countries with respect to mathematics achievement of students, teachers' mathematics professional competence, as well as teaching and learning processes in the mathematics classroom. Additionally, existing research has provided models describing how (mathematics) educational processes are organized on an institutional level. These models comprise cultural and societal factors (e.g., classroom and learning culture, mathematics educational tradition), which on the one hand differ between Western and East Asian countries and on the other hand directly or indirectly influence the teaching and learning of mathematics (e.g., the school curriculum, teacher education). The impact of these factors is still not understood sufficiently to compare didactical models and research results meaningfully between both sorts of countries. For example, different conceptualizations of central concepts, such as mathematics instructional quality, in Eastern and Western countries arise from these cultural differences. They cause problems for international research (e.g., in case of cumulating empirical evidence).

The approaches of four research projects were presented in the discussion group. Each of these projects is aiming to further the research on influence of cultural-societal factors on mathematics teaching and learning. All projects were established in the last years within the PME context to investigate the specific differences between mathematics teaching and learning in Taiwan (as a country of the Eastern Confucian culture) and Germany/Switzerland (as countries



of the Western European culture). All projects focus on a selected topic in mathematics education. This approach allows to examine the specific aspects of cultural-societal factors which are specifically related to the chosen topics.

In the first session of the discussion group, two ongoing projects addressing mathematical topics were presented and discussed. Hui-Yu Hsu (Taiwan) presented the study "Acquisition of proof skills: effects of curriculum and educational tradition" which she conducts in collaboration with Ying-Hao Cheng (Taiwan), Stefan Ufer, and Markus Vogel (both Germany). Following this, Hsin-Mei Huang (Taiwan) and Silke Ruwisch (Germany) gave a joint presentation on "Intercultural validity of a model describing primary students' length estimation skills" which they conduct together with Aiso Heinze and Farina Weiher (both Germany). In both cases, the researchers started from analyzing how the mathematical topics are addressed in the curricula, and generated research questions, hypotheses as well as research designs for further investigations. The two topics (proof at the secondary level, length estimation on primary level) were chosen purposely to investigate which educational traditions play a role for the

curriculum goals and how the culturally-shaped teaching and learning activities are organized. In particular, it is planned to collect empirical data on students' skills assumed to be influenced by culturally-shaped teaching and learning activities, as well as on teacher views in terms of educational traditions of the two countries.

In the second session, two projects were discussed which specifically address the role of teachers. Esther Brunner (Switzerland) presented an outline of the project "Pre-school teachers' attitudes towards mathematics education in kindergarten in different cultures" which she conducts together with Ching-Shu Chen (Taiwan) and Hedwig Gasteiger (Germany). The idea of this study is to research the influence of cultural tradition in pre-school education and pre-school teacher education in a cross-cultural study. The colleagues follow a promising approach by comparing three countries differing in two ways. On the one hand, Germany and Switzerland belong to the Western culture whereas Taiwan belongs to the Chinese culture. On the other hand, Germany has a non-academic pre-school teacher education whereas Taiwan and Switzerland have an academic pre-school education which particularly addresses mathematics education. For the second project, Anika Dreher (Germany) addressed the question "What constitutes high quality of mathematics instruction in the view of teachers in different cultures?" that she is undertaking in collaboration with Feng-Jui Hsieh, Ting-Ying Wang (both Taiwan) and Anke Lindmeier (Germany). This project aims at examining possibilities of cross-cultural research into teacher noticing skills. The empirical investigation of teacher noticing skills essentially depends on the question of how high quality mathematics instruction is defined. Moreover, there are several methodical challenges; for example, whether it is possible at all to develop valid test items using vignettes from mathematics classroom to measure noticing skills of teachers in Western and East Asian countries.

In both sessions of the discussion group, the participants discussed the presented research projects and research ideas in small groups. Especially, chances and pitfalls, challenges and potential were presented to the whole group. Among others, the participants mentioned that the involved countries do not only have different languages but also different types of language use (pragmatics) which might influence data collection and data analysis. Moreover, the different role of the out-of-school support (e.g., cram schools and cultural activities) in Western and East Asian countries is an important issue that should be taken into account. Finally, the challenge of choosing comparable samples in the two or three involved countries for a meaningful comparison was concerned.

Discussion Group Report: STEM Education Research and Practice: What is the Role of Mathematics Education?

Submitted by Judy Anderson (Australia) and Yeping Li (USA)

Since there has been limited attention to STEM education research in the mathematics education community, the focus of this Discussion Group was to discuss the possibilities of increased attention to the role of mathematics in STEM, to the ways of integrating mathematics in STEM, and to the challenges of coordinating competing and dissimilar 'practices' across diverse disciplines in STEM. For some time in the USA, STEM education has been extensively supported with educational entities receiving substantial Federal Government funding to develop a STEM focus (Li, 2014). Bybee (2013) argues that the lack of a common understanding or definition of STEM education has led to a diversity of approaches with scant evidence for the success of many of the initiatives adopted by schools and school systems. In recent reports in Australia, there has been a strong recognition of the importance of STEM thinking and skills for all students and an advocacy of the need to bring school science and mathematics closer to the way science and mathematics are practiced

in contemporary settings across the STEM disciplines (Office of the Chief Scientist, 2016). However, the plethora of approaches to STEM education in the Australian context continues to raise more questions than answers, particularly from the perspective of mathematics education. This appears to be the case in many other countries implementing STEM education agendas suggesting a need for the PME community to establish a research community to explore the efficacy of STEM education approaches.

As this is the first meeting of this Discussion Group, our conversations were framed by the following questions:

1. Do we have a shared understanding of 'STEM education'? Should we be taking an 'interdisciplinary' perspective and what is the role of mathematics?
2. Why STEM education? Which approaches to STEM education provide evidence of successful student outcomes, particularly for mathematics?
3. Should we be asking different questions about STEM education in elementary, middle school, secondary and tertiary education? What are the key issues associated with researching STEM education at each of the different levels of STEM education?

Over 35 participants from more than 12 countries attended the first session to consider these questions. Sharing of approaches to STEM education revealed the diversity and lack of clarity in almost all contexts – for example, in Singapore real-life problems are used as applications in mathematics lessons and are also included in high-stakes assessments. In China, STEM education tends to occur after school e.g., coding clubs or robotics clubs. In Australia, all students are being expected to learn coding as a component of the technology curriculum. For some, STEM education helps to provide a context but for others, STEM education appears to involve a greater focus on developing specific skills connected to the applications of technology. Participants reported examples of innovative approaches to STEM education although these tended to be one-off projects in some schools or in a community of schools. While discussions were broad many further questions and issues were raised under the following themes:

- Definition of STEM Education – It would be useful to define STEM education and identify the skills and dispositions which would add value to students' learning experiences. Is STEM education just mathematics in context? Should there be a STEM curriculum?
- Preparation and Support of Teachers – How do we prepare and support teachers to implement STEM education? It would be useful to identify STEM pedagogies and to consider what resources would support teachers' implementation of STEM or whether teachers should be designers of STEM curriculum.
- Assessment – What are the implications for assessing STEM, particularly for high stakes assessment?
- Connecting Policy and Practice – How do we connect policy and practice (i.e., connecting impetus with implementation)? There needs to be a shared common purpose between stakeholders.

In the second discussion session, several new participants joined the group. The session began with a presentation by Prof. David Clarke on "Conceptualising Interdisciplinarity in STEM Education". He presented two propositions for consideration.

- Proposition 1: Interdisciplinarity through Vocational Coherence – Attention must be paid to the affordances of affiliation and research undertaken to explore the legitimacy of STEM disciplines as communities of practice offering enhanced educational opportunities through their interconnection. Communities already exist that employ STEM skills as integral and interconnected components of professional practice: Engineering, Medicine and Architecture. Here interdisciplinarity is achieved through vocational coherence.
- Proposition 2: Interdisciplinarity through Disciplinary Permeability – One approach is to examine those constructs to which the boundary walls of the STEM disciplines seem most permeable. Such constructs could be the core of a STEM skill set.

