

# Contents

<b>1 Conference: Educating the educators</b>	
<i>K. Maass, D. Wernisch, K. Reitz-Koncebovski, E. Schäfer</i> .....	5
1.1 Aims and objectives .....	5
1.2 Conference tracks: Four different means of scaling-up .....	6
1.2.1 Track 1: Scaling-up with multipliers in face-to-face professional development courses .....	6
1.2.2 Track 2: Blended learning concepts and e-learning support .....	7
1.2.3 Track 3: Disseminating and scaling-up through materials .....	8
1.2.4 Track 4: Professional learning communities .....	9
<b>2 Conference outcomes and conclusions</b>	
<i>K. Maass, D. Wernisch, E. Schäfer</i> .....	11
2.1 Teacher professional development: Europe-wide perspective on current needs and trends .....	11
2.2 Bringing together a unique circle of participants: researchers, practitioners and policy makers .....	11
2.3 Innovation: Establishment of a future-oriented, European network of teacher training centres .....	12
2.4 mascil and DZLM - combining research and practice .....	13
2.5 Trends and needs in Europe to scale-up teacher professional development .....	15
<b>3 Conference Hosts</b> .....	18
3.1 mascil: maths and science for life! <i>K. Maass, D. Wernisch, E. Schäfer, A.-M. Aldorf</i> .....	18
3.2 DZLM: German Centre for Mathematics Teacher Education <i>DZLM Team</i> .....	23
<b>4 Keynotes: Abstracts and Speaker Information</b> .....	25
Scaling-up professional development: chances and challenges <i>K. Krainer</i> .....	25
The role of informal science institutions in teacher education <i>J. Dillon</i> .....	26
Teacher professional development in Europe: perceptions, policies, and practices <i>P. Birch</i> .....	27

<b>5 Presenter Programme</b> .....	28
5.1 <b>Track 1 plenary: Scaling-up with multipliers in face-to face professional development courses</b> .....	28
Long-term Teacher Professional Development: Lessons learnt from PRIMAS - <i>J. Farrugia</i> .....	28
5.2 <b>Track 2 plenary: Blended learning concepts and e-learning support</b> .....	30
Blended learning and e-learning support within the context of Cornerstone Maths – The changing culture of teachers' professional development - <i>A. Clark-Wilson</i> .....	30
5.3 <b>Track 3 plenary: Disseminating and scaling-up through materials</b> ....	32
Prepared to use it? – Disseminating and Scaling-up Professional Development Through Materials - <i>M. Welzel-Breuer</i> .....	32
5.4 <b>Track 4 plenary: Professional learning communities</b> .....	34
Learning on three levels – students', teachers' and educators' learning from the Learning study - <i>U. Runesson</i> .....	34
<b>6 Papers</b> .....	35
6.1 <b>Track 1: Scaling-up with multipliers in face-to-face professional development courses</b> .....	35
Professional Development of experienced Teachers <i>H. J. Brenner</i> .....	35
Building capacity: developing a course for mathematics and science teacher educators <i>A. Childs, J. Hillier, S. Thornton, A. Watson</i> .....	47
PRIMAS Multiplier Concept Implementation in Slovakian Context <i>S. Čeretková, I. Jakab, Z. Naštická</i> .....	56
Professionalizing teachers in a Teacher Design Team <i>F. Coenders</i> .....	66
Long-term Teacher Professional Development: Lessons learnt from PRIMAS - <i>J. Farrugia</i> .....	72
KeyCoMath - Multipliers Concept for the Urban Network of Primary Schools - <i>C. Götz, P. Ihn-Huber, V. Ulm</i> .....	88
Sustainable Training in Mathematics <i>H. Juen, C. Juen-Kretschmer</i> .....	92
Scaling up professional development: Changes and challenges – <i>K. Krainer</i> .....	96
KOMMS: Teacher training courses fostering modelling in schools - <i>J. Kreckler</i> .....	111

