

CONTEXTS OF LEARNING MATHEMATICS AND SCIENCE

LESSONS LEARNED FROM TIMSS

Edited by

Sarah J. Howie and Tjeerd Plomp

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CONTEXTS OF LEARNING MATHEMATICS AND SCIENCE

Effective tuition of mathematics and science is crucial to schools everywhere. While the subjects are clearly central to a good all-round education, modern economies are also increasingly dependent on a good supply of well-educated mathematicians, scientists and engineers. International research has already identified many factors that can have a positive or negative impact on pupils' achievement. This comprehensive new text brings together the results of research on these factors from around the world, harvested from the Third International Mathematics and Science Studies (TIMSS), under the auspices of the International Association for the Evaluation of Educational Achievement (IEA).

Contexts of Learning Mathematics and Science makes a unique contribution to the field, by bringing together the work of researchers of 17 different countries from a variety of contexts across the globe. This provides a means of looking at country differences in sufficient detail to promote understanding and to inform policy-making in respect of curriculum, pedagogy and teacher supply. Many examples already exist where countries have used existing TIMSS data to focus on areas of particular concern and highlight necessary action – this collection will likewise prove of great value.

The book explores two different approaches to educational research. In the first, researchers in principle begin with an open mind, considering all possible context variables as possible explanatory variables. Applying multivariate and multilevel analysis techniques they try to identify which factors explain levels of mathematics and/or science achievement. In the second approach, researchers already have reasons to choose certain context variables and investigate their relationship with achievement. The emphasis here is on teaching aspects, classroom processes and/or school management variables and their effect upon achievement.

Educational and international comparative researchers, teacher educators, policy-makers, and anyone with a vested interest in promoting the improvement of maths and science teaching in today's schools and universities, will all find the richly detailed international comparisons contained in this book fascinating and valuable reading.

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CONTEXTS OF LEARNING

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*Dedicated to Albert Beaton and David Robitaille, who provided
leadership in the early years of TIMSS.*



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