INTRODUCTION

We are pleased to present the ESERA 2001 Conference book, which is based on contributions submitted and presented to the Third International Conference “Science Education Research in the Knowledge Based Society” that was organised by the Department of Primary Education of the Aristotle University of Thessaloniki and held in Thessaloniki from August 21 to August 26, 2001.

The focus of the Conference was to discuss the scope, methods, outcomes and perspectives of research in science education in the context of the rapidly developing knowledge-based society. Some 450 researchers, teachers, and postgraduate students attended the conference. They came mainly from European countries, with a substantial proportion – some 20% – from countries outside Europe. While ESERA conferences reflect research carried out in Europe, they are increasingly becoming international events attracting researchers from all over the world.

A total of 220 works were presented in guest lectures, symposia, poster workshops, individual papers and poster sessions that took place during the conference along with alternative activities and informal meetings. All these works are already published in the Proceedings of the Conference (edited by D. Psillos, P. Kariotoglou, V.Tselfes, G.Bisdikian, G.Fassoulopoulos, E. Hatzikraniotis, M.Kallery).

For the publication of this book, participants who had presented their work to the Conference were asked by an open call to submit papers based on their work to be considered for publication in the Conference Book. All submitted papers were assessed, according to standard peer review procedure, by two independent reviewers, and forty-seven of them were accepted for publication in the present book.

The book is divided into six chapters. The first chapter includes papers focusing on certain theoretical approaches, research overviews and research methodologies. The second and third chapters focus on the teaching and learning of science, which, as in the previous conferences, attracted the wider interest of the researchers. Specifically, the second chapter deals with research on students’ reasoning and understanding of science as well as learning in various contexts, while the third chapter includes papers which focus on the teaching and communication of science in a variety of contexts. Given the importance of new technologies in the knowledge-based society, a separate chapter, the fourth, is devoted to studies that are related to the development, use and integration of Information and Communication Technologies in Science Education. The fifth chapter focuses on science
teachers’ knowledge and aspirations as well as on the linking of research to teaching practices, an issue that is of particular concern to the researchers. The sixth chapter contains presentations of completed or current international research projects in which several groups in different countries are collaborating, which is a promising practice for the future.

Certainly, any classification contains elements of arbitrary placement. We felt that the one adopted facilitates the reading of the book and the issues that are under study for improving science education research in the context of the knowledge-based society.

We are grateful to the following distinguished colleagues who contributed to the revision of the papers and, thus, to the publication of this book. Without their help and patience this book would not have been possible. We want to thank them warmly.

Borghi Lidia
Clement Pierre
De Jong Onno
Duit Reinders
Fischer Hans
Fischler Helmut
Galili Igal
Gil Perez Daniel
Grea Jean
Ioannides Christos
Izquierdo Merce
Jimenez Aleixandre Maria Pilar
Kalkanis Georgios
Leach John
Lijnse Piet
Martins Isabel
Mehut Martine
Mikropoulos Anastasios
Millar Robin
Niedderer Hans
Osborne Jonathan
Pinto Roser

Ravanis Kostantinos
Russel Terry
Sassi Elena
Schwedes Hannelore
Sjoberg Svein
Soerensen Helene
Solomon Joan
Solomonidou Christina
Spiliotopoulou Vassiliki
Stavridou Eleni
Stavy Ruth
Tiberghien Andree
Tsaparlis Georgios
Tunnicliffe Dale Sue
Tytler Russell
Valanides Nikos
Vienne Laurence
Von Auschnaiter Stefan
Welzel Manuela
White Richard
Zoller Uri
We would also like to thank the following Greek and international institutions and enterprises whose grants of funds contributed substantially to the organisation of the conference, the publication of the proceedings and the present book:


We would also like to express our thanks to Kluwer Academics for their help in publishing and distributing this book.

Finally, special thanks are extended to Mrs Sophia Fournari, who undertook the difficult task of communicating with colleagues and making the camera-ready text possible. Her patience and skills were of great assistance in the smooth development of the book.

The Editors