

Mathematics education in Germany - Empowering students and teachers

Bärbel Barzel, October 21, 2021



DZ

Agenda

1. Education in Germany - general remarks
2. Classroom level – empowering students
 - Principles of teaching mathematics
 - Digital media in german classrooms
3. Teacher PD Level - empowering teachers
 - Principles of Teacher PD
 - Digital media as a topic in PD programs

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Federal structure of Germany

Germany has 82 mill inhabitants
And has 16 Federal States with 21
regions

e.g.

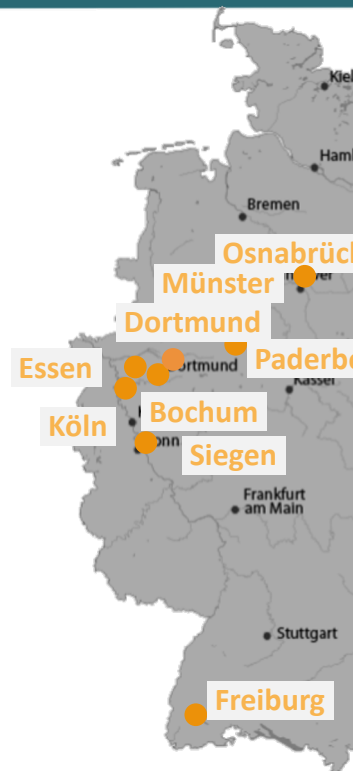
NRW: North-Rhine Westfalia
With 17 million inhabitants,
Devided in 5 regions

Educational system in Germany

- Germany has about 11 million students and 130 000 math teachers
- Education is the responsibility of the 16 Federal States
- School administration is the responsibility of the 21 regions
- Pre-Service-Training of teachers is two-phased:
 1. Study at university (Bachelor/ Master, in total 5 years)
 2. Practice phase at institutes of School administration (1,5 years)
- In-Service-Training / professional development:
 - Currently: run by School administration in regions, most of them without coherent programs
- Textbooks - free market, decision by schoolteams, great diversity!
- DZLM (German Centre for Mathematics Teacher Education) is getting more important, promoted by KMK (Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany)
 - huge task for consolidating a research-based PD (involving universities!)

History

- Founded in 2011, influenced by the National Centre for Excellence in the Teaching of Mathematics (founded 2006, www.ncetm.org.uk)
- consortium of 12 universities forming a nationwide institution
- Since 2021: permanent integration into the Leibniz Institute for Science and Mathematics Education (IPN) in Kiel



Main goal of the DZLM:

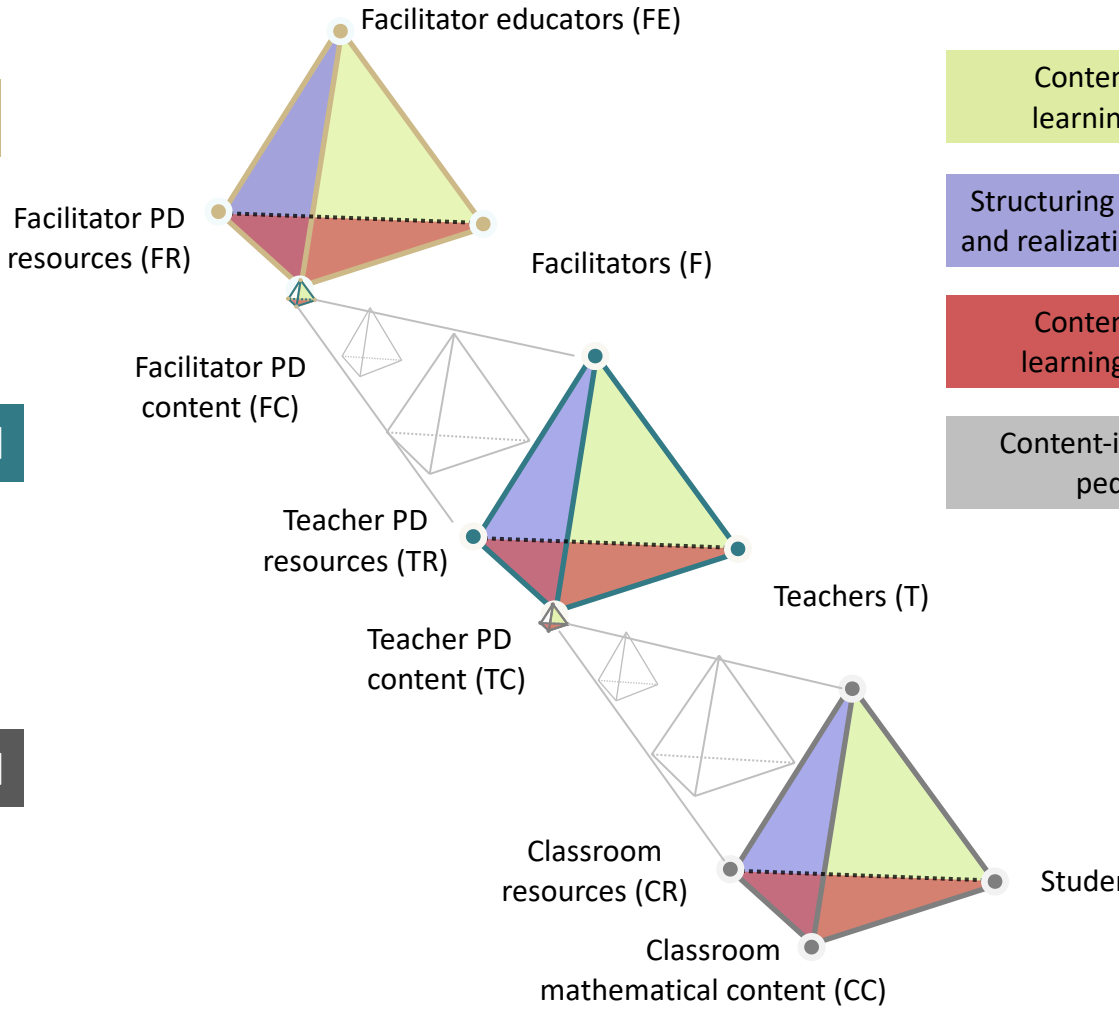
Effective **PD** and effective **Teaching**

