

CIEAEM 67

Aosta, Italie

20-24 Juillet 2015

ENSEIGNER ET APPRENDRE LES MATHÉMATIQUES:

RESSOURCES ET OBSTACLES



Aosta, Italy

20-24 July 2015

TEACHING AND LEARNING MATHEMATICS:

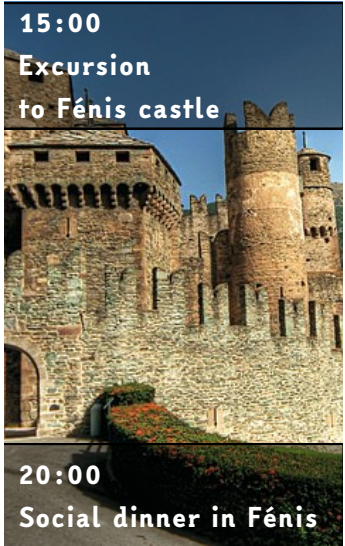
RESOURCES AND OBSTACLES



CIEAEM 67

Aosta, Italy: July 20-24, 2015

PROGRAM

Monday 20	Tuesday 21	Wednesday 22
8:30 - 11:00 Registration	9:00 - 11:00 Plenary 2 Ornella Robutti Plenary 3 Lambrecht Spijkerboer	9:00 - 10:00 Plenary 4 Teresa Grange
11:00 - 12:00 Open- ing Ceremony	11:00 - 11:30 Coffee break	10:00 - 10:30 Coffee break
12:00 - 13:00 Plenary 1 Gilles Aldon	11:30 - 13:00 WG Session 2	10:30 - 13:00 WG Session 3
13:00 - 14:30 Welcome reception	13:00 - 14:30 Lunch	13:00 - 14:30 Lunch
14:30 - 15:00 Book Launch – Educa- tional Paths to Mathe- matics: A CIEAEM Sourcebook:Uwe Gellert	14:30 - 16:00 Workshops	 15:00 Excursion to Fénis castle
15:00 - 15:45 CIEAEM in the frame- work of ICMI: Ferdinando Arzarello	16:00 - 16:30 Coffee break	
16:00 - 17:30 WG Session 1	16:30 - 17:30 Meeting Plenary Speakers	
		20:00 Social dinner in Fénis



CIEAEM 67

Aosta, Italie 20-24 juillet 2015

PROGRAMME

Thursday 23

9:00 - 10:30

Round Table: "Assessment in mathematics education: resource or obstacle" (chair: Uwe Gellert)

10:30 - 11:00

Coffee break

11:00 - 13:00

WG Session 4

13:00 - 14:30

Lunch

14:30 - 15:30

Meeting with Plenary Speakers

15:30 - 16:00

Introduction to "MUSLI" (Museum of school and books for children):
Pompeo Vagliani

