

TIMSS 2007

Ina V.S. Mullis and Michael O. Martin

49th IEA General Assembly

Berlin, 6-9 October, 2008

TIMSS 2007

- Mathematics and Science
- Grades 4 and 8
- Trends 1995, 1999, 2003, 2007
- Baseline for new countries

59 Countries, 425,000 Students!

Growth of TIMSS

- Trends for more than 50 countries
- Becoming incorporated into assessment strategies
- Impetus to revise curricula
- Model for large-scale assessments
- Learning by doing on a global scale

TIMSS 2007 Participants



Algeria	Georgia	Malaysia	Sweden
Armenia	Germany	Malta	Syrian Arab Republic
Australia	Ghana	Mongolia	Thailand
Austria	Hong Kong SAR	Morocco	Tunisia
Bahrain	Hungary	Netherlands	Turkey
Bosnia and Herzegovina	Indonesia	New Zealand	Ukraine
Botswana	Iran, Islamic Rep. of	Norway	United States
Bulgaria	Israel	Oman	Yemen
Chinese Taipei	Italy	Palestinian Nat'l Auth.	<i>Alberta, Canada</i>
Colombia	Japan	Qatar	<i>Basque Country, Spain</i>
Cyprus	Jordan	Romania	<i>British Columbia, Canada</i>
Czech Republic	Kazakhstan	Russian Federation	<i>Canada</i>
Denmark	Korea, Rep. of	Saudi Arabia	<i>Dubai, UAE</i>
Egypt	Kuwait	Scotland	<i>Massachusetts, US</i>
El Salvador	Latvia	Serbia	<i>Minnesota, US</i>
England	Lebanon	Singapore	<i>Ontario, Canada</i>
	Lithuania	Slovak Republic	<i>Quebec, Canada</i>
		Slovenia	

Major Accomplishment

Since last General Assembly:

**Completed Scaling, Analysis,
and Reporting!**

TIMSS 2007 SMIRC

Mathematics Experts

Kiril Bankov, Bulgaria

Hanako Senuma, Japan

Khattab Mohammad Abu Lebdeh, Jordan

Robert Garden, New Zealand

Liv Sissel Gronmo, Norway

Mary Lindquist, United States

TIMSS 2007 SMIRC

Science Experts

Ahmed Mohammed Rafea, Bahrain

Chen-yung Lin, Chinese Taipei

Jophus Anamuah-Mensah, Ghana

Gabriela Noveanu, Romania

Galina Kovaleva, Russian Federation

Jackie Heaton, Scotland

Audrey Champagne, United States

TIMSS 2007 QIRC

Sue Thomson, Australia

Serge Baillergeon, Quebec

Solaiman El-Khodary El-Sheikh, Egypt

Martina Meelissen, The Netherlands

Boey Kok Leong, Singapore

Barbara Japelj, Slovenia

Patrick Gonzales, United States

TIMSS 2007 Assessment Specialists

- Mathematics Coordinator
 - Graham Ruddock, NFER
- Science Coordinator
 - Christine O'Sullivan, K-12 Consulting
- Special "Task Force" consultants in mathematics and science
 - Intensive week-long working sessions

TIMSS 2007 Assessment Specialists

- Staff at TIMSS & PIRLS ISC
 - Content/measurement experience
 - Production/graphics experience
- IEA Secretariat and DPC
- Statistics Canada
- NRCs – National Research Coordinators
 - Wealth of knowledge and experience

Mathematics Content Domains

Fourth-Grade

Percentages

Number

50%

Geometric Shapes and Measures

35%

Data Display

15%

Eighth-Grade

Number

30%

Algebra

30%

Geometry

20%

Data and Chance

20%

Science Content Domains

Fourth-Grade	Percentages
Life Science	45%
Physical Science	35%
Earth Science	20%
Eighth-Grade	
Biology	35%
Chemistry	20%
Physics	25%
Earth Science	20%

Cognitive Domains

Mathematics	Percentages 4 th Grade	Percentages 8 th Grade
Knowing	40%	35%
Applying	40%	40%
Reasoning	20%	25%
Science		
Knowing	40%	30%
Applying	35%	35%
Reasoning	25%	35%

Scope of the Assessment

Fourth Grade

- Total assessment time - 8 hours 45 minutes
 - 350 items
 - Half mathematics (177), half science (173)
 - Half trend (154), half new (196)
- Assessment time per student – 72 minutes
 - 14 student booklets
 - Each booklet – 2 blocks math, 2 blocks science

Scope of the Assessment (cont.)

Eighth Grade

- Total assessment time - 10 hours 30 minutes
 - 427 items
 - Half mathematics (215), half science (212)
 - Half trend (189), half new (238)
- Assessment time per student – 90 minutes
 - 14 student booklets
 - Each booklet – 2 blocks math, 2 blocks science

Scope of the Assessment (cont.)

Questionnaires at grades 4 and 8

- Students
- Teachers – mathematics and science
- Schools
- Curriculum – mathematics and science

12 questionnaires in all!

