Research findings about the impact of digital technologies on learning of mathematics in schools are rather inconsistent. However, research into the educational effectiveness of technology suggests that, under the right circumstances, it can support and facilitate student learning. On the other hand, teachers do not yet extensively exploit the potential of educational technologies and do not feel appropriately prepared. Although technology is readily available in schools, some teachers do not know how to take advantage of it and still others are against it. Results of investigations suggest that these teachers’ resistance is related to their beliefs about mathematics teaching and learning and their existing pedagogies. Teacher may be either uncomfortable with technology, are unsure how to incorporate technology into their curricula, or have not seen examples of effective use. Therefore, the key challenge remains for mathematics teacher educators to design, implement, and evaluate new professional development teacher programs that support the evolution of knowledge, skills, and dispositions for teaching mathematics with technology.

In other words, what do mathematics teachers need to know about educational technology and how they can acquire this knowledge? These questions have guided the design of a teacher training course addressing the development of Technological Pedagogical Content Knowledge (TPCK), as conceptualized by Koehler and Mishra. Accordingly to this aim, the course, which was based on the LoTI framework of Moersch, should support practicing teachers in understanding how the use of particular technologies changes both teaching and learning. The paper reports on various examples, which provide math teachers with opportunities to develop their individual TPCK, needed to incorporate technology in the context of teaching and learning mathematics. Mainly focusing on pedagogical techniques for using technologies in constructive ways to teach mathematics content, the course additionally encouraged teachers to also reflect on the effects of the particular strategies for integrating technology. The study examined how teachers used computer-based technology to enhance their lesson plans, by selecting appropriate technology tools from the course materials and creating learning opportunities for their students.

The keywords:
Technological Pedagogical Content Knowledge, math teacher preparation and professional development programs, integration of digital tools, math classroom, challenge for teacher educators