Information

From Lyon to Sevilla

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Inducement: A response to a pre-congress letter from the Local Organizing Committee of the 8th International Congress on Mathematical Education (ICME-8), to be held at Sevilla, Spain July 14 - 21, 1996, sent to all potential ICME-8 "Old Hands" (i.e. those who were going to have attented all ICMEs 1 - 8, a term first defined for n = 7 at Québec in 1992; for n = 8 the actual Old Hands were: S. Avital, J. P. Becker, A. W. Bell, J. C. Egsgard, C. Gaulin, G. Howson, H.-G. Steiner, E. C. Wittmann). The response text was expected to have a retrospect on ICMEs 1 - 7 and a preview on ICME 8 as well as some indications of previous personal activities related to the International Commission on Mathematical Instruction (ICMI) which is holding the ICMEs.

Author's ICMI-related activites: 1962 - Member German Sub-Committee; 1966 - 70 Member at Large; 1974 - 78 Vice-President; ICME-Old Hand; Member IPC for ICME 1 - 6; Chairman IPC for ICME 3 (Karlsruhe); Participant ICMI-Sessions at Int. Congresses of Mathematicians: 1958 Edinburgh, 1962 Stockholm, 1966 Moscow, 1978 Helsinki, 1983 Warsaw; Participant ICMI Regional and theme-specific conferences: Lausanne 1961, Frascati 1964, Utrecht 1964, 1967, Echternach/Luxembourg 1965, 1973, Vienna 1966, Bucarest 1968, Royaumont 1971, Paris 1971, 1974, 1977, 1990, Tokyo 1974, Bielefeld 1974, 1978, 1980, Oberwolfach/Germany 1974, Pecs/Hungary 1977, Washington 1994

In a paper (given in German at the 27th conference of the Gesellschaft für Didaktik der Mathematik 1993 in Fribourg/Switzerland) about "The situation of didactics of mathematics in the German speaking countries considered in a European and international comparison", I made the following statements: "As an actual point of reference and a mirror of international developments it seems adequate to use the 7th International Congress on Mathematical Education (ICME 7) held at Quebec, Canada in August 1992. The scientific program with its 23 working and 17 topic groups - each highly differentiated into subgroups -, with its 4 plenary papers and 45 special lectures on selected themes, its mini-conference on calculators and computers involving all congress members for 3 1/2 hours, its special program-components for the 3 ICMI-affiliated study groups as well as a presentation and discussion of 3 new ICMI-studies, furthermore the exposition and activation of projects, workshops, special sessions, exhibitions and poster-sessions, and, last not least, the awarding by Laval University of honorary doctoral degrees to two international leaders in mathematics education, this altogether represented in substance, structure and organization an up to then unreached degree of achievement in giving a lively picture of the high level of progress made internationally in mathematics education as a domain of interconnected research, development and practice. For the first time didactics of mathematics showed itself in great clarity as a scientific discipline which under increasing theoretical orientation and empirical foundation is dynamically growing within an international frame of complex cultural, political and interdisciplinary interrelations. To participate actively - and even only receptively - in this process demands considerable national efforts and support in each single country".

It has been quite a dynamic and complex process going from 0 to 8, where by "0" I mean the situation before ICME 1, when mathematics education as a professional field was discussed at international congresses only in special sections and particular ICMI-sessions during the International Congresses of Mathematicians (ICMs). It was Professor *Hans Freudenthal*, the president of ICMI 1966 - 70, who against strong opposition from influential mathematicians in the International Mathematical Union forthfully pursued the idea of having separate and genuine ICMEs, and he started at *Lyon* in 1969, a pace-making movement which was flanked by Freudenthal's initiation of a new very successful progressive international journal "Educational Studies in Mathematics" whose first issue appeared in 1968 and whose Vol. 2 No 2/3 (1969) covered the 20 invited adresses of ICME 1.

The invited papers formed the core of the Lyon program. In addition there were book exhibitions, project presentations, workshops, math classrooms, and a small number of short communications. Six panel discussions were arranged during the congress in a more or less ad hoc manner.