Further discussion about the earlier themes continued although more specific questions and issues were considered which could form the basis of a STEM education research agenda, particularly for the mathematics education research community.

- Should mathematics form the basis of the integration of STEM subjects? Combining subjects promotes critical thinking and enables transfer of knowledge – it helps to develop a cycle of inquiry, critical and creative thinking, problem solving and testing theories. In the USA, STEM education helps to promote the 'practices' from the Common Core State Standards.
- Consideration should be given to both vertical and horizontal curriculum. In Australia, a horizontal curriculum exists in the form of "general capabilities" which include: literacy, numeracy,

ICT capability, critical and creative thinking, personal and social capability, ethical understanding, intercultural understanding. However, these are not always used/implemented as intended. What is the role of the more general capabilities in STEM education?

- How does STEM education match the mandated curriculum? What problem is STEM education attempting to solve?
- The E is often missing in STEM education – what is the role of each of the disciplines in the STEM education approach?
- What does preservice STEM education look like? Are we advocating for generalist or specialist teachers?
- What are teachers' perceptions of STEM and STEM education?

There appear to be important considerations at the conceptual level as well as at the pragmatic/implementation level. The later could lead to a series of case studies to reveal what is happening in different countries and/or different contexts. The discussion group agreed it would be desirable to develop and publish a volume on STEM education viewed in an international context with specific themes and questions that are important to the international community, especially from the mathematics educators' points of views.

To conclude, we agreed that there are several ways this Discussion Group could continue to work together including:

- through sharing of ideas/articles etc via an email group
- through identifying and inviting other colleagues to join the group
- by meeting again at next year's PME Conference in Sweden
- by prosing a book to share what we are currently doing and to identify new questions for research

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Discussion Group Report: Perspectives on Multimodality and Embodiment in the Teaching and Learning of Mathematics

Submitted by Christina Krause (Germany)

The motivation for this discussion group was based on the growing body of research that considers the role of the body and the interplay between various modalities in the teaching and learning of mathematics and the idea that it is necessary to work towards a common discourse in this area. The central purpose of the discussion group was therefore to allow interested researchers to exchange and discuss research experiences as well as to openly consider theories, assumptions, and methods for their own research. More specifically, the aims of the group were to make explicit:

- the various theoretical lenses utilized in the research, from semiotics to embodied cognition to linguistics; and,
- methodologies for carrying out empirical studies in this area
- the interplay between these two.

The first two aims were each roughly assigned to one of the two sessions, while the third one was (implicitly or explicitly) present in the background at all times.

Session 1

In the first session, we started with introductions of all participants, during which they shared briefly their interest in attending the group. We then presented some basic background of concepts underlying the discussion group with respect to 'multimodality' and 'embodiment', the latter from the perspectives of the theoretical lenses of phenomenology, semiotics and cognitive linguistics. The

provision of theoretical underpinnings as mutual starting point for what might be understood in research when referring to embodiment and multimodality already led to an interesting whole group discussion about limits and extensions of these 'definitions' (or maybe rather descriptions), the understanding of studies given as examples and, more generally, about different nuances of the terms as understood by the participants. It was therefore important to explicate that these 'definitions' were not meant to be tentative rather than exclusive, giving an introduction into the field as a mutual starting point for the two sessions.

We then split the whole group into smaller groups that each occupied itself with a particular theoretical lens to discuss its strengths, weaknesses and further questions and introduced video data that could be taken as example for getting a more concrete access to the respective lens. The questions "What can you see in the video data through your lens?", "What stays hidden?", "What stays imprecise?" have been offered as guideline for these discussions without being meant to be restrictive. In a subsequent whole group discussion, each group provided the main points/insights/questions that arose from their discussion.

We closed the first session by inviting the participants to contact us for bringing own data they would like to discuss in the second session in the light of embodiment and multimodality.

Session 2

The second session started with revisiting and briefly discussing the first two guiding questions:

1. How can we capture multimodal and embodied aspects of learning mathematics within and across different theoretical lenses?
2. What can we learn from integrating multimodal and embodied aspects in our research on teaching and learning mathematics – and what is not captured?

In a whole group discussion against the background of the first session. This we took as a starting pointing for working on participants' data in order to discuss:

3. What are suitable methods for analyzing video data of embodied interactions, and how do they relate to theoretical lenses?
4. What are some criteria for high-quality research that focuses on embodied and multimodal aspects in the teaching and learning of mathematics?

Six participants offered to share their data, all of it being very different in its nature. After a very brief presentation of the setting (e.g. classroom, interviews, teaching experiments,…), the mathematical content (e.g. geometry, fractions, functions,…), and the kind of each data (multi-perspective video data, tracings of students' activity in a learning environment on an iPad, eye-tracking data, pictures, ...), the group participants gathered in small groups so that each occupied itself with a different set of data. We suggested to show the data within these small groups first without directing the group members' attention too much towards specific points but to collect impressions and ideas that might be influenced by the previous discussions within the DG. We hoped that this will lead to new perspectives towards the data which has been confirmed to mostly work out to engage into discussions about aspects of multimodality and embodiment within the data. Becoming aware of that, we dedicated more time than planned to this small group discussion phase than was initially planned before we shuffled the participants to become arranged in new small groups to report from their experiences in the first constellation and to discuss the las two leading questions. Eventually, each group shared the main points of their discussion in the whole group discussion.

We closed the Discussion Group by concluding on question 3, postponing further discussion on question 4 and collecting the participants' email-addresses in order to keep them updated about further progress, possible meetings at future PME's and opportunities for collaboration.

Résumé

With around 30 participants in each of the two sessions, the discussion group was well attended. Incorporating the work on concrete data into the discussions well received by the participants. Many voiced that they found this an interesting and illustrative introduction in the various ways to look at different kinds of data from the perspective of multimodality and embodiment. We are looking forward to hopefully continue the fruitful discussion in the future.

Discussion Group Report: Mathematics in Different Languages

Submitted by Cris Edmonds-Wathen (Austalia)

This discussion group focussed on exploring how different languages ex-press mathematical concepts. Individual mathematical terms and grammatical structures both play a role in how mathematical thinking is constructed (Morgan, Craig, Schuette, & Wagner, 2014). Thus it cannot be assumed that mathematics remains identical when a task is translated into different languages. More investigation is needed into how the specificities of different languages affect mathematical concepts and mathematical thinking when mathematical tasks are translated between these languages, particularly in light of international tests such as PISA and TIMSS. Our key questions for discussion were:

- How do the linguistic features of different languages affect mathematics and mathematical concepts in these different languages?
- What grammatical structures might affect mathematical concepts in different languages, with what consequences?
- How do mathematical concepts differ in different languages and how do tasks in different languages account for this?
- How can these differences be grasped theoretically?
- What is the relevance of these questions for specific educational contexts such as international tests, bilingual/multilingual mathematics education, minority language speakers, or Indigenous language speakers?

We focussed on the area of "change and relationships" (OECD, 2013), which included tasks about fractions and percentages, among others. Grammatically, languages vary in how they express relationships between objects and circumstances, which has implications for this important topic area. For example, fractions are conceptualized as "drei Fünftel" (three fifths) in Germany, but as "5 therein 3" in Turkish, which is closer to a "part-of-a-whole" concept for fractions (Schüler-Meyer, Prediger, Kuzu, Wessel & Redder, 2017). The group included participants from a variety of countries with speakers of a range of languages from different regions of the world and different language families. Participants varied in whether they had previously focused on language in their research, but the activities enabled all participants to contribute to the discussions regarding their own languages. One of the practical activities was discussing how fractions are expressed in everyday, academic and in the mathematical/technical registers of the different languages of the group participants' countries. We compared differences and similarities at different levels, including patterns in changes between everyday and academic terminologies and structural and conceptual differences in the expressions of fractions. It became clear that some languages do not distinguish between these registers.

Another practical activity was the comparison of the text of different language versions of several PISA tasks involving change and relationships. Participants worked in small groups where each group included speakers of at least two different languages for which we had the text of the tasks. These practical activities provided concrete material around which to discuss theoretical and practical implications of the differences between the languages. These included difficulties specific to individual languages, such as impact of how word order in some languages affects mathematical expression and matches and mismatches between symbolic expression and expression in words. Issues relating to multilingual contexts and students were also discussed, both difficulties and opportunities for enriched conceptual development.