16:00 - 18:30

FORUM of Ideas

Friday 24

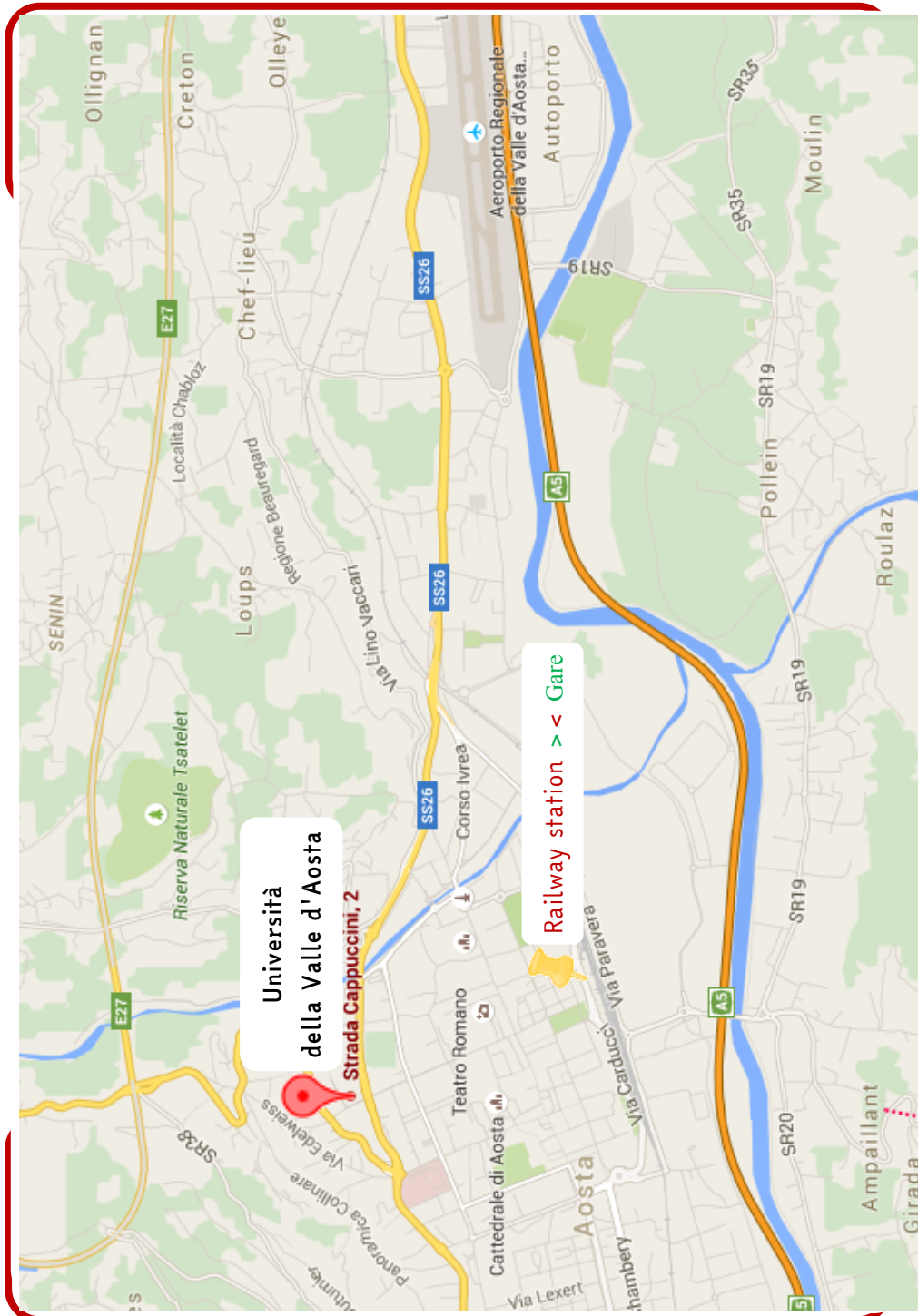
9:00 - 10:30

Report of WG

10:30 - 12:00

"Reflections on the Conference and future perspectives" (chair: Elisabetta Robotti)

12:00 Closing Ceremony and
Farewell Cocktail



20-24 juillet - July 2015



Bon séjour à Aoste

Good stay in Aosta

Commission Internationale pour l' Étude et
L' Amélioration de L' Enseignement des Mathématiques

<http://www.cieaem.org>

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International programme

Committee:

Luciana Bazzini (I) (chair) ;

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Elisabetta Robotti (I);

Cristina Sabena (I);

Charoula Stathopoulou (GR).

Local organization

Committee:

Elisabetta Robotti (chair),

Luciana Bazzini ,

Cristina Sabena,

Claudia Testa,

Pietro Madaro.

