



Edited by:

Michael O. Martin

Ina V.S. Mullis

Steven J. Chrostowski



Contributors:

Alka Arora
Juliane Barth
Ralph Carstens
Steven J. Chrostowski
Dana Diaconu
Ebru Erberber
Pierre Foy
Joseph Galia
Robert A. Garden
Eugenio J. Gonzalez
Marc Joncas
Isaac Li
Barbara Malak
Michael O. Martin
Ina V.S. Mullis
Teresa A. Smith Neidorf
María José Ramírez



TIMSS

TIMSS 2003 Technical Report

Findings From IEA's Trends in International Mathematics and Science Study at the Fourth and Eighth Grades



International Association
for the Evaluation of
Educational Achievement

TIMSS & PIRLS International Study Center
Lynch School of Education, Boston College

© 2004 International Association for the Evaluation of Educational Achievement (IEA)

TIMSS 2003 Technical Report / Edited by: Michael O. Martin, Ina V.S. Mullis,
Steven J. Chrostowski

Publisher:

TIMSS & PIRLS International Study Center,
Lynch School of Education, Boston College

Library of Congress Catalog Card Number: 2004111600

ISBN: 1-889938-35-1

For more information about TIMSS contact:

TIMSS & PIRLS International Study Center
Lynch School of Education
Manresa House
Boston College
Chestnut Hill, MA 02467
United States

Tel: +1-617-552-1600
Fax:+1-617-552-1203

E-mail: timss@bc.edu

URL: timss.bc.edu

Boston College is an equal opportunity, affirmative action employer.

Printed and bound in the United States.

Contents

Chapter 1	Overview of TIMSS 2003	3
	<i>Michael O. Martin and Ina V.S. Mullis</i>	
Chapter 2	Developing the TIMSS 2003 Mathematics and Science Assessment and Scoring Guides	23
	<i>Teresa Smith Neidorf and Robert Garden</i>	
Chapter 3	Developing the TIMSS 2003 Background Questionnaires	67
	<i>Steven J. Chrostowski</i>	
Chapter 4	Translation and Cultural Adaptation of the TIMSS 2003 Instruments	93
	<i>Steven J. Chrostowski and Barbara Malak</i>	
Chapter 5	TIMSS 2003 Sampling Design	109
	<i>Pierre Foy and Marc Joncas</i>	
Chapter 6	TIMSS 2003 Survey Operations Procedures	125
	<i>Juliane Barth, Eugenio J. Gonzalez, and Oliver Neuschmidt</i>	
Chapter 7	Quality Assurance in the TIMSS 2003 Data Collection	143
	<i>Eugenio J. Gonzalez and Dana Diaconu</i>	
Chapter 8	Creating and Checking the TIMSS 2003 Database.....	173
	<i>Juliane Barth, Ralph Carstens, and Oliver Neuschmidt</i>	
Chapter 9	TIMSS 2003 Sampling Weights and Participation Rates.....	187
	<i>Marc Joncas</i>	

Chapter 10	Item Analysis and Review	225
	<i>Ina V.S. Mullis, Michael O. Martin, and Dana Diaconu</i>	
Chapter 11	Scaling Methods and Procedures for the TIMSS 2003 Mathematics and Science Scales.....	253
	<i>Eugenio J. Gonzalez, Joseph Galia, and Isaac Li</i>	
Chapter 12	Reporting Student Achievement in Mathematics and Science.....	275
	<i>Eugenio J. Gonzalez, Joseph Galia, Alka Arora, Ebru Erberber, and Dana Diaconu</i>	
Chapter 13	Reporting TIMSS 2003 Questionnaire Data	309
	<i>Maria Jose Ramirez and Alka Arora</i>	
Appendix A	Acknowledgements	327
Appendix B	Characteristics of National Samples.....	345
Appendix C	Country Adaptations to Items and Item Scoring	409
Appendix D	Item Parameters for IRT Analyses of TIMSS 2003 Data	415
Appendix E	Summary Statistics and Standard Errors for Proficiency in Mathematics and Science Content Areas in the Eighth and Fourth Grades	485