	Inquiry based biology education in the Czech Republic: A reflection of five years dissemination <i>J. Petr, T. Ditrich, R. Radka; M. Papáček</i> .....	118
	How to determine what teachers should learn and multipliers need to know? Five steps for content specification of professional development programs and the research-based background for multipliers - <i>S. Prediger</i> .....	125
6.2	<b>Track 2: Blended learning concepts and e-learning support</b> .....	127
	A study and research path on mathematical modelling for in-service teacher education: the challenge of an online course on SRP-TE - <i>B. Barquero, M. Bosch, A. Romo</i> .....	127
	Promoting teacher trainees' inquiry skills by self-regulation and tablets <i>T. Bruckermann, E. Aschermann, A. Bresges, K. Schlüter</i> .....	135
	Online training courses: Design models, addressees, effects, and outstanding issues - <i>R. Bruder, A. Böhnke</i> .....	147
	Blended learning and e-learning support within the Cornerstone Maths Project - <i>A. Clark-Wilson, C. Hoyles</i> .....	158
	A Virtual Mathematics Laboratory in support of educating educators in inquiry-based style <i>P. Kenderov, T. Chehlarova, E. Sendova</i> .....	167
	Supporting the teacher role during amusement park visits: Materials, workshops and interaction <i>A.-M. Pendrill, C. Kozma, A. Theve</i> .....	177
	Using Blended Learning in a Math Pedagogy Course for Experienced Teachers - <i>T. van den Bogaart</i> .....	181
6.3	<b>Track 3: Disseminating and scaling-up through materials</b> .....	193
	Learning through inquiry in the world of work at Primary School - <i>M. R. Ariza, A. Quesada, A. M. Abril, M. Evagorou</i> .....	193
	An IBL application from the inside <i>C. Choutou, C. Kotteakos, V. Vonta, M. A. Zisimopoulou</i> .....	199
	Science and Maths by inquiring about the image size in a camera obscura - <i>A. M. Criado, A. García-Carmona</i> .....	210
	The potential of a task for professional development across national contexts <i>M. Doorman, J. Garcia, D. Potari, G. Zsombori, S. András</i> .....	216
	Professional development of teachers by developing, testing and teaching curriculum materials of an interdisciplinary STEM-course (NLT) for senior high school - <i>B. Michels, H. Eijkelhof</i> .....	228

	Raising the professional competence of mathematics teachers in Sweden: The challenges of practice viewed from a material developer's perspective - <i>O. Popov</i> .....	234
	Integrating inquiry-based tasks and the world of work in mathematics and science teacher education - <i>D. Potari, G. Psycharis, V. Spiliotopoulou, C. Triantafillou, T. Zachariades</i> .....	240
<b>6.4</b>	<b>Track 4: Professional learning communities</b> .....	<b>255</b>
	Using video recordings of ones own lessons – supporting teachers by coaching lesson development - <i>G. Bieber, E. Binner</i> .....	255
	Teacher PD in the Czech Republic and implications of masculinities - <i>M. Bílek, I. Šimonová, M. Maněnová</i> .....	259
	Professional qualification of teacher tandems conceptually combined with lesson development - <i>M. Grassmann, E. Binner</i> .....	267
	Competencies in Mathematics and Science Education (CMSE): A programme promoting in-service teachers' professional development <i>C. Haagen, V. Rechberger, W. Knechtl, G. Rath, L. Mathelitsch</i> .....	273
	Professional Learning Communities: What are the important questions for an educator to ensure a sustainable community? <i>C. Pearn</i> .....	279
	Professional Learning Communities - the case of Learning study <i>U. Runesson</i> .....	291
	A study of collaboration between mathematics teachers and mathematics education researchers: insights into developing professional learning <i>K. Siopi, A. Chatzigoula, A. Manaridis, D. Potari, C. Sakonidis</i> .....	301
	Learning Communities in a STEM Education Network: scaling-up a talent development programme <i>T. van der Valk, S. Sanne Tromp, C. Kleijer</i> .....	304
	Lesson Study as a tool for professional development: the context of counting problems - <i>N. Verhoef, F. Coenders</i> .....	316
	Content focused peer coaching and the development of lesson plans about scientific inquiry - <i>H. Weitzel, R. Blank</i> .....	325