Topics that emerged for potential further research included differences between object and process in different languages and registers; and the relationship between words and concepts in the context of translating mathematical language. We intend to continue the discussion towards a more focussed research agenda.

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Working Session Report: Textbook signatures - Exploration and analysis of mathematics textbooks

Submitted by Angel Mizzi (Germany)

Following the high interest in textbook signatures for textbook analyses during PME 40 discussion group in Hungary, we, Angel Mizzi (University of Duisburg-Essen, Germany), Ban Heng Choy (National Institute of Education, Singapore) and Mi Yeon Lee (Arizona State University, USA) agreed that a working group session is the next step for focussing on further development of textbook signatures during PME 41 in Singapore. In previous studies (Choy, Lee, & Mizzi, 2015; Lee, Choy, & Mizzi, 2016), we defined our notion of textbook signatures as a set of characteristics which we assume to be unique for textbooks among different countries. We showed how textbook signatures can potentially describe and explain different curricular approaches adopted by different educational contexts. In this working session, we focussed on involving the participants to carry out textbook analyses themselves using our developed theory in order to get a better grasp of possible challenges when applying theory and coding practices on textbooks and also carry textbook analyses to develop signatures for other countries.

In the first part of the session, we introduced theoretical aspects about textbook signatures, findings from previous studies presented during past PME conferences, and continued by showing examples of how we coded tasks using textbook signatures. After illustrating the coding of tasks, we discussed the challenges arising from different types of textbooks (especially regarding their different representations) worldwide. In the next phase, the participants were required to form groups and conduct textbook analyses for textbooks from their own countries. International textbooks in the working sessions included textbooks from Macau, Singapore, US, Brazil, Japan and Thailand. During the last phase of this working session, the groups had the time to present their results in front of the other participants and open the discussion about challenges regarding the implementation of theoretical models for textbook analyses.

Overall, it was agreed that textbook signatures do offer an effective way of summarizing and representing key features of textbooks, which can be useful for controlling implementation of curriculum specifications or for providing a tool for comparison of different textbooks. However, the challenges encountered during the construction of textbook signatures still require further discussion. For instance, the coding part of conceptualizations is highly context dependent, which may differ from one mathematical topic to another. Another issue is whether to analyse and code a whole textbook topic by topic, or to compare topic by topic across different textbooks (only this option was investigated so far). Nevertheless, we agreed that results of the working session were very fruitful, especially since the participants could highlight issues and benefits of textbook signatures and their development based on the work in this session. The next steps in this research project is to focus on refining the notion of textbook signatures in the context of decentralized educational systems and on writing collaboration with other researchers interested in this field.

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Working Session Report: What does "socio-cultural-historical views of teaching and learning of mathematics" mean to us?

Submitted by Yasmine Abtahi (Canada)

Many researchers in the field of mathematics educations draw on social, historical, and cultural perspectives of learning and becoming, to make sense of teaching and learning of mathematics. In this working group, we attempted to concretely examine what socio-cultural-historical views of teaching and learning of mathematics mean to us, as a group. In the first session, through close examination of three pieces of empirical data we looked into the meaning(s) that might be given to terms that we use as we speak about social and cultural ways of leaning and teaching mathematics.

We provided the participants (32 people) with descriptions of some commonly used terms and phrases in socio-cultural-historical studies done in the field of mathematics education. We have identified a few and are open to more. Terms such as Dialectic, Mediated action, Dialogue, Voice(s), The Zone of Proximal Development, etc. For day one our three main sources of data were: 1) A 3-minute video recording of two children interacting with pieces of paper to solve an addition of fractions task; 2) a child interaction with her facilitator in a South African after school mathematics club program; 3) two children's conversation in a Canadian classroom, in French Immersion public school, as they interacted to solve a mathematics problem. Participants were given the transcripts of all these interactions, to identify, relate to and interpret the commonly used terms by close examination the pieces of data. We asked questions such as:

- Is this action/learning mediated? If so, by what/who?
- How do I see the cultures and histories that are accumulated in the meditational means? Is it such accumulation that we call "knowing"?
- Is there any learning happening? Is it dialectic? Is dialectic a back and forth binary thing? Or is there more to it?
- How do I see different voices in this action/learning? "Who is doing the talking?" (Wertsch, 1991, p. 67)
- (How) do I see the multi-voiced-ness of the meanings?
- We finished the first session by accumulating a list of concepts and issues related to different socio-cultural-historical theories, raised by all the participants.

In the second session, we brought up the list created in session one and focused on the 3-minutes video. We asked the participants (21 people) to watch the video and ask us to pause the video anytime they would like to highlight any point or issue as it related to any aspects the interaction that they perceived to have social or cultural or historical components. Then we reflected on the interrelated-ness of these key terms, so to see, as a whole, what the social cultural historical views of teaching and learning of mathematics might mean to us. We finished the second session by re-collecting the term social-cultural-historical to have a broader group conversation about sociocultural view of learning and teaching mathematics. Finally we highlighted how common terms guide us in making sense of the learning and teaching of mathematics as social and cultural and historical in origin. We plan to continue our exploration in another PME working session to look more closely into socio-cultural theories used in the field of mathematics education, such the work of Vygotsky and Bakhtin.

References

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Working Session Report: Comparing different frameworks for discussing classroom video in mathematics professional development programs

Submitted by Ronnie Karsenty (Israel)

Professional development (PD) programs for mathematics teachers around the world use different frameworks for analyzing and discussing classroom video with teachers, according to various goals and desired outcomes of the PD. The aims of this Working Session were (a) to compare and contrast several such frameworks, in an endeavor to gain collective insights regarding the objectives and characteristics of each one; and (b) to initiate a framework categorization that may serve as a useful tool in researching the domain of video-based PD programs. In the first session, three frameworks for analysing classroom video with teachers were introduced: Ronnie Karsenty (Israel) presented Viewing, Investigating and Discussing Environments of Learning Mathematics, VIDEO-LM (Karsenty & Arcavi, 2017). Hilary Hollingsworth (Australia) presented the Structured Stimulation of Teacher Reflection, SSTR (Hollingsworth & Clarke, 2017). Einat Heyd-Metzuyanim (Israel) presented the Quadrants coding scheme (Stein et al., 2017). Participants then joined one of three randomly-assigned groups, each facilitated by a session leader. All groups watched the same classroom video excerpt, but analyzed it using a different framework. Following this experience, each group formed feedback related to insights and issues associated with using their nominated framework, and communicated this feedback in a plenary discussion. Guiding questions for forming feedback included: What was the focus of your discussion? What were the main ideas raised regarding the episode observed? How would you characterize the aims of the analysis you performed? What did you gain, and what might teachers gain, from

such an experience? What might be the limitations of using this framework? What kinds of discussion norms or protocols were used by the group? What was the role of the facilitator?

The plenary discussion revealed the very different observations and comments produced by the three groups regarding the same video, highlighting the crucial role that using a given framework may play in directing teachers' discussion within a PD scenario.

In the second session, we employed the experiences of the previous session to elaborate key criteria for categorizing frameworks used in PD for peer-analysis of video. The original groups from Session 1were re-formed into new groups, based on the Jigsaw strategy (i.e., each new group included representatives from all three original groups). Each group compared and contrasted frameworks for video-based teacher discussions, according to criteria such as: Who watches the video and who is being watched? What is the purpose of watching? What are the foci of discussion? What norms apply to viewing and discussing? Then, in the plenary, a shared criteria table was built, forming a preliminary possible taxonomy.

The Working Session ended with a short discussion on next steps for future collaborations.

This Working Session was organized by Ronnie Karsenty (Israel), Alf Coles (UK) and Hilary Hollingsworth (Australia), and facilitated with the help of Einat Heyd-Metzuyanim (Israel).

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Photos of Working Session "Videos in teacher professional development" (report overleaf).