E-mail CIEAEM 67: cieaem67@gmail.com

Web CIEAEM 67: <http://cieaem67.perladidattica.it>

Program day by day



Programme Jour par jour

Monday, July 20, 2015

Università della Valle d'Aosta, Strada Cappuccini, 2A

8:30-11:00 (Hall)

Registration > < Inscription

11:00-12:00 (Aula Magna $\wedge$ B6)

Opening ceremony > < Cérémonie d'ouverture

12:00-13:00 (Aula Magna $\wedge$ B6)

Gilles Aldon (France)

Education based on didactic research situations



Un enseignement fondé sur des situations didactiques de recherche

13:00 (Aula C1)

Welcome reception > < Réception de bienvenue

14:30-15:00 (Aula Magna $\wedge$ B6)

Uwe Gellert (Germany)

Book Launch – Educational Paths to Mathematics: A CIEAEM Sourcebook.

> <

Lancement du livre : Chemins de l'éducation en mathématiques : un livre issu de la CIEAEM.

15:00-15:45 (Aula Magna $\wedge$ B6)

Ferdinando Arzarello (Italy)

CIEAEM in the framework of ICMI

> <

CIEAEM dans le cadre de l' ICMI

16:00-17:30 Working Groups > < Groupes de travail**Session 1****WG 1 (Aula: B1)**

Mathematical content and curriculum development > < Contenu mathématique et développement du curriculum

Animators: Marcelo Bairral, Ana Serrado Bayés, Sixto Romero

N. Gorgorió, L. Albarracín, M. Prat. *Basic Mathematical Knowledge of Students Enrolling for Primary Education University Degrees.*

Meneses, Viseu, Martins, Gomes. *What teachers think about mathematical proof?*

E. Mengual, N. Gorgorió, L. Albarracín. *The Mathematical Textbook as an obstacle in the learning of measure.*

WG 2 (Aula: B5)

Teacher education > < La formation des enseignants

Animators: Ruhal Floris, Joaquim Giménez, Daniela Ferrarello

L. Samková Ticha. *Investigating future primary teachers' grasping of situations*

related to unequal partition word problems.

M. A. Zanetti, S. Graziani, A. Parma, F. Bertolino, A. Perazzone. *L'orientation des enseignants de mathématiques et sciences sur les modèles constructivistes et transmissivistes d'enseignement. Les résultats de la recherche Prisma sur les enseignants valdôtains des niveaux primaire et secondaire.*

J. Bruna. *Do teacher's beliefs regarding the pupil's mistake influence willingness of pupils to solve difficult word problems?*

WG3a (Aula: B6)

Classroom practices and other learning spaces—From kindergarten-to middle school > **Pratiques en classe et autres espaces d'apprentissage- De la maternelle à l'école intermédiaire**

Animators: Marina De Simone, Jérôme Proulx

C. C, M. S, F. Hitt. *Task design in a paper and pencil and technological environment to promote inclusive learning: An example with polygonal numbers.*

C. Côté, D. Gauthier. *Adaptation de l'enseignement des mathématiques en contexte de collaboration et de coenseignement.*

S. Lekaas, G.-A. Askevold. *Dialogues as an instrument in mathematical reasoning.*

WG3b (Aula: C4)

Classroom practices and other learning spaces—Secondary school and beyond > **Pratiques en classe et autres espaces d'apprentissage- L'école secondaire et au-delà**

Animators: Monica Panero, Peter Appelbaum

S. Olsher, R. Hershkowitz. *Visual Strategy and Algebraic Expression. Two Sides of the Same Problem?*

F. Ferrara, G. Ferrari. *Being Collaborative, Being Rivals. Playing WiiGraph in the Mathematics Classroom.*

WG 4 (Aula: C5) Cultural, political, and social issues > **Les questions culturelles, politiques et sociales**

Animators: Charoula Stathopoulou, Pedro Palhares

S. E. L. Bello, K. R. Jelinek. *Lorsque les hautes compétences en mathématiques ne sont que des formes de vie.*

D. Guillemette. *Rôle de l'histoire des mathématiques dans l'enseignement-apprentissage des mathématiques: le point de vue sociocultural.*

Tuesday, July 21, 2015

Università della Valle d'Aosta, Strada Cappuccini, 2A

9:00-10:00 (Aula Magna $\wedge$ B6)

Ornella Robutti (Italy)

Mathematics teacher education in the institutions: new frontiers and challenges from research.

