PROCEEDINGS

3rd COLLOQUIUM ON
THE DIDACTICS OF MATHEMATICS

DEPARTMENT OF EDUCATION
UNIVERSITY OF CRETE

FRIDAY - SATURDAY
18-19 APRIL 2003

UNIVERSITY CAMPUS RETHYMNON, CRETE

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PREFACE

The present volume contains the papers, which were presented during the *3nd Colloquium on the Didactics of Mathematics* The *Colloquium* was organized by the Department of Education of the University of Crete at Rethymnon, Crete, and took place in 18 and 19 April 2003.

The positive response to the call for papers and the extensive participation to this Colloquium have convinced us that this Colloquium may be valuable for both the Greek educational community and the research community in the field of Mathematics Education. Therefore, we believe and hope that it can become an established event organized regularly on a two-year basis.

This *Colloquium* had a three-fold aim: (a) to present current international trends on important issues of the Didactics of Mathematics (DM), with reference to all educational levels, thus giving an opportunity to the educational community to be informed about those issues that are of great importance nowadays; (b) to provide an opportunity for fruitful communication between the Greek researchers of the DM and their distinguished colleagues from abroad; (c) To make clear that the problems and basic issues on the teaching and learning of Mathematics at any level of education are interrelated with those at all other levels; and therefore, that the contact, collaboration and mutual understanding among teachers of Mathematics and researchers on DM is an essential prerequisite for improving Mathematics Education.

Alike the previous two *Colloquia*, the proceedings contain both the original and the Greek translations of all presentations of the foreign invited speakers. What is more, there is an abstract in English for every paper written in Greek, so as the non-Greek speaker to be able to have an overall view of the content of all the papers.

We would like to thank the members of the Scientific Committee who were willing to review the submitted papers thoroughly. We also thank the Rectorate of the University of Crete for financial support, Mrs E. Poulla and F. Toutountzaki for the careful translation of the texts and Mrs C. Kalouda for designing the cover of this book.

Every paper falls within one or more of the five sections of this volume. However, for practical reasons, each one is cited in the section with the content of which it is related more: (1) Learning and failure in Mathematics, (2) Epistemological and Methodological issues on Mathematics and its Teaching, (3) Alternative forms of teaching Mathematics (4) The didactical value of the history and epistemology of Mathematics, (5) Mathematics Teaching and Informatics. As it has been stressed in the Proceedings of the *2nd Colloquium*, the interdisciplinary character of the DM requires that both the researcher in this field and the teacher of Mathematics have a deep and comprehensive knowledge beyond Mathematics itself, on such diverse fields like the relationship of Mathematics with the other exact sciences, its history and epistemology, cognitive psychology, applied statistics, informatics etc. In particular, it gets clearer the necessity of a closer collaboration among the Departments of Education, the Departments of Mathematics and primary and secondary school teachers of Mathematics. We all desire and wish that this volume to be valuable in this direction, always aiming at improving Mathematics Education.

Rethymnon, October 2003

M. Kourkoulos
G. Troulis
C. Tzanakis

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