Working Session Report: Videos in Teacher Professional Development - Fostering an International Community of Practice

Submitted by Greg Oates (Australia), Kim Beswick (Australia), and Tanya Evans (New Zealand).

The aim of this workshop was to investigate possibilities for an international online network to share observational videos of teacher practice, and to develop effective ways to examine these through a professional development lens, within a supportive community of practice. Thirty three delegates representing 15 countries participated in the stimulating and productive discussions over the two sessions, with 19 present for both days which provided encouraging continuity for our deliberations.

We began by reviewing the key ideas emerging from recent work in this area, stimulated foremost by the Discussion Group 'Videos in Teacher Professional Development' at the 13th International Congress on Mathematical Education (ICME-13), 24-31 July 2016 in Hamburg (Leong et al., 2016), and highlighted in several projects undertaken by the workshop organisers (see, for example, Barton et al, 2015; Beswick & Muir, 2013). We next canvassed the wide-ranging experiences of participants, which confirmed the premise underpinning this session that there is wide variance in the ways, purposes and audiences for which recorded videos are used. Examples show-cased varied practices in the Philippines, Singapore, Australia, Sri Lanka, India, Thailand, New Zealand, China, Korea, Germany, Israel, Italy, Indonesia, USA and South Africa.

Varying recording practices (with key associated purposes in brackets) included but were not limited to: whole of class teacher-student interactions or solely teacher focused recordings (professional learning, teacher evaluation and student learning) of either one or a suite of lessons (a suite seemed to be mostly research-focused); pre-recorded videos of experienced teachers to focus on key ideas and stimulate discussion (teacher training, Ho et al., 2015); departmental and community of practice recordings in the Japanese lesson study style (programme evaluation and development); and recordings in pairs in the nature of a coach-critical friend relationship (individual instructor development and professional learning).

Participants' experiences also highlighted another key challenge; namely the wide range of available observational measurement tools and theoretical perspectives for examining and analysing teaching quality and the impact of PD programmes. Some used the videos as a catalyst to stimulate teacher recall, usually focusing on identified critical moments (Oates & Evans., 2017; Geiger et al., 2016); others used a range of observational tools and theoretical frameworks to document, measure and compare current practice (see Hill et al., 2012) while still others conducted fine-grained analysis of recordings to develop a theoretical lens for examining practice (Barton et al., 2015; Schoenfeld, 2010).

In the second session, we considered ways in which we might look to build a community of practice based on sharing our practice through observations of recorded lessons. While there was broad support for exploring these possibilities further, a number of critical aspects arose during these discussions,

- Buy-in from practising teachers and sustainability: Issues of time; trust (critique vs criticism) and reasons for involvement - externally imposed or self-initiated; support from school and institutional leaders;
- Variety of purposes and contexts: No one size fits all, maybe best to foster collaborations around a common purpose, e.g. department-wide lesson study, or instructor-coach pairings;
- Theoretical or analytical lens: Need to establish reasonably uncomplicated lens for prompting critical reflection, beyond just superficial observation of what happened. These lenses may vary according to the context but value was seen in a consistent approach. We considered a synthesis of existing observational tools and frameworks, for example Resources, Orientations and Goals (Schoenfeld, 2010); the three-point framework for productive noticing (Choy, 2013); and the simplified protocols developed by Beswick and Muir (2013) or Geiger et al. (2016).

- Ethical issues: This was a key concern. Outside of established research projects, gaining permission to video ourselves, even if students are excluded, and then sharing with others can be extremely problematic. One suggestion was that the paired instructor-coach and or critical friend approach may be more easily enacted, although how this may be shared more widely in a community of practice was not clear.

Notwithstanding the complexities the above issues highlight, the group was excited by the potential of recorded videos to foster international exposure to different practices and collaboration for richer professional learning. We concluded with a resolution to establish an initial network via an email list to consider future developments. The first step is the acceptance of a working group at EARCOME-8 in Taiwan, 7-11 May 2018. The session, entitled International perspectives on using video in professional development, frames several key questions aimed at furthering the work established in WG4, and we hope many of our participants may be able to attend and continue the development of our community of practice.

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Seminar Report: Reviewing for the PME - a primer for (new) reviewers

Submitted by Anika Dreher (Germany)

Seminars are intended to provide specific courses for the professional development of PME members. The idea to offer a seminar on reviewing for the PME was triggered by the ongoing discussions on the specialties of reviewing for the PME, especially in contrast to review procedures for other conferences or journals. We, Anke Lindmeier (Germany), Anika Dreher (Germany), and Michal Tabach (Israel), delivered the seminar for the third year in a row.

The seminar provided detailed insight into the PME review process and gave the opportunity to gain 'hands-on' experience in providing a high-quality review. The seminar addressed, in particular, the needs of new reviewers. Experienced reviewers were also present and this allowed the facilitating of knowledge transition within the PME community. The seminar included an introduction to the intention and purpose of reviewing from a more general perspective, together with detailed aspects of the PME review practices. Moreover, specific reviews were discussed and the participants had the opportunity to engage in reviewing activities. The goals, accordingly, were: participants should

(1) be informed about reviewing as an aspect of scientific quality management, (2) get to know about the most important differences in reviewing procedures for journals and conferences as well as different types of contributions, especially in the PME context, (3) be able to differentiate the specific review categories of PME, and (4) be able to identify criteria for a high quality review and to apply these criteria to specific examples.

We offered the seminar in parallel to the group activities. In the first session, we laid the ground for the in-depth work on review quality in the second session. In general, we could identify two different kinds of motivation to participate: new reviewers in search for a reviewing 'primer' (our main target group for the seminar) and experienced reviewer searching for a refined understanding of the reviewing practices. The group work phases profited from a mixture of experienced and new reviewers. According to the feedback, all participants in the group enjoyed the engagement on refining their own understanding of reviewing. Moreover, participants said that after attending the two sessions they felt better able to write PME Research Reports with better chances of being accepted.

As the professional development of the PME reviewers is an ongoing demand, we would suggest that this kind of seminar continues to be offered in future conferences. The progression from session 1, with a focus on information and getting to know individual interest, to in-depth group work in session 2 seems to be a working layout for the seminar. We encourage PME members interested in continuing this seminar to contact us.

PME experiences: How PME transformed my scientific intentions and endeavor

Contributed by Anna Shvarts (Russia)

My first PME experience was an avalanche of international communication that completely transformed my scientific intentions and endeavor. As a PhD student in 2011, I had never attended any international conferences apart from the conferences within Russia, which are conducted in Russian. Moreover, mathematics education as a research field does not really exist in Russia. Thus I had only recently discovered that some people wrote and published about things in which I was interested.

My English was far from fluent at that time and exploring the PME conference website I did not realize that a Research Report is not the only way to present at the conference. Expecting to survive somehow through a 10 minutes presentation, it was only just before the conference that I realized that I had 40 minutes slot of time and that I also needed to chair a session. I was very lucky to present on the first day and to experience how the PME community is amazingly friendly: people are ready to listen attentively and to understand me despite any difficulty with the language. The openness and supportive character of communication is something that stood out as very special about the PME community.

Being just at the very beginning of my career I not only met, but could easily talk, and deeply exchange ideas, with people who were 'stars' for me and whom I cited many times; I would love particularly to thank Luis Radford, Laurie Edwards, and Norma Presmeg who were kind with me at that conference. I was surprised by how well the classics of Russian psychology are known; and the common ground of the cultural-historical approach and activity theory helped me a lot, although I found many other common themes that are rarely discussed in Russia. A couple of years later I was invited to participate in organizing a Working group on the use of eye-tracking technology in mathematics education research, and now I view PME as a place where I share different interests with different circles of people, with foci such as the eye-tracking method, the embodied nature of knowledge, visualization, activity theory and phenomenology – all in application to mathematics education and broader contexts.

Unlike ICME and CERME, PME does not have thematic working groups throughout the conference, and I consider it as a strong advantage

for a newcomer. Although it is not easy to orient between different presentations happening in parallel, by working carefully on the schedule one may create much better understanding of the field in general and one may catch very interesting presentations that suite one's interest from very different angles. This variety of people and themes is well-balanced by the working group activities, where one meets the same people twice and may create more consistent connections. It is also a good opportunity to share one's ideas and findings beyond formal presentation. Long time slots for each Research Report and specific formats of Working Group sessions allow discussions to go deeper then just familiarization with new sets of data.

