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PME Regional Conference 2023

The first post-Covid PME Regional Conference was held successfully from 2 to 4 December 2023

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Welcome to PME 47

From the President

Wim van Dooren

It is with great pleasure and pride that I can address you in this edition of the PME newsletter. The habit of sending newsletters to the membership has vanished for a while. Within the International Committee we are thinking of another format than the traditional newsletters to publish our updates and stay in touch with all of you, but in the meantime, we felt the need to update you all on what has happened throughout the year: There was a regional conference in Thailand, some PME special projects have been completed, and the working groups of last year's conference have submitted their reports. More information on all these can be found in the current newsletter.

Many of us are looking forward to the annual conference which will be held in Auckland, New Zealand. The organizing team has worked very hard to make the conference a successful one, both scientifically and socially. Besides meeting with old friends and colleagues, networking and getting updated again on scientific developments in the field, there is also another reason to attend the conference: our Annual General Meeting. We will update you there on the many developments regarding PME policy: the long-expected Scopus indexing of our proceedings, various initiatives to increase inclusion, activities for early researchers, the financial situation, forthcoming conferences, To come fully informed, we invite you to keep an eye also on the "path to AGM" forum on our website. Those who cannot attend the Annual general Meeting in person are cordially invited to follow it online.

The many initiatives and policy developments are only possible because PME can rely on an enthusiastic team of members of the International Committee. I am very grateful to all of them for the work that they are doing throughout the year for the benefit of PME and the members. I am genuinely proud to lead this team.

At the forthcoming conference, we will once more elect 4 new members for the International Committee. I hereby do a call to all possible candidates to consider standing. I can assure you this is a wonderful experience, and you won't regret becoming a member of this fantastic group of people!

This year, at the conference we will also elect a new president. Once more I also do a warm call for candidates to stand for election. While it may seem like a big responsibility and a burden at first sight, I can only look back positively at having the honour to lead a warm and engaging community, supported by a competent, proactive and engaged International Committee.

See you in Auckland!





PME Regional Conference @ Khon Kaen

Ban Heng Choy (Singapore) & Wee Tiong Seah (Australia)

The first PME Regional Conference post-COVID, held at Khon Kaen University, Thailand from December 2nd to 4th, 2023, aimed to unite mathematics educators from Cambodia, Laos, Myanmar, and Vietnam (CLMV) and Southeast Asia. The PME Regional Conference initiative, established in 2016, aims to support underrepresented regions in mathematics education by facilitating regional conferences. Approved during the PME 44 conference in 2021, the PME Regional Conference 2023 in Thailand with CLMV countries marks the first such event in the region. Jointly organized by various institutions and supported by the International Programme Committee, it seeks to foster regional research communities and international networking opportunities.



IPC and LOC members of the PME Regional Conference in Khon Kaen, Thailand.

The conference, hosted at the Institute for Research and Development in Teaching Profession for ASEAN (IRDTP) within Khon Kaen University, focused on the theme "Mathematical Thinking Skills in the Digital Era: Regional Episode". Attended by 149 mathematics education researchers from 14 countries, including prominent plenary speakers, the event showcased 9 research reports, 15 oral communications, and 19 poster presentations, predominantly from the CLMV region.

The PME Regional Conference's programme mirrored typical PME events, featuring plenary lectures, research report presentations, and poster sessions. Three distinguished speakers, including Maitree Inprasitha, Einat Heyd-Metzuyanin, and Hideyo Emori, delivered keynote addresses with respective reactors. Additional sessions included an introduction to IGPME, academic writing workshops, and a writing workshop for KKU graduate students. The Opening Ceremony included a tribute to Prof Alan J Bishop's passing.

The Khon Kaen PME Regional Conference successfully achieved the goals of fostering regional collaboration and showcasing high-quality research from CLMV nations and Thailand. The event was well-organized, with effective time management and inclusivity measures, overcoming language barriers to engage all participants. The participation of young scholars bodes well for future PME conferences and highlights the potential for continued growth in the region.



