



Improving numeracy education: overcoming challenges

Online workshop | 25 February 2025

Erasmus+

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PROGRAMME

All times listed in the agenda are in Central European Time (CET)

DAY 1

25 February

14:00-14:15

Opening

14:15-14:45

Keynote

Numeracy or mathematics for vocational education. Which is the issue?

Kees Hoogland

14:45- 16:00

Workshop sessions

WS1 - Exploring thematic materials to improve numeracy

WS2 - Mathematics: alive and visible to students

WS3 - How do we teach maths in Europe?

WS4 - Inclusive numeracy in action: Empowering students through sustainable and digital wellbeing projects

16:00- 16:10

Break

16:10-16:50

Interactive session – create collective project plan

16:50-17:25

Presentations of project plans

17:25-17:30

Closing

KEYNOTES

KN 1 Numeracy or mathematics for vocational education. Which is the issue?

Kees Hoogland | Tuesday 25 February, 14:15–14:45 CET

A new numeracy curriculum for vocational education has recently been implemented in the Netherlands. This curriculum has attempted to address some recurring issues with preparing students for their roles as numerate professionals and citizens.

This keynote will discuss the following themes:

- looking forward rather than backward;
- equipping students with skills in the use of computational tools;
- consistently connecting mathematics to the real world;
- utilising a variety of teaching materials and assessments that go beyond simple right/wrong answers.

Kees Hoogland is a professor of Mathematical and Analytical Competence of Professionals at the University of Applied Sciences Utrecht in the Netherlands. Kees has worked as mathematics teacher, teacher educator, researcher, textbook author and international consultant. He is a member of the OECD Numeracy Expert Group for the second cycle of PIAAC and former project leader of the European Union Erasmus+ projects Common European Numeracy Framework and Numeracy in Practice.



WORKSHOPS


WS 1 Exploring thematic materials to improve numeracy

Anita Alexander and Lonneke Boels | Tuesday 25 February, 14:45–16:00 CET


The latest PIAAC (2024) results reveal a strong link between low numeracy skills and poorer health outcomes, financial difficulties and lower income levels, even when other factors are taken into account. Despite this, the availability of high-quality numeracy teaching resources for youth and adult education remains limited, creating challenges for both learners and educators.

In response to this critical gap, the Numeracy in Practice project has developed and rigorously tested 80 innovative lesson plans, created 10 professional development modules and published 4 comprehensive white papers exploring key insights in numeracy education.

Join the workshop to explore these cutting-edge resources, gain actionable strategies to enhance your teaching and empower learners to overcome barriers through improved numeracy skills.



Dr. Anita N. Alexander began working as a senior researcher in numeracy and Associate Professor within the Mathematical and Analytical Competencies of Professionals research group at HU University of Applied Sciences Utrecht in June 2024. She is interested in improving the mathematical literacy and mindset of K–12 educators and university instructors, and recently completed a two-year case study with undergraduate and graduate mathematics students to inspire the next generation of mathematics professors, to move away from the culture of passive lecture toward a classroom environment that promotes inquiry, discourse and collaboration. She has extensive experience implementing Continuing Professional Development (CPD) in mathematics education, and is currently developing workshops and professional development sessions on improving numeracy in adult and vocational education, along with translanguaging professional development in public and international schools.




Dr. ir. Lonneke Boels has been a senior researcher in the Mathematical and Analytical Competence of Professionals research group at HU University of Applied Sciences since 2022, where she holds the position of acting professor since May 2023. She researches how mathematical and analytical competencies, including numeracy and basic competence, can be acquired by citizens, students and professionals. She specialises in adult, vocational and foundational education and is the leader of a European project in 11 countries, where lesson materials and professional development materials were tested with and by teachers of adult learners. In addition, research was conducted and summarised in four white papers. Lonneke taught mathematics in Grades 7–12 for almost twenty years and had her own company in remedial teaching and tutoring arithmetic and mathematics for thirteen years. Prior to that, she worked in the commercial sector. She studied electrical engineering at TU Delft, where she also received a teaching degree.