> <

Didactique des Mathématiques pour les enseignants dans les institutions: nouvelles frontières et défis de la recherche.**10:00-11:00 (Aula Magna $\wedge$ B6)**

Lambrecht Spijkerboer (Netherlands)

Math that matters > < Mathématiques quelles problèmes**11:00-11:30 Coffee break > < Pause café****11:30-13:00 Working Groups > < Groupes de travail****Session 2****WG 1 (Aula B1)**

M. Zimoch. *In how far does programming foster the mathematical understanding of variables? A case study with scratch.*

E. Mamede, L. Carvalho. *Exploring children's ideas of discrete variables using graphs, tables and isolated cases.*

A. Lemmo, L. Branchetti, F. Ferretti, A. Maffia, F. Martignone. *Students' difficulties dealing with number line: a qualitative analysis of a question from national standardized assessment.*

E. Robutti. *Constructing meanings of fraction with MLD' students.*

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S. Alessandro, P. Bonissoni, S. Carpentiere, M. Cazzola, P. Longoni, G. Riva, E. Rottoli. *Familiariser avec les nombres fractionnaires: ressources et obstacles.*

WG 2 (Aula B5)

E. Mamede, H. Pinto. *(Pre)-service elementary school teacher's knowledge of rational numbers – the case of fractions.*

A. Gomes, F. Viseu, P. Mendes Martins, L. Menezes. *Is this a proof? Future teachers' conceptions of proof.*

Ruy Cesar Pietropaolo, A. da Fontoura Garcia Silva, T. M. M. Campos, M. E. Esteves Lopes Galvão. *Study about the knowledge required from teachers to teach probability notions in early school years.*

T. Mulat, A. Berman. *A Pedagogical Coaching Design Focused on The Pedagogy of Questioning in Teaching Mathematics.*

WG 3a (Aula B6)

A. Maffia, C. Sabena. *Networking of theories as resource for classroom activities analysis: the emergence of multimodal semiotic chains.*

F. Morselli, M. Testera. *One task, five stories: comparing teaching sequences in lower secondary schools.*

A. Raad Nawal. *Les méthaphores - quels enjeux pour l'enseignement des nombres relatifs?*

WG 3b (Aula B9)

J. L. López, J. Guzmán. *Objectification of the concept of variation about the quadrature problem.*

A. Alfieri. *L-system Fractals as Geometric Patterns: a case study.*

A. Serpe, M. G. Frassia. *The deltoid as envelope of line in high school: A constructive approach in the classroom.*

WG 4 (Aula C5)

V. Chrysikou, C. Stathopoulou. *Teaching Mathematics to students with severe intellectual disability: An action research.*

F. Sousa, P. Palhares, M. L. Oliveras. *Symmetry in Portuguese fishing communities: Students critical sense while solving symmetry tasks.*

N. Bohlmann, U. Gellert. *Word problems: Resources for the classroom?*

13:00-14:30 (Aula C1)

Lunch > < Déjeuner

14:30-16:00 Workshops > <Ateliers

Session 1

WS 1 (Aula B1)

G. Aldon, A. Cusi, F. Morselli, M. Panero, C. Sabena.

Which support technology can give to mathematics formative assessment? The FaSMEd project in Italy and France.