Detailed reviews supplied for each research submission are always helpful since it is a rare case that one would find this level of detail in a critique of one's research before a journal publication. In my opinion, PME reviews are slightly biased towards positivistic and empirical studies, but that reflects the general tendency in science. In general PME always impresses me by the variety of different paradigms, which is unusual compared with cognitive science, my original field of interest. Another distinctive feature of PME that I appreciate is well-organized social events as these are the core of communication and establishing international collaboration for me. Lunches that are always comfortable and tasty are the best opportunity to continue discussion that was emerging during the sessions. People were very open to sharing their lunch timeslot with me and I always tried to have each lunch with a

new person that I noticed from the presentations as sharing common interest with me. Lunch discussions have been transformed into fruitful literature exchange by e-mails or ideas for further research. An excursion and a conference dinner are obligatory, included into the conference fee, which I consider to be a thoughtful decision since being a newcomer one cannot avoid these other opportunities to communicate (as I usually do at the other conferences, trying to economize). Unlike some other conferences, the conference dinner is always placed at the end of the conference so one may consolidate connections that were established earlier. For example, once I was invited to write a book review for RME after a conference dinner; at another conference dinner colleagues drew my attention to an opportunity to apply for local PME-related conference funding. And I dream that one day PME can be hosted in Russia, although there is a lot to be done on the way towards that!

PME experiences:
PME is definitely my top choice of conference

Submitted by Priscilla Murphy (New Zealand)

PME41 was my first PME conference. I expected to meet like-minded colleagues, and I was happy that I did. The conference timing was just right. The conference venue was perfect. I enjoyed all the sessions, including the plenary lectures, panel, poster presentation, oral communications, research reports, and social events. During the conference it was a privilege to engage in open discussions and network with other researchers and practitioners. In my experience, the PME conference provides an ideal platform for early career researchers to explore and engage in a variety of mathematics education research because of its diversity of participants, depth and breadth of working sessions and research presentations. PME is definitely my top choice of conference!

PME experiences: Meeting researchers from all over the world

Submitted by Brantina Chirinda (South Africa)

As a Zimbabwean full-time PhD candidate at the University of Witwatersrand, South Africa, I had attended a number of local conferences in Africa. PME 41 was my first experience of an international conference. My PhD supervisor, Patrick Barmby, encouraged me to attend the conference so that I could get vital feedback on my PhD Design Based Research (DBR) study and also benefit from attending other researchers' presentations. Patrick promised me that I would meet researchers from all over the world. I was not disappointed!

When I arrived in Singapore on the 15th of July I experienced a culture shock as Singapore is a very modern city (I had never been to such a modern city) and is one of the most densely-populated countries in the world. It was not difficult for me to get to my hotel because I could easily get directions from Singaporeans who are very friendly. The next morning I installed the CityMapper Singapore app, and with the directions provided by the PME organizers, I easily got to Nanyang Technological University (NTU).

The PME once again proved to be a vital support for early researchers in their respective research pursuits in yet another successful ERD (Early Researchers' Day) held on the 16th and 17th of July. I would recommend this event to all the emerging Mathematics Education researchers. The ERD consisted of various presentations and I am grateful for the presentation on Design Based Research (DBR). For my PhD studies I am using DBR to design a professional development intervention for teachers' mathematical problem solving pedagogy. At the time of PME41 I was stuck on my second cycle and I did not know if my intervention was improving. By listening to Professor Yoon's presentation, and hearing what she has done to refine her DBR cycles, furnished me with ideas on how to design my third cycle. The session on publishing in Mathematics Educations journals was quite helpful as it provided me with information on how to publish in international journals.

The main conference was packed and stimulating. The newcomers' meeting was very helpful and resourceful. The food and drink was enjoyable. My presentation was well-attended and I got invaluable feedback. During the conference, I spoke to many researchers working on DBR, professional development and mathematical problem solving, and got plenty of ideas on how I can improve my study. I made a lot of friends and I am looking forward to attending PME 42 in Sweden!

PME IC Reports

Vice President Portfolio Group (VPPG) Report

Submitted by David M. Gómez (Chile)

The Vice President Portfolio Group (VPPG) currently comprises Csaba Csikos (Hungary), Maria Mellone (Italy), and Mellony Graven (South Africa), and is led by David M. Gómez (Chile).

The VPPG mission is to care for PME scientific affairs. In the year 2016-2017, the VPPG undertook two main tasks. First, revising the set of criteria that members use to review contributions to PME conferences. Using the data from PME 40, the criteria were scrutinized to check that they provided valid and useful information for the International Program Committee to decide on the acceptance of contributions. This analysis revealed that most of the criteria did, indeed, provide valuable information to inform IPC decisions, and suggested some modifications to apply to the one dimension that was less informative. The analysis also showed that reviewing criteria are fair when evaluating different types of research (quantitative and qualitative).

The second task was restructuring the group presentation formats used in PME conferences, leading to the consideration of three formats: Research Fora, Colloquia, and Working Groups. Research Fora should provide PME members a comprehensive overview on the state of the art on a topic where substantial research has been undertaken in the last 5-10 years and that is of ongoing interest for the PME community. Colloquia consist of a set of three Research Reports interrelated in a way that makes useful for PME members to listen to and to discuss them together. Working Groups give PME members the opportunity to discuss and work collaboratively in a common research interest (e.g. start a joint research activity, share research experiences). All these three formats are now to be available for members to submit proposals as these new formats are being implemented in PME 42 in Umeå. We encourage you to make use of this diversity of formats to showcase your work and to enrich our next conference!

Tribute to leaving IC member: Anke Lindmeier

Anke Lindmeier was a member of the International Committee [IC] since her election at PME 37 (Kiel), and during this time she made very important contributions to PME from different roles. As leader of the Policy Portfolio Group, she led the preparation and discussions leading to the adoption of the Surplus policy (at PME 40 in Szeged), delineating criteria and procedures allowing PME to spend excess funds remaining from PME conferences in a manner that is sustainable and fair to all members, as well as promoting PME values of equity and inclusion. This policy has provided PME with a clear framework to open calls in 2016 and 2017 for Special Projects and Regional Conferences. In her last year in the IC, she became Vice President and led the Vice President Portfolio Group, in charge of the PME scientific matters. From this position, she had an active role in helping to implement the Surplus policy and related calls, as well as overseeing the revision of the review criteria for contributions to PME conferences and the restructuring of PME group format activities into the new Working Group format. Anke was an excellent member of the IC who always emphasized that every decision made—however trivial—should be coherent with PME history, principles, and values. I am deeply thankful to her for instilling this awareness into many of the newer IC members who now continue guiding PME.

Policy Portfolio Group (PPG) Report

Submitted by Lovisa Sumpter (Sweden)

The Policy Portfolio Group (PPG) is currently composed by Richard Barwell (Canada), Kim Beswick (Australia), Miguel Riberio (Brazil), and led by Lovisa Sumpter (Sweden).

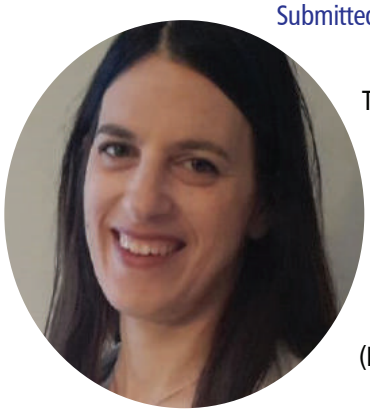
The main work of the PPG (formerly known as President's Portfolio Group) is the internal and external affairs of PME such as policy and membership. After a few years of intense work regarding the Surplus and Regional Conferences policies, but also the implementation and establishment of the Early Researchers Day (ERD), this year we are able to focus on follow ups but also starting new projects.