Three-Tetrahedron-Model

Facilitator PD level

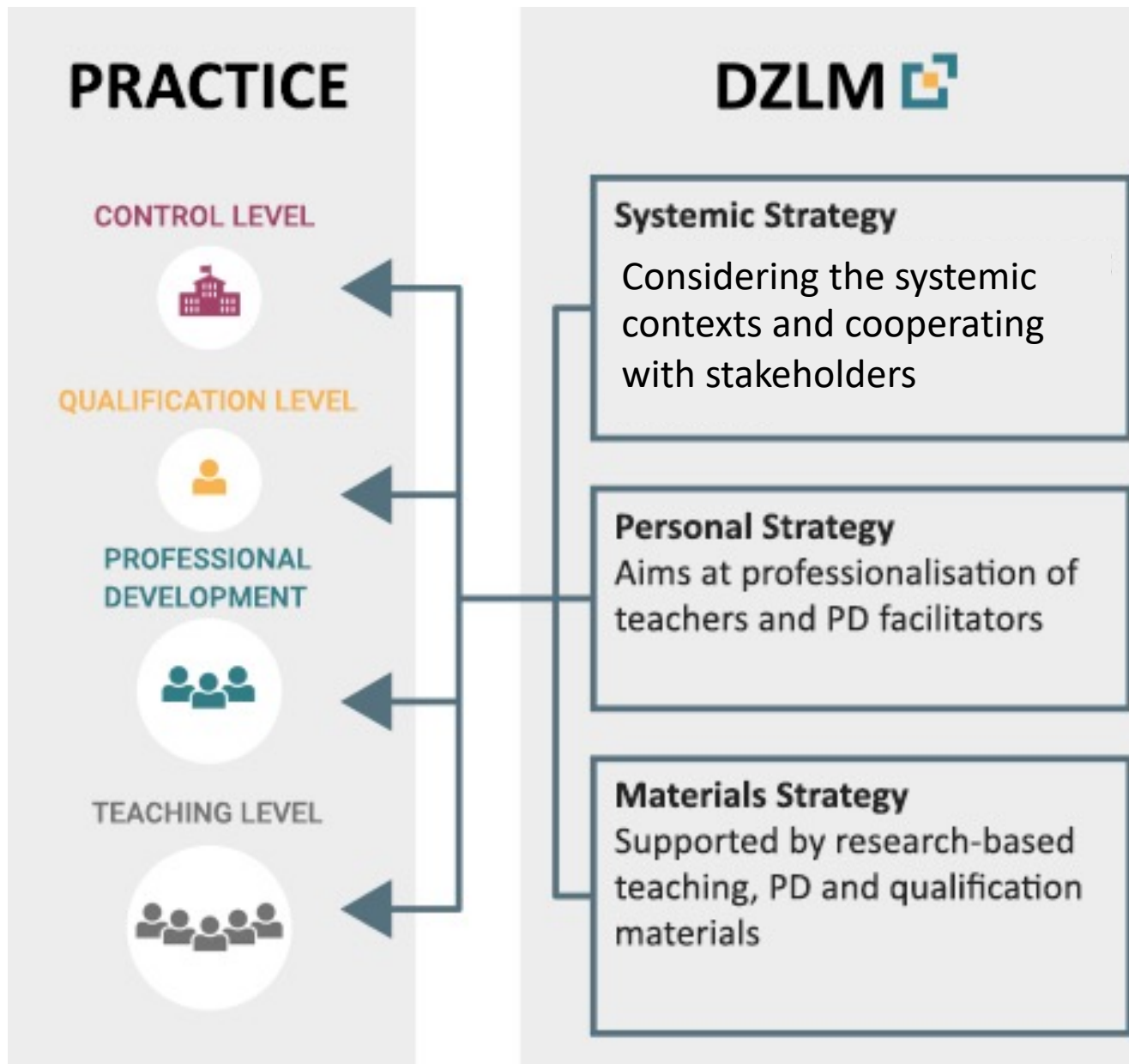
Teacher PD level

Classroom level



(Prediger, Roesken-Winte)

Three strategies at each level



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