Wee Tiong Seah sharing about the legacy of Alan Bishop.

More...

Khon Kaen University's video tribute to Prof. Alan Bishop

<https://youtu.be/INyhnSIKlv8>

PME Regional Conference Closing Ceremony Video

<https://youtu.be/Gcp4-KPd0wY?si=C59-2OmKHHapxjBR>

Special Projects

Theory-Driven Task Design: Promoting Early-Career Chinese Scholars' Development

Ron Tzur (USA) and Rui Ding (China)



Apply to a Novel Problem

- ◆ Prof. Tzur has 24 Yuans, as follows: (Tzur教授有24元，如下所示)
1 1 5 10 1 1 5
- ◆ Dr. Ding has 3 Yuans, as follows: (丁博士有3元，如下所示)
30 1 25 25 50 30
- ◆ Based on your new conception of unit fractions as **multiplicative relations**, what fraction is Ding's money of (relation to) Tzur's? (根据你新的关于分数的概念(倍数关系，你认为丁博士的钱是Tzur教授的多少?)
- ◆ **Note: Her money is NOT part of his, and none has equal parts** (注意：丁博士的钱并不是Tzur教授的一部分，他们的钱都没有被等分。)

The PME-funded Special Project (SP) was conducted at Northeast Normal University in Changchun, China, from September to December 2023. The project's goal was to increase the participation of Chinese mathematics educators in IGPME activities and conferences. This initiative aimed to address the need for Chinese educators to engage in theoretical work to better explain and support their effective teaching practices.

To achieve their goal, the project team utilized video conferencing software to engage early-career Chinese scholars in three interconnected activities. First, they conducted a Task Design Seminar consisting of ten 1.5-hour sessions, focusing on students' multiplicative and fractional reasoning (MR and FR) in alignment with the new Chinese Standards (2022) for K-8 mathematics, including the concept of "counting-units" (Gong, Shi, & Zhang, 2022; Ma, 2022). Second, they organized a Publication Training Workshop with three 2.5-hour sessions on collaborative research report writing for PME, followed by team meetings to assist early-career scholars in finalizing their manuscripts. Third, they carried out a research study at a local elementary school using a validated measure of FR, where participants, who also worked as teachers, implemented the tasks designed in the seminar in their classrooms. These activities aimed to increase the participation of Chinese mathematics educators in IGPME scholarly activities and enhance their theoretical work.

The project resulted in several significant outcomes. The team completed the back-translation of the FR measure into Chinese and validated it. They also collected and analysed data on fractional reasoning (FR). Additionally, three research reports were co-authored and submitted to PME-47 in New Zealand. Two of these reports were led by doctoral students (Wang et al. and Deng et al.), and a third by Ron and Rui (Tzur et al.), all of which are currently under review. These achievements highlight the project's success in engaging Chinese mathematics educators in scholarly activities and advancing their research capabilities.



Chiara Giberti (Italy)

This collaborative project involved researchers in mathematics education and high school teachers from Argentina, Canada, Israel, and Italy. Building upon previous research presented at PME 45, the project aimed to explore the use of a digital platform, like Padlet, to facilitate mathematical discussions arising from problem-solving activities across different contexts. It sought to investigate how such discussions could transcend national borders, fostering collaboration among classes from diverse countries.

The research plan comprised two experiments conducted through seven international online meetings from April to December 2023. The first experiment observed how mathematical discussions evolved in classes with diverse cultural and linguistic backgrounds, using Padlet for solution sharing and commentary. Initial findings revealed variations in problem-solving approaches and levels of participation. The second experiment fostered collaboration between classes across borders, leveraging Padlet's asynchronous discussions and online translation tools.

The international team, inspired by PISA problems, conducted experiments related to environmental and climate issues to stimulate discussions from varied perspectives and foster collaboration among students from different countries. Early results are being analysed, with findings to be presented at international conferences, including PME. Reflections on teacher collaboration and the project's impact on creating new collaborations emphasize the potential for broader international networks.

