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COMMISSION INTERNATIONALE
DE L'ENSEIGNEMENT MATHÉMATIQUE
(THE INTERNATIONAL COMMISSION
ON MATHEMATICAL INSTRUCTION)

DISCUSSION DOCUMENT FOR THE THIRTEENTH ICMI STUDY

MATHEMATICS EDUCATION
IN DIFFERENT CULTURAL TRADITIONS :
A COMPARATIVE STUDY OF EAST ASIA AND THE WEST

PREAMBLE

Education in any social environment is influenced in many ways by the traditions of these environments. As a consequence the results of such education will naturally differ with different traditions in different environments. Indeed, this is necessary since one of the intentions of education is to support the traditional continuity of structure and function of a special environment.

On the other hand, today we are observing a growing interdependence between environments like regions, states, countries, and different cultural areas of the world. In many respects they have to rely on corresponding or equivalent standards of education, and differences can cause irritations.

In mathematics education also, taking an international and intercultural point of view, we face this split phenomenon of difference and correspondence, linked with the perpetual challenge to improve the quality of mathematics education. A study attempting a comparison between mathematics education in different traditions will be helpful to understand this phenomenon in detail and to exploit it for the sake

of mathematics education. From this, paths will be discovered leading to adequate and effective applications of differences, as well as correspondences, in national and international environments.

Due to the size of an ICMI Study, in manpower and in time, this enterprise must be limited to only a selection of cultural traditions. Those based in East Asia and the West seem particularly promising for a comparison, since similar interests in differences and correspondences have existed for a long time and experiences in equivalent research have been gathered.

A rich variety of aspects of mathematics education is to be considered in this comparative study, ranging from the host of social, economic and other contexts, curricula, teachers, students, goals, contents, methodology, media etc. to the nature of mathematics and the future of mathematics as well as mathematics education. Traditions of teaching and learning that are deeply embedded in history and culture will have to be compared, with a consideration of the rich experience growing out of them as well as their resistance to change.

At the same time, this comparative study must consider present developments in society, science and technology as well as ethics. Changing attitudes between generations are influencing the teacher-student relationship, as are the new information and communication technologies. In addition, these technologies define new roles for both the teachers and learners and the reaction is different in different traditions.

What kind of subjects will there be in schools of the future and how much planning is going on? In what ways will mathematics education of the future be comparable to that of today and how will it differ? What forces are competing in this field?

Exchanges of experiences and expectations will be an important part of the study and critical considerations will be inevitable.

Previous ICMI studies normally proceeded in three steps: Discussion Document, Study Seminar and Study Volume. In our case we will insert an Electronic Discussion Forum before and possibly even after the seminar.

First, the IPC offers a Discussion Document to the mathematics education community and people from interested contexts. We will welcome applications for a study seminar by invitation which we expect to take place in Hong Kong in October 2002. Contributions can come from individuals as well as jointly from colleagues who are already engaged in comparative activities about different traditions in mathematics education. This will allow an operationalising of the study by referring to case studies, for example.

Second, the Electronic Discussion Forum will allow statements about the theme of the study in general and corresponding comments and questions from any colleagues interested in the study. Among other intentions the Forum should especially enable colleagues interested in the same or similar field of comparison to meet and to cooperate in preparing a contribution in general or a case study in particular.

Third, the Study Seminar will consist of presentations identifying and interpreting consequences from different traditions to a variety of aspects of mathematics education. Moreover, a great deal of work has to go into the comparing of observations and findings, for example in focus groups. In this way the seminar will arrive at recommendations for the applications mentioned above, serving to make differences and correspondences fruitful for national and international education.

Fourth, a Study Volume will be published for the mathematics education community and the interested public, containing the results from the communications and comparisons at the seminar.