

## PREFACE

PME is back home. 24 years after PME1, Utrecht is once again the spot where the International Group for Psychology of Mathematics Education meets. In 1977, one year after the birth of PME at the 3<sup>rd</sup> ICME Congress in Karlsruhe, the 1<sup>st</sup> PME conference was held in Utrecht, organized by Freudenthal. His friend Fischbein, the founder president of PME, had asked him whether *IOWO* would be able and inclined to do this job. The proposed organizers had some hesitation because of the short time for preparation and the expected number of participants. But there was another reason for being somewhat reluctant. To a certain degree there was a difference in scientific culture. Freudenthal and his colleagues saw themselves rather as engineers than as researchers and they were fairly critical regarding the psychologists' and educationists' view on mathematics education. Notwithstanding these doubts—or maybe because of them—this first conference was held in Utrecht and brought 86 people together: mathematicians, mathematics didacticists, but also psychologists and educationists. Since then, year after year they have met and inspired each other.

For the Dutch, of course, 1985 was another milestone in the history of PME. In that year, the 9<sup>th</sup> PME was held in Noordwijkerhout, organized by *OW & OC* with Streefland as the conference chair. Compared to the first conference—where mathematics education was more or less the working field of a number of different disciplines—now the didactics and the design of mathematics education became more and more a discipline of its own. The focus was on theory of mathematics education. Streefland saw it as a break-through. And at least for the Dutch it was so. It was the time that the theory of Realistic Mathematics Education, which so far was a theory in action, became more and more explicit.

Realistic Mathematics Education is still work in progress. The present stage of the development is characterized by revision, detaching blind spots and getting a more balanced approach. Having meetings with diverse approaches and perspectives is the best way to avoid narrow-mindedness and to create possibilities for growth. As a consequence we at the *Freudenthal Institute* welcomed the idea to organize the PME conference in The Netherlands in 2001. A meeting with the PME community is a guarantee for a rich variety of mathematical research domains, educational levels of mathematics education and types of research, and, last but not least, including different views on the learning and teaching of mathematics.

There is still little agreement on what is the best view. Scientific research seems to support quite different approaches. Therefore it is no wonder that, today, the scientific quality of research is questioned and issues of methodology are discussed. PME is the forum par excellence to ask these questions and to discuss these issues. In this respect it is interesting to see how up-to-date the words are that Freudenthal used in his opening address to PME1. He told the audience to

*“[L]ook and listen with an open mind and have the courage to notice and to report events that most people would consider as too silly to be noticed and to be reported—there will be a minority who can appreciate them, and this minority will be right.”*

I think that we should interpretate his words as a warning against blindly following trends and as a stimulance of researchers' own responsibility. May this conference contribute to this.

The papers in the four volumes of the proceedings are grouped according to types of presentations: Plenary Lectures, Plenary Panel, Research Forums, Discussion Groups, Working Sessions, Short Oral Communications, Posters, and Research Reports. The plenary addresses and the research forum papers appear according to the order of presentation. The papers of the group activities are sequenced according to their number code. For the other types of presentations, within each group the papers are sequenced alphabetically by the name of the first author, with the name(s) of the presenting author(s) underlined.

There are two cross-references to help readers identify papers of interest to them:

- ◆ by research domain, according to the first author (p. 1-liii)
- ◆ by author, in the list of authors (p. 1-425).

I wish to express my appreciation to all the people who took part in the production of these proceedings. First of all, I thank all the authors of the papers who contributed to the richness and the scientific merits of the proceedings. Furthermore, I extend my thanks to the reviewers and the members of the Program Committee for their respectives roles in working with the papers. After they finished their job it was hard work to get the four volumes ready for the publisher. Several people were involved in this, but I am particularly indebted to Marianne Moonen for her dedication and time devoted to the preparation of the proceedings.

Although the increase of numbers of papers brought us more work than was expected, we could not resist the temptation to go digital. So for the first time in PME history, the PME Proceedings are available on cd-rom. Thanks to the team that succeeded in getting this product finished in time.

This conference received support from several sources, without which we could not have organized it to meet PME standards. We are grateful to the University Utrecht—and in particular to its “365 YEAR KNOWLEDGE @ LA CARTE” program—and to the Royal Netherlands Academy of Arts and Sciences (KNAW) for their support and facilities.

Last, but not least, many thanks to the members of the Local Organizing Committee for their willingness to share with me the responsibilities involved in this enterprise.

Marja van den Heuvel-Panhuizen  
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