Call for Proposals: Topic Study Group 6 - The Essence of Mathematics Education in the Use of Digital Technology

In this era of rapid technological advancements, mathematics education is undergoing significant changes as digital tools reshape teaching, learning, and assessment methods. The integration of artificial intelligence, data analytics, virtual learning environments, and interactive digital platforms presents new opportunities and challenges for both educators and learners. However, these developments also raise questions about the foundational goals of mathematics education.

This Topic Study Group (TSG) invites scholars, practitioners, and researchers to engage in critical dialogue on how digital transformation impacts the essence of mathematics education. We seek proposals that explore, but are not limited to, the following themes:

1. **Defining Mathematical Literacy in the Digital Age:**
    - How does digital transformation influence what it means to be mathematically literate?
    - How may mathematics curricula be adapted so as to develop relevant skills in an increasingly digital society?
2. **Shifts in Mathematics Teaching and Learning with Emerging Technologies (**e.g., AI, AI-powered digital textbooks, dynamic digital tools like apps, software, online platforms, virtual and augmented reality, 3D printing, machine learning algorithms, robotics, interactive whiteboard and smartboards, gamification platforms, etc.):
    - What instructional frameworks and learning theories are complementary for leveraging emergent technologies in mathematics education?
    - How do emergent technologies support, disrupt, or challenge inquiry-based, collaborative, and problem-solving approaches in mathematics?
3. **Equity and Access in Mathematics Education:**
    - What are the implications of digital transformations on equity in mathematics education?
    - How can digital tools be used to create inclusive learning experiences for diverse student populations?
4. **Digital Assessment and Mathematical Understanding:**
    - What forms of assessment best capture mathematical understanding in digital learning environments?
    - How can technology enhance formative and summative assessment practices?
5. **Teacher Preparation and Professional Development:**
    - How should teacher education programs prepare educators to teach mathematics effectively in digital spaces?
    - What professional development models support teachers in integrating digital technology thoughtfully into mathematics education?

Submission Guidelines

- **Proposal Length**: Proposals should be limited to a maximum of 4 pages.
- **Format**: Please ensure that all abstracts or papers follow the EARCOME 9 template available at https://www.earcome9.org/abstract/01.html?sMenu=01.

- **Time line:**
  - Submission Deadline for TSG full paper: February 1, 2025
  - Notification of Acceptance & Feedback to Authors: March 31, 2025
  - Revision Deadline: April 30, 2025
- **Submission Platform**: Please refer to the EARCOME website at https://www.earcome9.org/abstract/01.html?sMenu=01
- **Contact Information**: For inquiries, please reach out to TGS 6 Chair, Mi Yeon Lee (mlee115@asu.edu) or Co-chairs, Oi-Lam Ng (oilamn@cuhk.edu.hk) and Sheunghyun Yeo (shyeo@dnue.ac.kr).

Selected participants will have the opportunity to present their research or practice-based insights during the TSG sessions and engage in collaborative discussions to generate actionable ideas for advancing mathematics education in a digital world.