

EU project: mascil mathematics and science for life

Prof. Dr. Katja Maass

University of Education Freiburg, Germany



WHY THIS CONFERENCE?

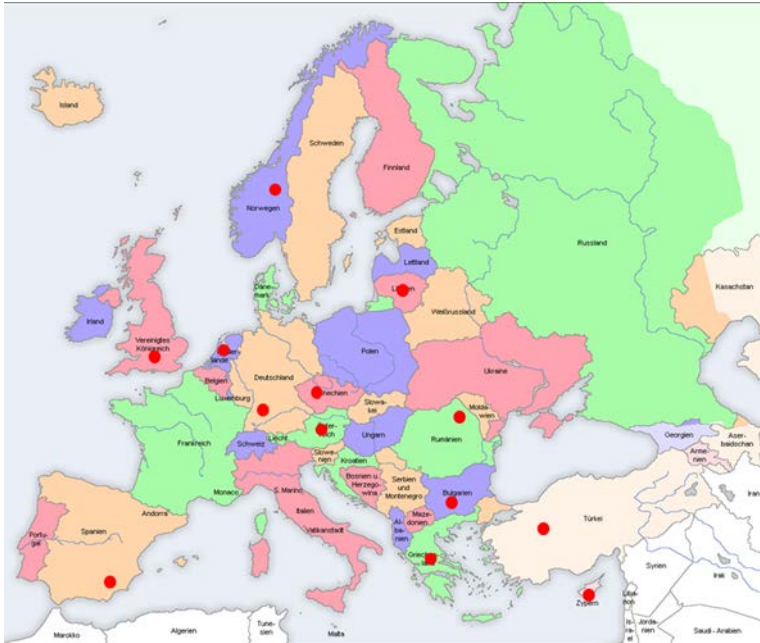
1. Conference to support scaling up teacher professional development in maths and science education
2. Topic of high relevance throughout Europe
 - Teachers' professional development: key to change education
 - There is but little known on how to scale up professional development
3. First European conference on this specific topic bringing together researchers and practitioners
4. We are making crucial contribution to developments in Europe

SCALING UP TEACHER PROFESSIONAL DEVELOPMENT ACROSS EUROPE

mascil and DZLM – Joined forces:

- DZLM:
 - national centre for mathematics teachers professional development
- Mascil
 - relies on a large international network > 500 of stakeholders
 - expertise in fostering innovative developments in **maths and science** education
 - Coordinated at the University of Education Freiburg (IMBF)
 - A competence centre and hub to foster innovative education
 - for more than a decade highly successful international projects have been hosted here, which I have coordinated. For example Primas, which is promoted by the European Commission as high impact success story.

MASCIL



- Dissemination and research project
- Aim: Implementation of inquiry-based learning and connection to the World of work
- FP 7 project funded by the EU
- 18 institutions from 13 countries
- January 2013 – December 2016
- www.mascil-project.eu

MULTIPLE IMPLEMENTATION CONCEPT

Design of classroom materials
(in relation to IBL and World of work)

Design of concepts and materials for
teacher education and professional
development

Scaling – up
(Multipliers, e-learning)

Supporting dissemination
activities
on different systemic levels

International implementation concept based in theory

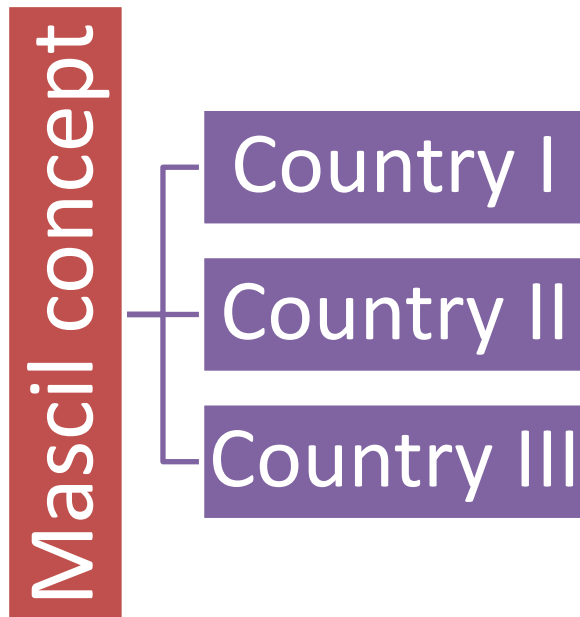
Implementation in every country

MULTIPLE IMPLEMENTATION CONCEPT

- Complex challenging concept
- Therefore we cooperate with many different stakeholders
- Policy makers (longterm networks)
- School authorities (longterm networks)
- Teacher educators
- Parents
- Schools and teachers (material development, professional development)



HOW CAN THE EVALUATION LOOK LIKE?



Challenges

- Complex multiple implementation concept
- Different languages
- Different evaluation cultures across countries (Hantrais, 1995)
- Evaluation of effects on the teaching is a complex endeavour (Lipowsky & Rzejak, 2012)

→ Triangulation of different approaches, Focus on professional development and scaling up

RESEARCH DESIGN

1. International comparative analysis of the national contexts
2. Quantitative pre-post study: questionnaire for all participating teachers (beliefs, competences, teaching)
3. Qualitative case studies in all countries
 - Multiple-case design (Yin, 2014)
 - Embedded units of analysis
 - Case: 1 PD (3 teachers, 1 multipliers)

WHAT WILL WE LEARN FROM MASCIL?

- How does a teacher evolve due to the professional development course (beliefs, competences, teaching)?
- What are hindering and supporting factors?
- How do the multipliers implement the mascil professional development concept?
- What are hindering and supporting factors for the multipliers?
- What are the effects of E-learning / blended learning?
- How do the materials support the development of the teacher?
- In how far do professional learning communities support the professional development of teachers?