



15th International Congress on
Mathematical Education

7-14 July 2024 • ICC Sydney, Australia
Come and be counted

Topic Study Group 2.5: Ethnomathematics and First Nations/Indigenous people's mathematics and mathematics education

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Team details

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Overview

"Ethnomathematics is the field of study which examines mathematics ideas in their cultural context..." (Barton, 1996). All mathematics is ethnomathematics with the main objective to bridge mathematical ideas, procedures, and practices developed by members of distinct cultures and to clarify understanding and mutual respect. Ethnomathematics offers a broader view of mathematics that embraces ideas, notions, procedures, processes, methods, and practices rooted in distinct cultural environments. It provides an opportunity to create a new role in relation to mathematics instruction





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that empowers people to understand power and oppression more critically by considering the effect of politics, culture and language on mathematical knowledge that is often distorted and hidden history of mathematical knowledge. Any study of mathematics and its connection to culture represents a powerful means for validating a student's real-life experiences and gives us the tools to become critical and reflective participants in society.

Ascher and D'Ambrosio (1994) argued that "ethnomathematics relates to life in all its aspects". Since the 1980s, educators have adopted ethnomathematics "as one of the ways of overcoming concerns about white, middle-class males, being positioned as those most likely to succeed in mathematics, with mathematics itself being situated as cultureless." (Meaney, Trinick & Allen).

"...[E]thnomathematics represents a methodology for ongoing research and analysis of the processes that transmit, diffuse, and institutionalize mathematical knowledge (ideas, processes, and practices) that originate from diverse cultural contexts through history (Rosa & Orey, 2016). They identified six dimensions of the ethnomathematics program: "cognitive, conceptual, educational, epistemological, historical, and political" which are used "to analyze sociocultural roots of mathematical knowledge".

TSG 2.5 provides an opportunity for research dialogue for Indigenous peoples and other marginalised groups (outside the norm of mathematics education) to critique current systems, learn from each other and promote knowledge about their culture and language. We can utilise this setting to understand through maths what has happened to us and to make sense of our worldviews. As Matthews (2019) reminds us "that all knowledge systems are bound by culture, including mathematics, and once its subjectivity is embraced there is a much richer, diverse knowledge system to engage with and understand".

Anticipated outcomes include bringing together colleagues with a shared interest in mathematics education, classroom practices, and cultural groups which has a role in helping society to clarify the nature of mathematical knowledge and of knowledge in general.

Areas of interest

In the context of national and international dialogues, this is an opportunity to provoke discussions about:

- Indigenous perspectives: Indigenous peoples and their mathematical procedures and practices are diverse with a plurality of traditional knowledge articulated by Community members.
- Social justice and respect, which is related to the sociocultural diversity of people in their search for peace.





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- Nonkilling mathematics and mathematics for peace. This approach guarantees the development of understanding of differences through dialogue and respect to avoid domination and oppression.
- Reflections regarding the nature of mathematical thinking in cognitive, historical, social, and cultural environments motivated by the intention to clarify understanding from knowing and doing as knowledge is built by mankind in distinct cultural contexts found worldwide.
- Sociocultural mathematization. Each cultural group has its own way of mathematizing mathematical practices embedded in distinct cultural systems, especially in the way that people quantify and use numbers, geometric forms and relationships, measure or classify objects in their own environment.
- Diverse cultural practices. Many dimensions of ethnomathematics as a program can be revealed in the category of research that prioritizes cultural practices, such as the political and educational dimensions, and the challenges of daily life, which are themes concerned with research in this field in the world.
- Diversity of cosmologies. A diversity of symbols, languages, and cultures circulate in the continuous movement of diversity of thought, religions, worldviews, paradigms that permeate a rich plurality of cultural practices, evidencing reflections on the others and /or on us as well in the ways we organize the world by developing our own cosmologies.
- Urban and rural diversities. It has been long known that urban and rural contexts offer rich opportunities for ethnomathematics research. Such diversity occurs in diverse contexts of schools and distinct cultural specificities that bring our knowledge developed in everyday life. This is important in the contexts of race, social class, sexual orientation, migration and immigration, special needs, etc. Thus, it is necessary to seek ways for the development of educational practices that articulate school/academic and specific/local knowledges.

How to make a submission to this Topic Study Group

Submissions for Topic Study Group Papers and proposals for Posters open 28 April 2023 via the official ICME-15 website, icme15.org. The website also contains a timeline of dates for the activity of the Topic Study Groups in the lead up to the Congress.

For questions about this TSG, please contact the Co-Chairs using the email addresses provided.