One issue, already started last year and that we are continuing investigating, is the support for new researchers. Last year, we undertook a review of how other conferences provides support and help for new researchers, such as reduced conference fee for first timers and writing support for new researchers. This work is continuing alongside an evaluation of the support system already provided for instance, the pre-submission support. Another possibly related issue that we are looking into is a reduced fee, in particular for those who are candidates for support from the Skemp fund since there could be an issue of being obliged to pay the pre-registration/membership fee in order to submit a contribution to the conference. At present, the Skemp fund is set up to reimburse during the conference. A potential risk is that those who do not have travel funds or could only be eligible for travel funds if their submission is accepted, are excluded from start. This can be related to the attendance of researchers from countries that are under-represented in PME. Therefore, we aim first to investigate if this is an issue, and, if it is, in what ways it is affecting people and what we could do about it.

The PPG has the ongoing task of keeping the historical record of all decisions and votes made by PME and its IC. This is to ensure that there is a consistency in the decisions made and that the applications are accordingly. Therefore, we maintain documents that are important for the work of the IC as part of a 'housekeeping' system. This is an important help for those organizing a PME conference, which is a tremendous task, and we need to keep the guidelines updated so future conference organisers can draw from the experiences of previous ones.

Secretary Portfolio Group (SPG) Report

Submitted by Einat Heyd-Metzuyanim (Israel)



The Secretary Portfolio Group (SPG) currently comprises Man Ching Esther Chan (Australia) Berinderjeet Kaur (Singapore), Stanislaw Schukajlow (Germany), and is led by Einat Heyd-Metzuyanim (Israel).

This year, Michal Tabach, who has served as the Secretary and head of the SPG, has left the group since her term as an IC member has ended. Michal served in the Secretary's role for three years, each year re-elected by the IC. In her role she served as the main connection between the IC and the conference organizers of the PME in Tasmania, Szeged and Singapore. Michal also represented the PME vis-à-vis other organizations, such as the ICME. In addition, her role included communicating with the PME membership around issues of concern for the whole community such as the PME special projects. This is our opportunity to express our thanks to her for leading the group and for her diligent and caring service in the Secretary's role.

We also thank Oh Nam Kwon, whose term as an IC and SPG group member has also come to an end this year. Oh Nam was responsible for analyzing the author feedback to the reviewers each year.

New to the SPG are Esther Man Ching, who has joined the IC this summer and Einat Heyd-Metzuyanim, who has served as an IC member since 2016 and has stepped into the Secretary's role after the last PME in Singapore.

As indicated above, the main role of the SPG is to take care of communication within PME. This includes keeping contact with future PME organizers: the local co-organizers of PME 42 in Sweden are Ewa Bergqvist and Magnus Österholm. We are in close contact with them to monitor the progress of preparations and to be responsive to problems should they arise. We are also keeping in regular, but less frequent, contact with Johann Engelbrecht, the organizer of PME 43 in Pretoria, South Africa.

To improve communication within the membership, we are looking into ways to enhance users' experience of the PME website (www.igpme.org), as well as finalizing access issues to the conference organization Wiki. Regarding avenues of communication with the external educational community, we are also looking into options for indexing PME proceedings in international catalogues.

Secretary Portfolio Group (SPG) Report

Submitted by Cris Edmonds-Wathen (Australia)

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

The Treasurer Portfolio Group 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. Since the introduction of the surplus policy at PME 40, IGPME has begun to reduce its cash surplus through measures of broad benefit to members and the broader mathematics education community. With a successful first round of small grants under the surplus policy in place, the TPG continues to oversee budgets for proposals under this policy, including proposals for regional conferences. The TPG also oversees the budgets of proposals for annual conferences. With IGPME's banking with Barclays Bank UK, we continue to have the need for at least one member of the IC (i.e., an officer of the organization) to be from the UK. This requirement is currently met by Laurinda Brown who was newly elected to the IC at PME 41.

We thank Keith Jones for undertaking this role in the previous year, and for his work on the TPG, and more widely on the IC, during his time on the IC.

The TPG continues to investigate banking options that would make our international financial transactions more efficient. We also intend to work towards an active operational budget in addition to our current reporting of the previous year's financial transactions.

Introduction to new members of the PME International Committe

New IC member: Richard Barwell (Canada)

I work at the University of Ottawa, Canada, a French-English bilingual university, where I am Dean of the Faculty of Education. My research is mostly about language issues in mathematics education, including mathematics classroom discourse, mathematics education discourse, language diversity and second or additional language learners. I have also written about environmental sustainability and mathematics education. For 6 years I was editor of For the Learning of Mathematics, and I also contributed to the 21st ICMI Study on language diversity in mathematics education.

My first PME was in Hiroshima, Japan, in 2000. I have attended every year since then, apart from PME40. Among other things, I have presented research reports, contributed to a plenary panel, organised a research forum, and coordinated several working sessions.

I bring almost 20 years of PME experience to the IC, as well as, I hope, an international perspective to the IC and a commitment to diversity, sustainability, and peace.

New IC member: Esther Chan (Hong Kong SAR/Australia)

I am currently a Postdoctoral Research Fellow managing two international research projects for the International Centre for Classroom Research (ICCR) at the University of Melbourne, Australia. One of the projects is investigating collaborative problem solving in mathematics in Australia and China, and the other focuses on the knowledge construction process of mathematics teachers in Australia, China, and Germany.

As a registered psychologist who specialises in educational psychology and assessment, I am particularly interested in the knowledge construction process involved in student learning, in teaching, and in research. Since completing my PhD in 2013, I am working in increasingly complex research projects dealing with a greater number of theoretical frameworks and more complex data sets. A continuing thread in my work is the honouring of complexity in educational settings while seeking practical solutions or directions for working with that complexity.

I belong to the Secretary Portfolio Group in the PME International Committee and I very much look forward to working with other members of the IC and the wider PME community.

New IC member: Laurinda Brown (UK)

I work at the University of Bristol in the UK. My first PME was PME18 in 1994 in Lisbon, Portugal. At the conference I attended the Teachers as Researchers Working Group run by Judy Mousely (from Australia), Chris Breen (from South Africa) and Vicki Zack (from Canada). My experience at the Working Group was directly responsible for me going to PME19 in Recife the following year, given that I had been invited to make a contribution. After 14 years as a mathematics teacher, I had recently taken up a university position working with a one-year course where graduates in mathematics or mathematics-related subjects gained a qualification as a teacher. Working with international colleagues expanded my experiences and allowed me to question taken-for-granted practices in my own country. Subsequently, a book was published to which I contributed a chapter; this was a great experience for an inexperienced academic who needed to establish networks and academic credentials.

Following this first experience, I have run PME working groups and discussion groups related to analysing videos, mathematics teacher education, and teachers as researchers, and I have contributed to research fora on enactivism, teacher change, and affect. I enjoy editing and have been chief editor of the international journal, For the Learning of Mathematics (FLM). My experience of editing means that often the work presented at these PME working sessions develops into special issues of journals. I am ready to serve the PME community in any way that is needed.

I have already joined the International Programme Curriculum (IPC) for PME42 in Sweden in 2018. Given that the PME bank account is located in England, my main priority on the IC is to work closely with the Treasurer. I am flexibly retiring (and down to one day a week at the moment) so I have more time to do such things compared to most full-time academics.

New IC member: Maria Mellone (Italy)

I am an Associate Professor in Mathematics Education at Mathematics Department "R. Caccioppoli", University of Naples Federico II, Italy. My research interests are in mathematics teacher education, in particular in task design aimed at the development of teachers' interpretation skills. In addition, I also conduct research on words problems and early algebra. I am a regularly attendee at PME conferences for over 10 years; my first was PME30 in Prague in 2006. Since that first conference, I consider the PME conference to be one of the most important moments for my growth both from a personal and a scientific point of view. I have been coordinator of the Italian national group of young researchers, and in the IC, I would also like to work in this direction of trying to welcome and support newcomers and young researchers in orientating and integrating into our research community. I am part of the Vice President Portfolio Group in which I would like to contribute to try to balance the scientific high quality of the research presented with the welcoming of new emerging ideas.