Promoting Mathematics Education Scholarship (Ghana)

Forster D. Ntow (Ghana) and Isaac Benning (Ghana)



Some of the workshop participants in Ghana.

“

Organizing a regional PME conference in Ghana could further bolster membership and scholarly engagement in the country and the sub-region.

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A three-day workshop on fostering mathematics education scholarship was held from 18-20 September 2023 at the Institute of Education Conference Room, University of Cape Coast, Ghana. Supported by PME's Special Projects funding, the workshop aimed to enhance the quality of scholarly writing in mathematics education and increase African educators' involvement in PME scientific programs.

The workshop commenced with an opening session chaired by Prof. Douglas Darko Agyei, Dean of the Faculty of Science and Technology Education at the University of Cape Coast. Prof. Anthony Essien from the University of the Witwatersrand introduced PME and its activities, emphasizing the Richard Skemp Fund's support for underrepresented countries like Ghana. Prof. Agyei then led a session on writing critical literature reviews, followed by research presentations and reflections. Day 2 began with Prof. Anthony Essien leading a session on the role of theory in research framing. Following this, participants presented research, and Prof. Joseph Gharthey Ampiah guided them in conceptualizing research studies with mentoring sessions concluding the day. Day 3 commenced with a session on Values in Mathematics Education by Prof. Wee Tiong Seah from the University of Melbourne, Australia, who graciously offered his insights while attending another conference in Ghana. Following this, participants presented research, and Prof. Anthony Essien provided guidelines for paper submission to PME and ICME. The workshop concluded with reflections and evaluations.

The workshop proved highly successful, with engaging activities conducted as planned. Both participants and facilitators showed commitment and professionalism, expressing gratitude for the knowledge gained and the opportunity to enhance mathematics education research in Africa. Notably, four participants submitted research papers for ICME-15, reflecting increased scholarly engagement and the desire for continued scientific exchange in Ghana.

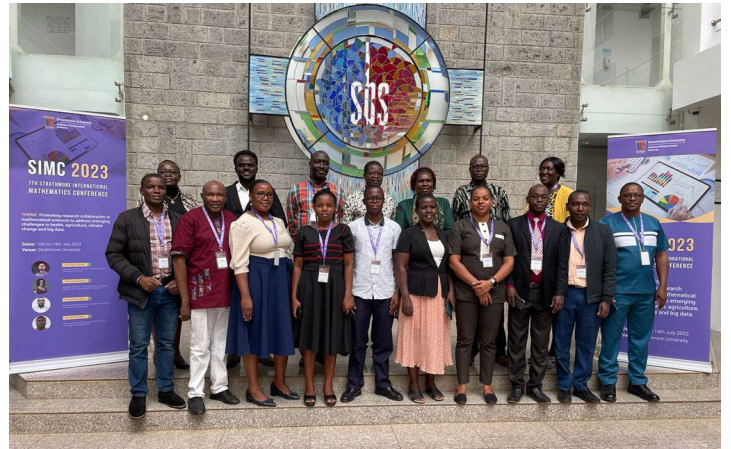
Moving forward, despite interest from 68 individuals, only 40 were accommodated, primarily postgraduate students and early career researchers. Sustained mentoring is crucial to keep this group engaged with PME. Organizing a regional PME conference in Ghana could further bolster membership and scholarly engagement in the country and the sub-region.

Promoting research collaboration in East Africa mathematics education for inclusivity and visibility in scientific activities

Mary Ochieng (Kenya), Fred Odindo (Kenya) and Penina Kamina (USA)

The Strathmore Mathematics Education workshop, held concurrently with the 7th Strathmore International Mathematics Conference in Nairobi, Kenya, brought together participants from various institutions in East Africa and beyond. Attendees included graduate students, early career faculty, senior lecturers, and professors, representing universities from Kenya, Tanzania, Uganda, Ghana, and the USA, fostering collaboration and knowledge exchange in mathematics education. Political demonstrations in Kenya during the workshop period, notably on 13 July, hindered participation from the East African region and Kenyan attendees from outside Nairobi. Travels on 12 July was risky due to nationwide unrest, impacting the workshop's attendance.

