

SIG Mathematics Birth to Eight Years

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1. Aim of the SIG:

The EECERA SIG Mathematics aims to coordinate and disseminate international research on the discourse in the emerging early childhood mathematics education field. It creates a space for shared thinking and for creating synergies between participants from a wide range of professional and scientific contexts to encourage a clearer articulation and understanding of early childhood pedagogy, policy and practice in relation to mathematics.

2. Activities 2023-2024:

In 2023, SIG members organised three self-organised symposia for the EECERA conference in Cascais, which was held in August 2023. The three symposia were:

1. Thursday, 31 August 2023, 13.00-14.20, symposium set B: Play and Mathematics (II)

Chair: Oliver Thiel

- a. On young children's use of semiotic resources when reasoning about and explaining hypothetical situations - Elena Severina
- b. Play and mathematics in an Italian and a Swedish preschool context – Karin Franzén, Co-presenters: Benita Berg, Ester Catucci, Laura Leonardi
- c. The blank page: Students' representations and decomposition of numbers – Judith Fabrega, Co-presenter: Mequè Edo

2. Thursday, 31 August 2023, 15.10-16.30, symposium set C: Play and Mathematics (I)

Chair: Oliver Thiel

- a. Acknowledging the Multiple Aspects of Children's Engagement with Mathematics in Child-led Play: Perspectives from England and Greece – Elizabeth Carruthers, Non-presenting co-author: Maria Papandreou
- b. Stochastics in Children's Outdoor Play – First results - Oliver Thiel, Co-presenter: Zoi Nikiforidou, Non-presenting co-author: Lucía Casal de la Fuente
- c. Exploring educators' perspectives on the mathematics in young children's play: A cross-cultural study in Norway and England – Camilla Normann Justnes, Co-presenters: Catherine Gripton, Beate Nergård, Anne Nakken

3. Friday, 1 September 2023, 13.50-15.10, symposium set F: Early Childhood Mathematics - curiosity, creativity and play with technology

Chair: Anne Nakken

- a. ViduKids - movie making and mathematics in a playful and exploring mode – Signe Marie Hanssen
- b. ECEC children playing with a coding toy: the role of mathematics, creativity and curiosity – Elin Reikerås, Co-presenters: Francesca Granone, Sami Konca
- c. Ducks divide money – problem-solving in ECEC – Anne Nakken, Co-presenter: Oliver Thiel

In 2024, SIG members organised two self-organised symposia for the EECERA conference in Brighton, which was held in September 2024. The two symposia were:

1. Wednesday, 4 September 2024, 11.15-12.00, symposium set B: Innovative Research in Early Childhood Mathematics Education

Chair: Bob Perry

- a. On-line early years professional learning: Notice, explore and talk about mathematics in everyday lives – Bob Perry and Sue Dockett
- b. Teachers reflecting on mathematical events associated to pretend play activities with 5-year-old children: identification of mathematical events and productive verbal behaviors – Linda Amrar
- c. The Role of Teacher Researcher to Conceptually Change Mathematics' Pedagogies – Elizabeth Carruthers

2. Thursday, 5 September 2024, 9.00-10.15, symposium set D: New Dimensions in Early Mathematics Education: Play, Assessment, and Children's Voices

Chair: Anne Nakken

- a. Investigating five-year-old children's number sense in early childhood education using digital tasks – Gunnhild Saksvik-Raanes
- b. Intertextuality and the mathematical potentials of spontaneous pretend play – Maulfry Worthington
- c. Researching affect and experience in early childhood mathematics: Developing a survey instrument for 4- and 5-year-olds in England – Catherine Gripton

In 2023 and 2024, the SIG worked on a book project about play and mathematics. The editors are Oliver Thiel, Elizabeth Carruthers, and Chrystalla Papademetri. The book will be published in the EECERA Praxis Series. The series focuses on knowledge and reflection, which has relevance and topicality for those at the front line of decision-making and professional practice. It should be helpful for early childhood practitioners, stakeholders, teacher educators, and researchers. The aim is to write a book showing practitioners that mathematics emerges in children's play and can be done everywhere and at any time, not only with teacher-led activities.

The book starts with a general introduction to play in early childhood mathematics education. The following nine chapters contain different perspectives on play and focus on various mathematical content areas. Each chapter was written in cooperation by at least two authors with varying backgrounds from separate countries. The aim is to present the diverse understandings of play and how mathematics emerges in children's play. The last chapter summarises and analyses the different contributions in the book, searching for patterns that emerge.

3. Planned activities:

The upcoming book 'Play and Mathematics in Early Childhood Education : Perspectives and Practices across Countries and Cultures', edited by Oliver Thiel, Elizabeth Carruthers, and Chrystalla Papademetri, will be published by Routledge in Spring 2026 in the EECERA book series 'Towards an Ethical Praxis in Early Childhood: From Research into Practice'.

At the 33rd EECERA conference in Bratislava in August 2025, the SIG will have one self-organised symposium. The symposium will have the title 'Play and Mathematics in Norwegian Early Childhood Education'. The three presentations will be

- a) 'That's a bit unfair' How Norwegian five-year-olds use the stochastic concept 'fairness' in free play – Oliver Thiel
- b) Increasing professional Digital Competence in ECTE with focus on enriching and supporting children's play with coding toys – Elin Reikerås and Francesca Granone
- c) Kindergarten Teacher Educators' Experiences with Co-Creation and Playful Approaches in Language, Text and Mathematics – Elena Severina, Magni Lossius, and Maria-Rosa Doublet

4. Links and networks established with other institutions and organizations:

Children's Mathematics Network: <https://childrens-mathematics.net>

Norwegian Centre for Mathematics Education: <https://www.matematikkcenteret.no/english>

5. How do SIG's activities fit with the aims and ethos of EECERA:

In line with EECERA's main principles, the SIG Mathematics Birth to Eight Years provides an academic and rigorous forum at a European and international level to develop and disseminate high-quality research on early childhood mathematics education. It aims to coordinate and disseminate international research on the global discourse in this emerging field. It continues to create a space for shared thinking and synergies between participants from various professional and scientific contexts to encourage a clearer articulation and understanding of early childhood mathematics education.