WS 2 (Aula B5)

A. Moutsios-Rentzos, F. Kalavasis. *Reflective activities upon teaching practices reflexes: grades and errors.*

WS 3 (Aula B6)

C. Anhalt, J. Liston. *The Tangram Chinese Puzzle in Context: Using Language as a Resource to Develop Geometric Reasoning in a Collaborative Environment.*

WS 4 (Aula B9)

M. G. Gallino, M. Mattei. *Origami: an important resource for the teaching of Geometry.*

WS 5 (Aula C5)

F. Arzarello, R. S. Kenett, O. Robutti, P. Carante, the MERLO teachers group. *Teaching and learning with MERLO: a new challenge for teachers and an opportunity for students.*

16:00- 16:30 (Aula C1) Coffee break > <Pause café

16:30-17:30 (Aula Magna ^ B6)

Meeting with plenary speakers
> <

Rencontre avec les conférenciers

18:00 (Hall) departure > < départ

Visiting the city and tasting of local products of the Aosta Valley (wine and food) at "La Crotta de Tanteun e Marietta" winery (optional)

> <

Visite de la ville et dégustation des vins et des produits typiques de la Vallée d'Aoste à la cave "La Crotta de Tanteun e Marietta" (optionnel)



Wednesday, July 22, 2015

Università della Valle d'Aosta, Strada Cappuccini, 2A

9:00-10:00 (Aula Magna $\wedge$ B6)

Teresa Grange (Italy)

Reflective Paradigms in Teacher Training

> <

Paradigmes réflexifs pour la formation des enseignants de mathématiques

10:00-10:30 (Aula C1) Coffee break > < Pause café

10:30-13:00 Working groups > < Groupes de travail

Session 3

WG 1 (Aula: B1)

D. Ferrarello, M. F. Mammana, M. Pennisi, E. Taranto. *Studying geometric loci. Gualdron, Giménez, Gutiérrez. Similarity, Homothety and Thales theorem together for an effective teaching.*

M. Bairral, F. Arzarello, A. Assis. *High school students rotating shapes in geogebra with touchscreen.*

S. Romero Sánchez. *Problem solving as tools for mathematical modelling: case study for real life.*

A. Serradó Bayés. *Obstacles on a Modelling Perspective on Probability.*

M. Ginovart. *A classroom activity to work with real and diverse strategies in order to build diverse models with the help of the computer.*

WG 2 (Aula: B5)

A. Castro, N. Gorgorió, M. Prat. *Additive conceptual knowledge for admission to the degree in primary education: an ongoing research.*

M. E. Esteves Lopes Galvão. *Collaborative study groups in teacher development: a university - school project.*

A. Cooke. *Pre-service teacher conceptualisation of mathematics.*

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I. Vale, A. Barbosa, T. Pimentel. *Math trails a rich context for problem posing - an experience with pre-service teachers.*

J. A. Orta Amaro, V. N. García Ríos, J. A. Altamirano Abad, E. A. Sánchez Sánchez. *Pre-service Teachers' Informal Inferential Reasoning.*

Y. Vanegas, J. Giménez, J. Diez-Palomar, V. Font. *Sociocultural contexts as difficult resources being incorporated by prospective mathematics teachers.*

WG 3a (Aula: B6)

U. Dello Iacono, L. Lombardi. *An artefact for deductive activities: a teaching experiment with primary school children.*

N. Bednarz, M. Saboya, F. Hitt. *Ressources développées par les élèves dans le contrôle exercé sur la résolution de problèmes en algèbre.*

J. Proulx. *Calcul mental et stratégies: un regard en termes de potentialités.*

F. Ferrara, M. Seren Rosso. *The gesture/diagram interplay in grappling with word problems about natural numbers.*

WG 3b (Aula: B9)

G. Albano, A. Pierri. *From rote procedures to meaningful ones: a blended semiotic approach.*

J. Guzmán, J. Zambrano. *Vector subspaces generated by vectors of R_n : Role of technology.*

WG 4 (Aula: C5)

P. Appelbaum, C. Stathopoulou, C. Govaris, E. Gana. *Culture is "Bricks, stones and tiles randomly thrown" (Λίθοι, πλίνθοι και κέραμοι ατάκτως ερριμμένα).*

F. Favilli. *Mastering Mathematics, mainstream and minority languages.*

L. Boistrup, E. Norén. *A school for all? Political and social issues regarding second language learners in mathematics education.*

