



Enhancement of research excellence in Mathematics Teacher Knowledge

Reporting

Project Information

MaTeK

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[Project website](#)

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Project closed

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Twinning of research institutions

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EU contribution

€ 783 250,00

Coordinated by

UNIVERZITA KOMENSKEHO V
BRATISLAVE



Slovakia

Periodic Reporting for period 2 - MaTeK (Enhancement of research excellence in Mathematics Teacher Knowledge)

Reporting period: 2022-04-01 to 2023-12-31

Summary of the context and overall objectives of the project

The general goal of the MaTeK Twinning project was to strengthen the research profile and scientific excellence of the Department of Mathematics Education (DME) at the Faculty of Mathematics,

Physics and Informatics of Comenius University in Bratislava, Slovakia (UK BA), particularly in the field of mathematics teacher knowledge. Teacher knowledge serves as a fundamental prerequisite for the educational process, with the development of student knowledge as its primary objective. More specifically, MaTeK aimed to provide the DME with opportunities to collaborate with partners (Charles University in Prague, Czech Republic, University of Palermo, Italy, Norwegian University of Science and Technology in Trondheim, Norway, and Middle East Technical University, Turkey) and learn from best practices in conducting high-quality research. To achieve this objective, the MaTeK consortium identified an emerging and highly relevant mathematical topic, reasoning and proof (R&P), which has recently been incorporated into the national mathematics curricula of several European countries.

R&P is an essential strand of mathematical proficiency, yet research indicates that many pre-service teachers are often not adequately prepared to cultivate opportunities for students to engage with R&P. In various real-life situations, individuals must make decisions, analyze information, or explain their thoughts and decisions, whether it's while shopping, selecting the best deal, defending ideas, or discussing important topics with individuals holding different opinions. Good argumentation skills and the ability to reason effectively help individuals make informed decisions, communicate clearly, and persuade others of their viewpoints.

Therefore, the primary focus of the MaTeK consortium's research efforts was to enhance the lesson design capacity of pre-service mathematics teachers, with a specific emphasis on R&P.

Work performed from the beginning of the project to the end of the period covered by the report and main results achieved so far

During the three years of the project, several working groups were established, conducting joint research studies; three summer schools were organized, as well as several seminars and workshops at each institution, including several staff exchanges. The DME UK BA staff thus got the opportunity to learn from partners and establish research networks. This led to the achievement of the general goal, i.e. to strengthening of the DME's research profile and scientific excellence, as well as to national and international recognition, which can be evidenced by invitations to give lectures, organization of international scientific events, co-leading of topic study groups of international conferences, participation in educational policy committees and/or publications in high-quality journals.

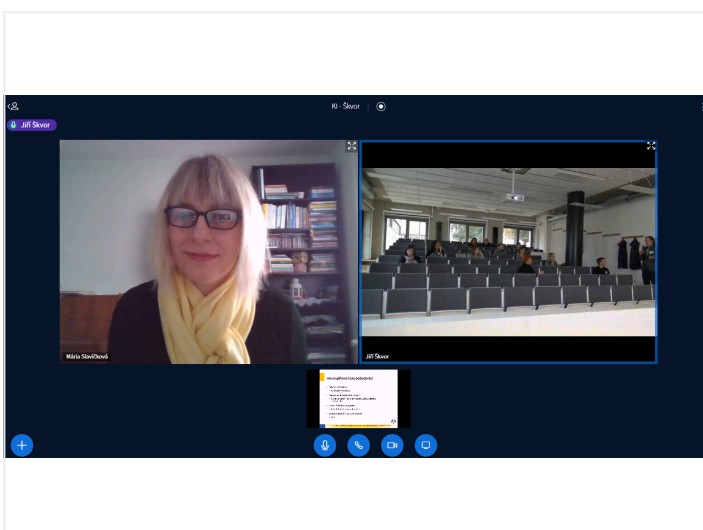
Last but not least, the MaTeK consortium prepared and realized an intervention in the courses for master's students who are training to become mathematics teachers, which led to an increased quality of university education. The successful intervention influenced the content of the courses offered to PMTs, as all partners, after the intervention, revised the content of these courses, equipping PMTs with better knowledge and skills related to teaching R&P. In other words, the PMTs' preparation was enhanced in all five countries, which will hopefully lead to better mathematics teaching and learning.

Progress beyond the state of the art and expected potential impact (including the socio-economic impact and the wider societal implications of the project so far)



Over the years 2021-2023, the MaTeK Twinning project has led to significant advancements in mathematics education at Comenius University, Bratislava. Through collaboration with four European institutions, advancements in research, teacher training enhancements, and international recognition have been achieved.

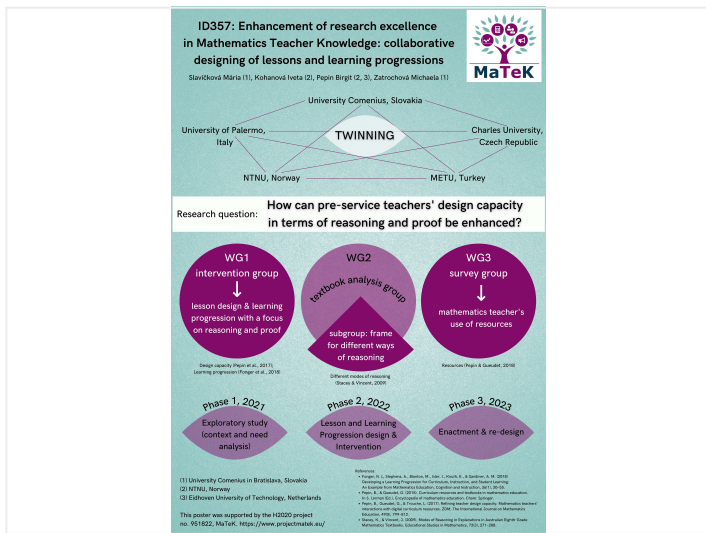
- **Advancements in Research Profile:** The establishment of dynamic working groups and engagement in joint research endeavors has expanded the horizons of mathematics education. Participation in summer schools, staff exchanges, conferences, seminars, and workshops has enriched understanding and propelled the field forward.
- **International Recognition and Collaboration:** Partnerships have led to invitations to prestigious events and leadership roles in international conferences. This recognition underscores the commitment to excellence and facilitates valuable exchanges of knowledge and expertise.
- **Enhancements in Teacher Training:** Targeted interventions have elevated the quality of education for future mathematics teachers. Refining course content and focusing on essential areas like reasoning and proof are equipping future teachers with the tools they need to succeed in the classroom.
- **Socio-Economic and Societal Implications:** Efforts extend beyond academia, with implications for STEM education, workforce development, and societal progress. By fostering critical thinking skills and effective reasoning, individuals are empowered to thrive in a complex and ever-changing world.



Congress in Usti nad Labem - communication of the first results (paper is accepted)



Conference in Prague - dissemination of preliminary results



Information poster about the MaTeK project and planned common research

Last update: 8 July 2024

Permalink: <https://cordis.europa.eu/project/id/951822/reporting>

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