PME 42

Delight in Mathematics Education

Submitted by 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 is pleased to invite you to attend the conference in Umeå, Sweden, at Umeå University, from July 3 to July 8, 2018. The theme of the 42nd PME conference is:

Delight in Mathematics Education

The theme 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 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 ever forgets.

The plenary speakers are: Markku Hannula (University of Helsinki, Finland), Mogens Niss (Roskilde University, Denmark), Mamokgethi Phakeng (University of Cape Town, South Africa) and Natalie Sinclair, (Simon Fraser University, Canada)

The plenary panel comprises: Márcia Pinto (Chair, Federal University of Rio de Janeiro, Brazil), Wim Van Dooren (KU Leuven, Belgium), Francesca Morselli (University of Genoa, Italy), Wee Tiong Seah (The University of Melbourne, Australia) and Qiao-Ping Zhang (The Chinese University of Hong Kong, Hong Kong SAR)

Full details can be found in the first announcement of the conference available on the conference website (www.pme42.se). News and information can also be found on the conference Facebook page (www.facebook.com/PME42). The system for registration and proposal submission opens during November 2017.

Welcome to Umeå and PME 42!

Photo: Viset Umeå

Photo: Mattias Pettersson

MISCELLANEOUS

1st PME Regional Conference (South America)

Submitted by David M. Gómez (Chile)

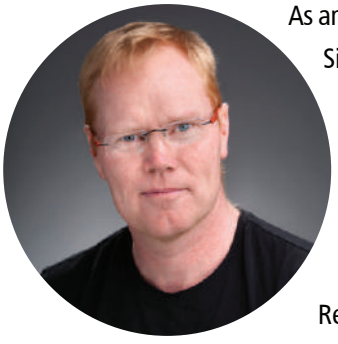
The International Group for the Psychology of Mathematics Education, in its Annual General Meeting at PME 41 in Singapore, approved a motion to support the organization of a PME Regional Conference to be held in Chile. This Regional Conference is a scientific event similar to a PME Conference at a smaller scale, to build collaboration networks of researchers both within the South American region and between researchers from this region and those of the broader PME community. The event takes place in the city of Rancagua, Chile,

in November 2018 and is hosted by Universidad de O'Higgins, a recently-created institution in the heart of Chile's traditional central area.

The theme of the Conference is Understanding and promoting students' mathematical thinking. The first announcement is due in early March 2018, followed by an open call for contributions. Thanks to PME support, regional researchers with accepted contributions can receive financial support (such as reduced registration, travel support) to attend the Conference. We look forward to seeing you in Chile!

PME Second Handbook distributed free to universities in underrepresented countries

Submitted by Peter Liljedahl (Canada)



As announced at the PME AGM at PME41 in Singapore, the policy to use PME funds to promote international contacts and exchange of scientific information, and, in particular, to increase participation of under-represented countries, enabled a copy of the Second PME Research Handbook to be distributed free of charge to each of the universities listed below. This endeavour was kindly supported by many PME member who nominated appropriate universities and assisted with ensuring that each Handbook was received by the appropriate person in each university, and also by the publisher of the Handbook, Sense Publishers, who generously offered a 60% discount on the cost of the books via their own policy of supporting researchers in under-represented countries.

- Addis Ababa University (Ethiopia)
- Aga Khan University (Pakistan)
- Bahir Dar University (Ethiopia)
- Banja Luka University (Bosnia-Herzegovina)
- Hawassa University (Ethiopia)
- Islamic Azad University (Iran)
- Kamphaeng Phet Rajabhat University (Thailand)
- Kibaha Education Centre Public library (Tanzania)
- Kwame Nkrumah University of Science and Technology (Ghana)
- Lesotho College of Education (Lesotho)
- Mwenge Catholic University (Tanzania)
- Pontificia Universidad Catolica de Valparaiso (Chile)
- Shahid Bahonar University of Kerman (Iran)
- St. Augustine University of Tanzania (Tanzania)
- Stellenbosch Universiteit (South Africa)
- The University of the South Pacific (Fiji)
- Tiraspol State University (Transnistria/Moldova)
- Universidade Estadual Paulista "Júlio de Mesquita Filho" (Brazil)

- Universidad de los Andes (Colombia)
- Universidad de San Carlos (Guatemala)
- Universidade Lurio (Mozambique)
- Universidade Pedagogica, Delegacao da Beira (Mozambique)
- Université Cheikh Anta Diop de Dakar (Senegal)
- Universiti Teknologi Malaysia (Malaysia)
- University of Nairobi (Kenya)
- University Koudougou (Burkina Faso)
- University of Cape Coast (Ghana)
- University of Dar es Salaam (Tanzania)
- University of Dodoma (Tanzania)
- University of East Anglia (Kenya)
- University of Malawi (Malawi)
- University of the Philippines (The Philippines)

Released in 2016 to celebrate the 40th anniversary of the founding of PME, the Second PME Research Handbook documents, and presents a critical review of, the wide range of research conducted over the previous ten years by PME members and their professional colleagues. The handbook is structured into four main sections: Cognitive aspects of learning and teaching content areas; Cognitive aspects of learning and teaching transverse areas; Social aspects of learning and teaching mathematics; and Professional aspects of teaching mathematics. Each chapter has an author team of at least two authors, mostly located in different parts of the world, to ensure effective coverage of each field. High quality was further enhanced by the scrupulous review of chapter drafts by two additional leaders in the relevant field. The resulting handbook, with its compilation of the most relevant aspects of research in the field and its emphasis on trends and future developments, is a rich and unparalleled resource for all researchers, both established and emerging, in mathematics education.

PME is grateful for the generous support of Sense Publishers in helping to ensure that copies of the Handbook reached researchers in under-represented countries.

PME-NA position statement on the work of Rochelle Gutiérrez #IStandWithRochelle

Submitted by Peter Liljedahl (Canada)

PME-NA has recently issued a position statement on the work of the mathematics educator Rochelle Gutiérrez. The statements says that "PME-NA supports the work of Dr. Rochelle Gutiérrez and other equity-focused researchers who push us to question the ways in which we have traditionally positioned mathematics education" and concludes that "We must individually and collectively stand up for human decency and for academic freedom, and remind the world that mathematics education is a vital and expansive field of research". The full statement can be read at:

http://www.pmena.org/istandwithrochelle/

Other organisations in mathematics education, and more widely, have also issued statements, including:

- NCTM: https://my.nctm.org/blogs/matthew-larson/2017/10/27/supportingresearch
- RUME: http://mathforum.org/kb/servlet/JiveServlet/download/323-2891907-10271278-1418845/att1.html

PME, like PME-NA, supports Rochelle and all colleagues in similar situations.

#WeStandWithRochelle

Calls for PME Special Projects and PME Regional Conferences

Submitted by Cris Edmonds-Wathen

The PME IC would like to draw attention to the following calls under the IGPME Surplus Policy and Regional Conferences Policy: http://igpme.org/index.php/communication/policy-documents