The workshop, held from 12- 14 July 2023, featured sessions on Geo-Gebra software, collaborative research approaches, data analysis techniques, STACK in undergraduate mathematics, writing for publication, and information on mathematics education conferences. Participants engaged in round table discussions and networking sessions, leading to the formation of "Beyond SIMC 2023," fostering ongoing collaboration and information sharing among mathematics educators. Esther Kirabo's paper acceptance at ICME-15 was a notable outcome.



Working Group Reports

Comprehension of Mathematical Texts

Nadav Marco, Avital Elbaum-Cohen, and Abraham Arcavi (Israel)

The "Comprehension of Mathematical Texts" working group, led by Nadav Marco, Avital Elbaum-Cohen, and Abraham Arcavi, was formed to address the gap in integrating mathematical text comprehension (CMT) in secondary education. The group emphasized the educational value of engaging students with mathematical texts, similar to the practices of expert mathematicians.

At the PME 46 Conference, the group facilitated important discussions divided into two sessions. In the first session, participants engaged in small groups to analyse selected mathematical texts, discussing pedagogical and research topics, theoretical perspectives, student learning types, and the educator's role. The second session built on these discussions, allowing participants to form small interest groups to develop potential research agendas and explore international collaborations for implementing CMT in education.

Although no additional research has been done since the conference, the group's discussions have established a groundwork for future projects. They emphasized the potential of CMT to improve students' mathematical comprehension and advocated for its wider integration into the curriculum.

Poetic Methods in Mathematics Education

Susan Staats (USA) and Rachel Helme (UK)

This working group explores the idea of mathematical patterning within spoken and written language, viewing language as inherently poetic and fundamental to human communication. Through two poetic methods, they analyse multi-layered voices in mathematical texts, shedding light on identity trajectories and learning experiences. Participants aim to deepen understanding of mathematical engagement through linguistic analysis.

The first session of the working group focused on introducing two poetic methods for analysing mathematical education research artefacts. These methods emphasize attention to linguistic details like pronouns and verbs while also prompting researchers to make analytical decisions that align with their theoretical interests and the relational dynamics present in the transcripts. In the second session, participant groups selected one of the poetic methods to create a poetic artefact from their own transcripts. Topics included teaching online during a global pandemic, focusing on "I" and "they" pronouns. Transcripts covered diverse genres in mathematics education research and multiple languages, posing challenges in pronoun usage across languages.

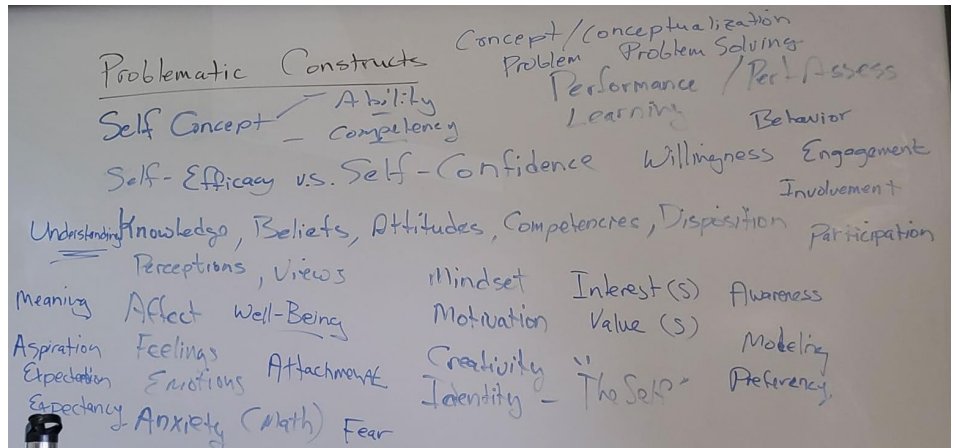
The groups observed significant poetic patterns in their transcripts, highlighting shifts in students' perceptions of mathematics, epistemological justifications, and the progression of algebraic methods. They discussed the potential of poetic inquiry to capture emotional experiences and relational dynamics in mathematical contexts, offering a richer understanding compared to traditional qualitative coding methods. They plan to explore collective outcomes and continue their work at PME-47.

