

Conference report

An ICMI Regional Conference : EM 2000

Grenoble (France), 15–17 July 2000

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Abstract : This text is a report of an international conference about mathematics education in French-speaking countries in the XXth century and prospects for the beginning of the XXIth century which was organised by the CFEM in Grenoble from 15 to 17 July 2000.

ZDM-Classification : A60

The CFEM (Commission Française pour l'Enseignement des Mathématiques) is the National Sub-commission of the International Commission on Mathematical Instruction (ICMI). It is composed of representatives from various bodies related to mathematics and mathematics education in France : the "Association des Professeurs de Mathématiques de l'Enseignement Public" (APMEP), the assembly of directors of IREMs (Institut de Recherche sur l'Enseignement des Mathématiques), the "Association pour la Recherche en Didactique des mathématiques", the French National Committee for the International Mathematical Union, the "Groupe mathématique de l'inspection générale", the "Union des Professeurs de spéciales" and the "Société Mathématique de France" (SMF).

On the occasion of the World Mathematical Year 2000, the CFEM, under the impulsion of its president, Bernard Cornu, has organized in Grenoble on July 15-17, 2000, a symposium on the theme "L'enseignement des mathématiques dans les pays francophones au XXe siècle et ses perspectives pour le début du XXIe siècle" (Mathematics education in French-speaking countries in the XXth century and prospects for the beginning of the XXIth century). This meeting has been officially recognized as an ICMI Regional Conference. It was the first such event where the "region" was defined not in geographical but rather in linguistic terms, the gathering being based on a common language.

The Local Organizing Committee was supported, in Grenoble, by the Université Joseph Fourier, by the IUFM - Institut universitaire de formation des maîtres

- and by the local Committee of APMEP, and at the national level, by all components of the CFEM. The scientific programme was defined by an International Programme Committee chaired by Professor Pierre Jullien, former director of the IREM of Grenoble and of the IUFM of Aix-Marseille.

The aims of the symposium were :

- to give a synthetic view of mathematics education in the XXth century ;
- to analyse its evolution in order to identify future prospects ;
- to strengthen existing cooperations, to establish and develop new ones ;
- to establish links between different generations of teachers.

A total of 168 teachers and researchers from all levels attended the symposium, coming from 18 different countries : Algeria (6), Belgium (6), Brazil (3), Burkina (2), Canada (19), Central African Republic (1), France (93), Germany (1), Italy (4), Ivory Coast (1), Luxembourg (2), Morocco (5), Mauritania (4), Spain (1), Tunisia (16), Uruguay (1), USA (1), Viet Nam (2).

Most participants attended on an individual basis, sometimes two or three together. But two well-identified groups were present, one consisting of twelve young secondary school mathematics teachers from Québec having recently graduated - their participation was made financially possible by the Office franco-québécois pour la jeunesse - and the other composed of fifteen Tunisian teachers participating in an in-service program in Lyon. The presence of these two groups brought of lot a dynamism and vitality to the symposium !

In order to bridge the gap between generations of teachers, the organizers had proposed reduced registration fees for participants under 35 of age. This objective was achieved to a certain extent as some 30 participants belonged to this category.

The program of the meeting was both dense and rich. During the three days were offered : two plenary talks ; six main lectures given in parallel, two at a time ; four round tables, two at a time ; 27 workshops, distributed over four sessions ; 29 communications, in five sessions ; and nine working groups. In addition, a remarkable exhibition about Pythagoras had been brought by Belgian colleagues, and there were booths where book publishers and calculator companies presented their products.

Most presentations explicitly made reference to a specific historical and geographical context. The participation of people from quite different regions made it possible to discuss the variations that may exist,

between the various countries, in the school systems, in research or in teacher education.

The themes covered were extremely diverse, going from the history of mathematics to its current evolution and dealing with issues such as : mathematics education in the XIXth and in the XXth centuries ; teacher education ; didactical aspects of mathematics education ; advent of new technologies, in particular possible uses of the Internet or of dynamical geometry software such as Cabri-géomètre ; applications and modelling ; role and assessment of proofs and proving in mathematics education. Needless to say international collaboration was also an important theme of the symposium.

In addition to the many direct contacts between colleagues from different countries, the symposium EM 2000 was the occasion for a deeper mutual knowledge of the diversity of mathematics education given in French around the world. It also strengthened collaboration between French speaking African or South East Asian countries and France, for instance in the preparation of school teachers or of researchers in mathematics education.

In their words of thanks to the organizers, many participants stressed the exceptional conviviality that reigned throughout the gathering. This conviviality resulted from many factors :

- the perfect adequacy of the meeting rooms to the number of participants ;
- the reasonable size of the attendance, which allowed for easy and fruitful interactions ;
- the many meeting opportunities made possible by the timetable, in spite of its density ;
- the fact that almost all participants stayed and had their meals together on the campus.

To limit the effects of the hot temperature typical of the Grenoble basin in July, a "fête champêtre" had been planned on the second evening, on the heights of Fort du Saint-Eynard, on the edge of a cliff overlooking the Isère valley. The rain of the previous days had somewhat chilled the outside temperature, but in contrast the atmosphere was extremely warm inside, especially in the room where quite a few colleagues from the Maghreb had initially gathered. But the obligation of resuming the scientific work early the next morning put an end to an evening that remains in the memories of all participants.