WS 2 Mathematics: alive and visible to students


Ariana-Stanca Vacaretu and Hubert Proal | Tuesday 25 February, 14:45–16:00 CET

Discover how open-ended, collaborative learning can transform mathematics education through the inspiring Maths Research Workshop project. This unique initiative brought together volunteer students from Lycée VDD in Pertuis, France and Colegiul National Emil Racovita in Cluj-Napoca, Romania to explore mathematics as a powerful problem-solving tool.

Join this workshop to explore how foundational teaching concepts from the MeJ Makers Erasmus+ project were seamlessly integrated into the curriculum to enhance student engagement and motivation. Gain insights into fostering collaborative learning, peer-to-peer support and interdisciplinary connections to inspire your own teaching practice.



Ariana-Stanca Vacaretu is a mathematics teacher who teaches high school students at Colegiul National Emil Racovita in Cluj-Napoca, Romania. She has been a Scientix ambassador since 2016 and promotes inquiry-based learning, scientific literacy and transversal skills through STEM subjects.




Hubert PROAL is a mathematics teacher at Val de Durance high school in Pertuis, France. He is a member of the MATH.en.JEANS association, which coordinates more than 200 research workshops between students and university researchers. He is also a member of the Institut de Recherche sur l'Enseignement des Sciences de Marseille and works with the PION group on WIMS exercise computers.

WS 3 How do we teach maths in Europe?

Michael Fuchs | Tuesday 25 February, 14:45–16:00 CET

It is becoming increasingly difficult for pupils to enter a STEM course at a technical university, as knowledge gaps between leaving school and entering university are widening across Europe. As part of an existing project with the Unite! network of European universities, we are asking the question 'How do we teach math in Europe?' For a first overview, we will present results of our and other studies. In the workshop, we will focus on the skills that are required of students, schools and universities to enable a smooth entry into higher education. 'Business as usual' is no longer possible on all sides. We need to talk about it. New ideas are needed!




Michael Fuchs is a former university lecturer, teaching expert and teaching award winner at Graz University of Technology in Austria. He is co-founder of the educational game start-up edventure Studios and has been a part-time teacher at a technical school for two years. In an attempt to build new bridges between schools and universities, edventure Studios tries to mediate and find best practice examples for successful transitions between different educational paths.

WS 4 Inclusive numeracy in action: Empowering students through sustainable and digital wellbeing projects

Anita Šimac | Tuesday 25 January, 14:45–16:00 CET

This workshop will focus on using mathematics as a tool to promote sustainability and digital wellbeing. Participants will explore examples from two innovative projects: Mathematical Pathways of Sustainable Goals, which connects SDG 12 (Responsible Consumption and Production) with mathematics, and Wellbeing with STREAM, which integrates mindfulness with STEM education to create a powerful synergy.

Through hands-on activities like data analysis, graph creation and collaborative problem-solving, teachers will discover practical methods for fostering inclusivity and enhancing numeracy skills while addressing global challenges such as sustainability and responsible digital citizenship. This workshop will provide strategies for overcoming educational challenges, engaging students in meaningful, real-world learning and utilizing IT tools to build media literacy.



Anita Šimac is a mathematics teacher mentor at Petra Preradovića Elementary and Lower Secondary school in Croatia. As the head of the county expert council of mathematics teachers in the city of Zadar, she has dedicated her career to fostering a love of lifelong learning among her peers. A Scientix ambassador for Croatia since 2016 and a key member of the Microsoft Innovative Education Expert community, she leverages technology to inspire her students. Her contributions to the eTwinning community have earned her numerous awards, and her active involvement in STEM-focused national and international projects highlights her commitment to shaping the future of education. Her dedication to eTwinning, which started in 2016, has earned her the role of eTwinning ambassador.

As a mathematics teacher, her goal is to bridge mathematics with lifelong learning through project-based teaching, igniting her students' passion for science, creativity and research.