Conceptual Overlap in Approaches to Affect: Attitude, Emotion, Motivation and What Else?

Stanislaw Schukajlow (Germany), Pietro Di Martino (Italy) and James Middleton (USA)

The working group "Conceptual Overlap in Approaches to Affect: Attitude, Emotion, Motivation, and What Else?" explored the rise in interest in affective outcomes and the resulting "jingle-jangle" fallacy. With over 50 participants, the group aimed to clarify conceptual overlaps in affective constructs and develop strategies for improving mathematics education.

The working group consisted of two sessions. During the first session, participants highlighted the difficulties arising from the use of diverse notions in affect research. Collaboratively, they created a map illustrating overlapping constructs, such as self-efficacy and self-confidence. This map aimed to clarify these overlaps and improve the understanding and study of affective outcomes in educational research. In the second session, potential strategies for addressing overlapping constructs in emotion, motivation, and attitude research were presented. One approach suggested studying related constructs separately but considering research on both. The session concluded by emphasizing the need for clear communication in affect research, urging researchers to explicitly define their constructs.



Conceptualising the Expertise of the Mathematics Teacher Educator

Tracy Helliwell (UK) and Sean Chorney (Canada)

The working group, titled similarly, had its third iteration during PME44 at Khon Kaen University, Thailand (hosted virtually by Technion, Israel Institute of Technology), following PME43 in Pretoria, South Africa. Across all three instances, the group centered on mathematics teacher educators' (MTEs) expertise, building on previous inquiries on distributed cognition. This iteration specifically delved into utilizing storytelling to deepen previous themes and formulate research questions around MTE expertise.

In the first session, Tracy and Sean provided an overview of previous themes from working groups before sharing personal stories illustrating their expertise as mathematics teacher educators (MTEs). Participants then discussed these stories in subgroups, with main points recorded and further reflections captured on a Padlet. Four emergent themes were identified for discussion in the second session.

In the second session, participants explored four themes and formulated research questions:

- 1) Utilizing stories and reflections in mathematics education;
- 2) Exploring the transition to becoming mathematics teacher educators (MTEs);
- 3) Incorporating theory into MTE practices; and
- 4) Examining modelling practices in mathematics teaching.

Each group provided a summary of their discussions, contributing to a special issue in the Journal of Mathematics Teacher Education, edited by Tracy, Sean, and Olive Chapman.



The 47th Conference of the
International Group for the
Psychology of Mathematics Education.

"Rethinking Mathematics Education Together"

PME-47

JULY 17TH-21ST
2024

AUCKLAND, NEW
ZEALAND

Welcome to PME 47

Jodie Hunter, Chair of PME 47

Kia ora to the PME community

We are looking forward to welcoming close to 400 participants to PME 47 hosted at Massey University in Auckland, Aotearoa New Zealand in July 2024. Aotearoa is the traditional Māori name for New Zealand meaning the land of the long white cloud. This refers to the cloud formations that were used by early Pacific navigators to find land. We are excited to be able to share the special bicultural heritage of our country with the PME community.

The theme of the conference is "Rethinking mathematics education together". The theme has been chosen to emphasise mathematics education as a shifting field of knowledge which is developed as a collective body of research. This theme has specific relevance to the local Pacific/Oceania context with ongoing debates related to mathematics education and research, shifts in both curriculum and pedagogical practices, and a focus on developing equitable educational systems.

Mā te wā (see you soon)!



Massey University, Albany Campus

<https://events.massey.ac.nz/pme-47-conference/>

<https://www.igpme.org/annual-conference/>

<https://www.igpme.org/news/>