The EM 2000 symposium has allowed colleagues from quite different countries, although united by a common language, to meet around themes of common interest, to discuss these themes and to establish contacts. The participation of African colleagues was particularly important in all aspects to the success of

the symposium. But it is a pity that they could not be more numerous, due to the lack of funding. The almost unanimous wish of participants was that such an initiative should be renewed in a near future (two or three years). The idea of having an "EMF 200x", where "F" means "French Speaking Countries", is now going on, and EMF 2003 is planned in Tunisia.

The main lectures pursued two objectives : establish a survey of the evolution of mathematics teaching in the french speaking countries during the XXth century (lectures by H. Gispert, G. Noël, N. Bednarz, S. Touré, M. Akkar) and promote a reflexion about mathematics teaching and research on mathematics teaching in the future (lectures by A. Sierpinska, M. Mariotti, N. Bouleau, J.-P. Kahane).

Besides these lectures, many other activities took place during the symposium : communications, workshops and work groups.

In this issue of ZDM, you wil find the full set of lectures :

- Hélène Gispert, Pourquoi, pour qui enseigner les mathématiques ? Une mise en perspective historique de l'évolution des programmes de mathématiques dans la société française au XX^e siècle.
- Guy Noël, Pourquoi, pour qui enseigner les mathématiques ? Une mise en perspective historique de l'évolution des programmes de mathématiques au XX^e siècle, en Belgique.
- Nadine Bednarz, Pourquoi, pour qui enseigner les mathématiques ? Une mise en perspective historique de l'évolution des programmes de mathématiques au Québec au XX^e siècle.
- Saliou Touré, L'enseignement des mathématiques dans les pays francophones d'Afrique et de l'Océan Indien.
- Mohammed Akkar, L'enseignement des mathématiques dans l'enseignement secondaire au Maghreb.
- Anna Sierpinska, Perspectives sur les recherches en didactique des mathématiques.
- Maria Alexandra Mariotti, La preuve en mathématiques.
- Nicolas Bouleau, Y a-t-il lieu d'envisager des mathématiques post-modernes ?
- Jean-Pierre Kahane, Mathématiques quel avenir ?

The other activities of the conference were :

Communications

- Teresa Assude, Evolution de l'enseignement des inéquations au collège au XX^eme siècle.
- Claude Comiti, L'enseignement des mathématiques en français dans un pays où la francophonie est très minoritaire : le cas du Laos.
- Ahmed Daïfé, Histoire de l'introduction et de

l'évolution de la didactique des mathématiques dans les centres de formation des enseignants au Maroc.

- Marie-Claude David, Le travail en petits groupes : un remède à l'hétérogénéité des groupes de travaux dirigés et à la passivité des étudiants.
- Patrick Debu, Enseigner les mathématiques dans les écoles d'initiative locale, dans la savane au nord du Togo.
- J. Delgoulet, D. Guin, J. Salles, Formation aux TICE.
- Arnaud Gazagnes, L'histoire des mathématiques en classe : un outil pédagogique.
- Georges Glaeser, Les différentes transpositions des savoirs.
- Magali Hersant, Un siècle de proportionnalité dans l'enseignement obligatoire français.
- M. Kourkoulos, M.-A. Keyling, L'autocorrection dans l'apprentissage des algorithmes de l'algèbre élémentaire et l'emploi du logiciel Arithm.
- Abdelkader Khelladi, Symbolisme mathématique dans un environnement linguistique ni latinographique ni écrit de gauche à droite.
- Agnès Lenfant, De la position d'étudiant à la position d'enseignant.
- Guy Noël, Philippe Tilleuil, Des compétences terminales en mathématiques
- Ivonela Da Purificacao, Cabri-Géomètre et théorie de Van Hiele : possibilités et progrès dans la construction du concept de quadrilatère.
- Van Tan Tran, Rénovation de la formation initiale des enseignants de mathématiques pour les lycées du Vietnam.
- Moncef Zaki, Conception d'un module d'expression mathématique en français pour des étudiants marocains.

Workshops

- Vincenzo Bongiovanni, Etude de la parabole dans l'environnement Cabri Géomètre.
- E. Cousquer, B. Godon, P.-A. Caron, Un laboratoire multimédia : le LAMIA.
- Cileda Coutinho, Introduction aux situations aléatoires et à leur modélisation.
- Nadia Douek, Importance des aspects argumentatifs dans la production et démonstration de conjecture.
- Yves Girmens, Rapport des élèves aux écritures et aux règles du calcul algébrique.
- Yves Girmens, L'appropriation des théorèmes de géométrie plane et l'apprentissage de leur utilisation par des élèves de collège.
- Maryvonne Hallez, Un enseignement de la proportionnalité de la sixième à la terminale.

- Marc Legrand, Le débat scientifique en cours de mathématiques.
- Bettina Pedemonte, Unité cognitive : un instrument d'analyse des processus d'argumentation et de démonstration.
- Jean-Pierre Richeton, Démarche scientifique et évaluation.
- Elisabetta Robotti, La verbalisation comme médiation entre figural et théorique.

Work groups

- Claude Comiti, Echanges et collaborations internationales.
- Louis Charbonneau, Place de l'histoire des mathématiques dans l'enseignement des mathématiques.
- Guy Noël, Évaluation.

A CD-Rom with the full set of proceedings is available at CFEM : CFEM, I.H.P., 11 rue Pierre et Marie Curie, 75005 Paris, France.

Parts of the proceedings can also be accessed on the symposium website : <http://em2000.imag.fr/>

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