Each of the following ICMEs has been an *experiment with varying conceptions and different components*, at least partly evaluated by the subsequent program committees and in the congress proceedings. The *Exeter* congress was more oriented towards the great range of conditions under which mathematical education is taking place all over the world and towards the great variety of different interests among the participants, who should also be given more occasions for individual active work during the congress. So the main lectures were reduced to 6 and 38 working groups were organized from which each participant could choose 2.

At *Karlsruhe* the core-program was built on systematically prepared 13 *survey-trend reports* devoted to 7 selected relevant theme-areas and 6 various teaching and learning levels, all of them to be analysed, reflected and

discussed according to existing theoretical and empirical research, first in pre-congress activities by the reporters and their internationally composed advisory committees and then in the 13 congress sections which were related to the themes of the reports. In addition to short versions published in the congress proceedings, together with the results from the discussions, the survey-trend reports were made fully available by UNESCO in "New Trends in Mathematics Teaching IV" (1979). It was hoped by the Karlsruhe IPC that survey-trend reports would become program-components of ICMEs at least every 8 years, thus forming measures and mile-stones of development in our field.

Actually the expectations held at Karlsruhe became at least partly true from ICME 5 *(Adelaide)* onward after *Berkeley* (ICME 4) had almost exploded under an extreme number of themes and headlines compiled by the IPC in trying to give a rather complete picture of the state of the art worldwide. At *Adelaide* and *Budapest* the basic structure of the core-program was formed by a triple of groups: *action groups* (related to levels of teaching and learning), *theme-groups*, and *topic areas.* For ICME 7 the first two types of groups were unified into one, called *working groups.* Those congress-groups have developed in their reports, debates and results an *increasing degree of continuity* and *growing components of synthesis and evaluation.* Apparently this is based on a process of establishing more permanent working contacts among group members and the overall growth of cooperative and reflective working structures in mathematics education, both at the national and international level, under the influence of leading research institutes, more permanently and coherently operating international study groups such as the annually convening group on Psychology of Mathematics Education (PME), or the impact of the synthesizing and evaluative work related to the very respectable ICMI-Studies. At this point I should also mention that the *coexistence* of ICMEs and ICMs has *not led to a separation,* which I consider an additional sign of strength of mathematics education as a scientific discipline and professional field. New bridging *activities* such as the two ICMI-Symposia at the ICMs in Helsinki (1978) and Warsaw (1983) and other similar program components organized by ICMI at ICMs have contributed to establish a lively link.

With respect to ICME 8, I'm sure that it will continue the brilliant development of ICMEs. As far as the location of ICME 8 in Spain and the city of *Sevilla* is concerned, I can personally refer to previous experiences: first to my visit to the University of *Granada* in 1991 when I discussed with professors Carmen Batanero Bernabéu, Juan Diaz Godino, Luis Rico Romero and students the ideas of "Theory of Mathematics Education (TME)" which had become a component in the Granada doctoral program for mathematics education; second to my participation in 1987 (jointly with the other speakers J. P. Kahane, G. Howson, C. Gaulin, L. Puig and Miguel de Guzmán) in a Symposium about Research in Mathematics Education held at the Royal Academy of Exact Sciences, Physics and Natural Sciences, *Madrid*. Third, I like to refer to my participation as an invited speaker in the International Symposium on the Renovation of Mathematics Teaching in 1986 in *Sevilla*, organized by the Sociedad Andaluza de Educación Matemática THALES, where I got aquainted with the impressive variety of projects in mathematics education at many Spanish universities. It was here that I met for the first time Professor *Miguel de Guzmán* and that we began our now 10 years lasting very close friendship. So I'm happy to return to Spain and especially to Sevilla where my intense relations to mathematics education in Spain began. I'm sure it's a great place to host ICME 8. The congress will bring in many mathematics educators from Spanish speaking and particularly developing countries and I think they will profit from the new spirit, incentive, and self-confidence of didactics of mathematics as a dynamically growing scientific discipline and a professional field of research, development and practice.

Author

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