H. Moraová, J. Novotná, A. Ulovec. *Ready-made materials or teachers' flexibility? What do we need in culturally and linguistically.*

13:00-14:30 (Aula C1) Lunch > < Déjeuner

15:00

Excursion to Fénis castle > < Excursion au château de Fénis

20:00

Social dinner in Fénis > < Dîner social à Fénis

Thursday, July 23, 2015

Università della Valle d'Aosta, Strada Cappuccini, 2A

9:00-10:30 (Aula Magna $\wedge$ B6)

Round Table: "Assessment in mathematics education: resource or obstacle"

> <

Table ronde: "Evaluation dans l'enseignement et l'apprentissage des mathématiques : ressource ou obstacle"

Chair: Uwe Gellert (Germany)

10:30-11:00 Coffee break > < Pause café

11:00-13:00 Working Groups > < Groupes de travail

Session 4

WG 1 (Aula: B1)

Reflections about the contributions of the papers to Mathematical Content and Curriculum Development.

WG 2 (Aula: B5)

N. Meneguelo Lobo da Costa. Pedagogical use of tablet in Mathematics Teachers Continued Education.

D. Ferrarello. Rescuing casualties of mathematics.

M. E. Brisola Brito Prado. Mathematics Teaching and Digital Technologies: a challenge to the teacher's everyday school life.

R. Floris. Un dispositif de formation initiale pour l'intégration d'environnements numériques dans l'enseignement des mathématiques au secondaire.

F. Venant. Instrumentation didactique des futurs enseignants de mathématiques exemple de la co-variation.

WG 3a (Aula: B6)

N. Bednarz, J. Proulx. Réflexion sur les obstacles culturels en enseignement des mathématiques.

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A. Cusi. *The role of the teacher in fostering an aware approach to problem-solving activities: the case of geometric problems that could be solved through the construction of equations.*

M. De Simone. *Investigating the intertwinement between the affective and cognitive dimensions of teachers: a possible way for surfacing the reasons of their decisions.*

WG 3b (Aula: B9)

L. G. Orozco Vaca, R. Q. Zazueta. *Writing as a Metacognitive tool in geometry problem solving.*

P. Kotarinou, C. Stathopoulou, E. Gana. *Expanding contexts for teaching Upper Secondary school mathematics.*

WG 4 (Aula: C5)

B. Di Paola. *Can we learn from "outside"? A dialogue with a Chinese teacher: the "two basics" as a meaningful approach to mathematics teaching.*

A. Moutsios-Rentzos. *Re-approaching the perceived proximities amongst mathematics education theories and methods.*

13:00-14:30 Lunch > < Déjeuner

14:30-15:30 (Aula Magna $\wedge$ B6)

Meeting with plenary speakers

> <

Rencontre avec les conférenciers

15:30-16:00 (Aula Magna $\wedge$ B6)

Pompeo Vagliani (Italy)

Introduction to "MUSLI" (Museum of school and books for children) > < Introduction au "MUSLI" (Musée de l'école et des livres pour les enfants)

16:00-18:30 (Corridor 3rd floor and 2nd floor > < Couloir 3ème étage et 2ème étage)

Forum of Ideas > < Forum des idées

Friday, July 24, 2015

Università della Valle d'Aosta, Strada Cappuccini, 2A

9:00-10:30 (Aula Magna $\wedge$ B6)

Report of Working Groups

> <

Rapport des groupes de travail

10:30-12:00 (Aula Magna $\wedge$ B6)

Round Table: "Reflections on the Conference and future perspectives."

> <

Table ronde: "Réflexions sur la Conférence et perspectives futures."

Chair: Elisabetta Robotti (*Italy*)

12:00 (Aula C1)

Closing Ceremony and Farewell Cocktail

> <

Cérémonie de clôture et cocktail



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AU REVOIR À

CIEAEM68

Version 23-07-2015

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