2017 Call for PME Special Projects

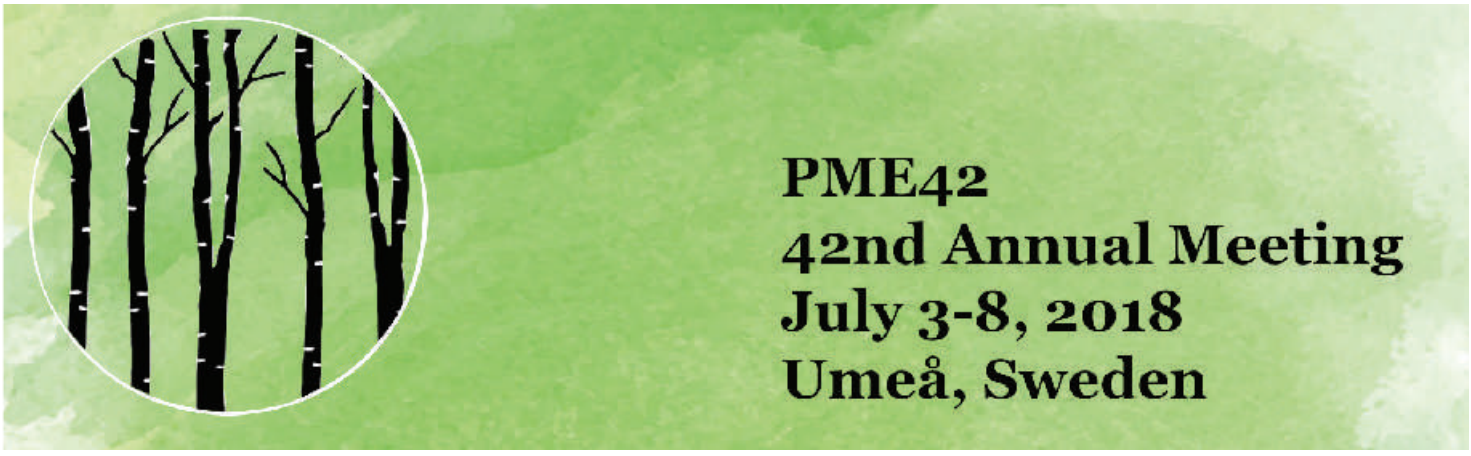
The International Group for the Psychology of Mathematics Education (IGPME) has opened a call for proposals from its membership for furthering its goals through special projects. The proposal applies for the funding years 2018 (for small projects) and 2019 (for large projects). The call is likely to be renewed on a yearly basis, subject to available funds.The deadline for small projects in 2018 has been extended to match that for large projects in 2019 – the deadline for both is now February 1, 2018. Note that the extended date for small projects now means that they must be executable between May 1st and December 31st. More details can be found at http://igpme.org/index.php/communication/announcement-forum/232-2017-call-for-igpme-special-projects-extended

2017 Call for PME Regional Conferences

The International Group for the Psychology of Mathematics Education (IGPME) has opened a call for proposals from its membership for organizing PME Regional Conferences. The proposal applies for the funding year 2019. The call is likely to be renewed on a yearly basis, subject to available surplus funds. The deadline for proposals for 2019 is February 1, 2018

The original call document has been slightly revised and can be found at http://igpme.org/index.php/communication/announcement-forum/233-2017-call-for-igpme-regional-conferences-revised

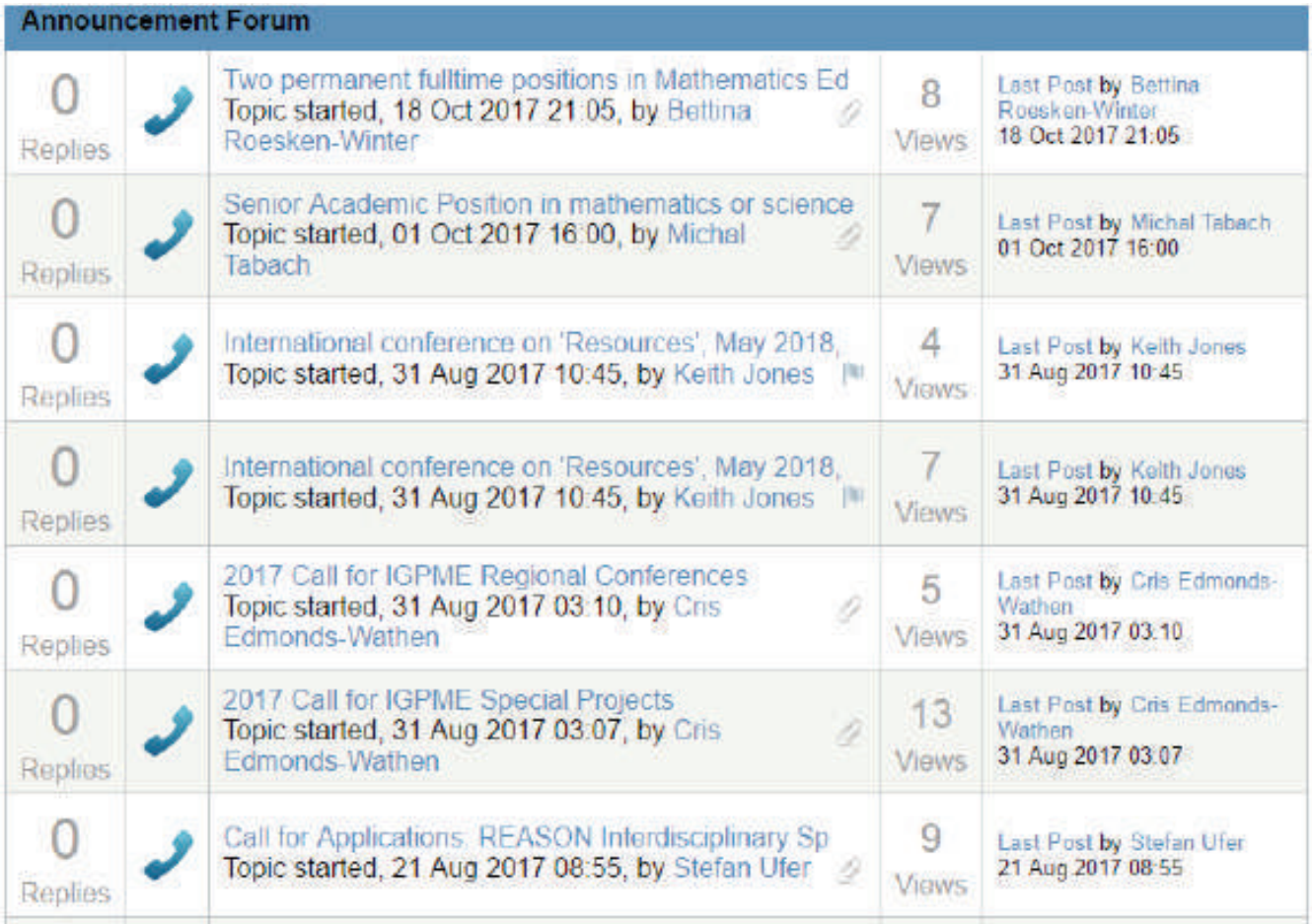
Don't miss out to visit the PME 42 Website: www.pme42.se



PME Announcements Forum on the PME Website

The IGPME website (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 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:

- REASON Interdisciplinary Spring School 2018; March 5th - 7th, 2018, LMU Munich
- 2017 Call for PME Special Projects
- 2017 Call for IGPME Regional Conferences
- International conference on Understanding teachers' work through their interactions with resources for teaching in May 2018 in France
- Senior Academic Position in mathematics (or science) education at Tel Aviv University, Israel
- Two permanent full-time positions in mathematics education at the University of Auckland, New Zealand



Announcement Forum			
0 Replies	Two permanent fulltime positions in Mathematics Ed Topic started, 18 Oct 2017 21:05, by Bettina Roesken-Winter	8 Views	Last Post by Bettina Roesken-Winter 18 Oct 2017 21:05
0 Replies	Senior Academic Position in mathematics or science Topic started, 01 Oct 2017 16:00, by Michal Tabach	7 Views	Last Post by Michal Tabach 01 Oct 2017 16:00
0 Replies	International conference on 'Resources', May 2018, Topic started, 31 Aug 2017 10:45, by Keith Jones	4 Views	Last Post by Keith Jones 31 Aug 2017 10:45
0 Replies	International conference on 'Resources', May 2018, Topic started, 31 Aug 2017 10:45, by Keith Jones	7 Views	Last Post by Keith Jones 31 Aug 2017 10:45
0 Replies	2017 Call for IGPME Regional Conferences Topic started, 31 Aug 2017 03:10, by Cris Edmonds-Wathen	5 Views	Last Post by Cris Edmonds-Wathen 31 Aug 2017 03:10
0 Replies	2017 Call for IGPME Special Projects Topic started, 31 Aug 2017 03:07, by Cris Edmonds-Wathen	13 Views	Last Post by Cris Edmonds-Wathen 31 Aug 2017 03:07
0 Replies	Call for Applications: REASON Interdisciplinary Sp Topic started, 21 Aug 2017 08:55, by Stefan Ufer	9 Views	Last Post by Stefan Ufer 21 Aug 2017 08:55