Major Activity - TIMSS 2007 Encyclopedia

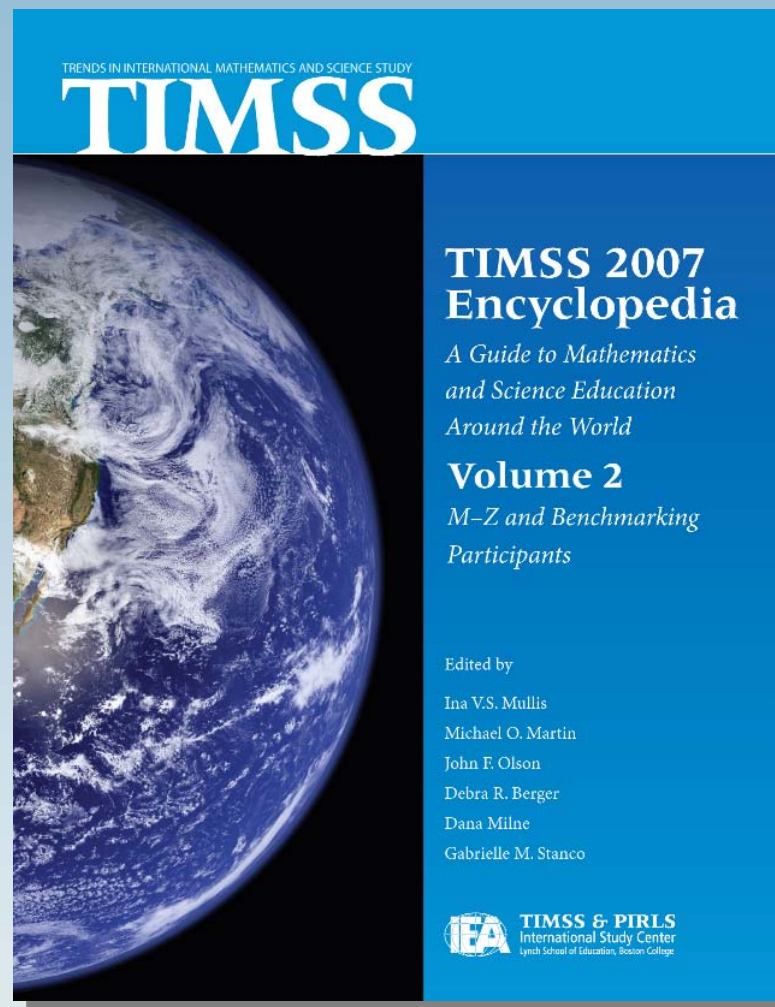
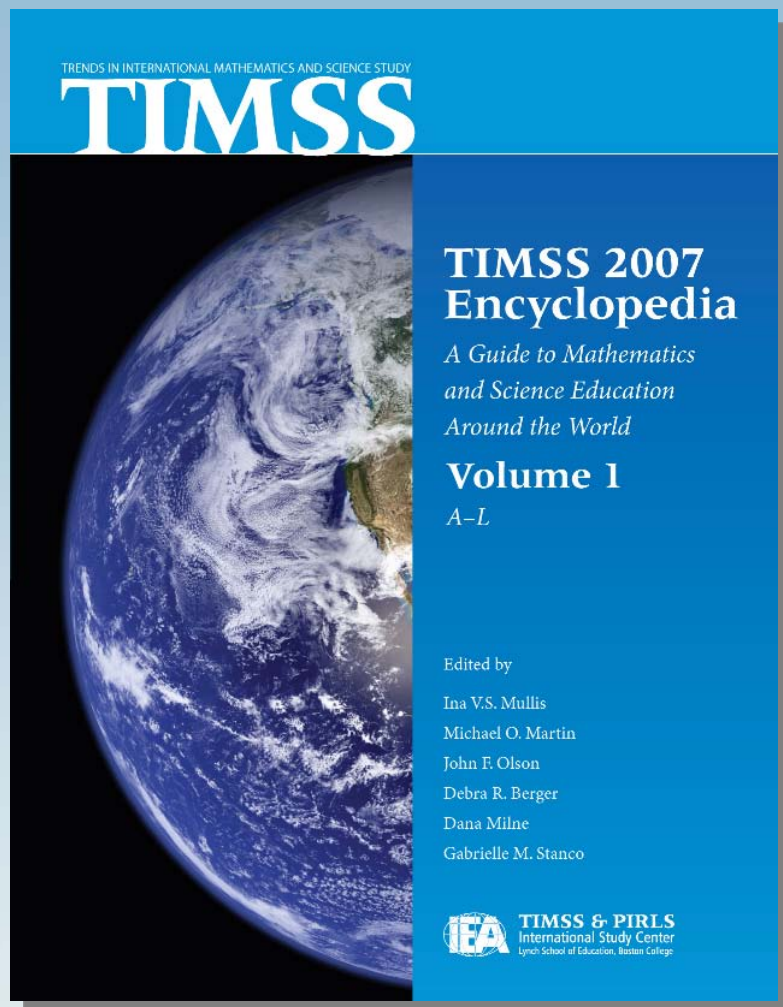
One chapter per country

- Country context
- Curriculum in primary and lower secondary grades in mathematics and science
- Instruction in primary and lower secondary grades
- Teachers and teacher education
- Examinations and assessments

Major Activity – TIMSS 2007 Encyclopedia

- NRCs completed Encyclopedia chapters
 - February 2008
- Draft Encyclopedia completed and reviewed by IEA Publications Committee
 - July 2008
- TIMSS 2007 Encyclopedia published
 - August 2008
- TIMSS 2007 Encyclopedia distributed
 - September 2008

TIMSS 2007 Encyclopedia



Major Activity – Scaling and Analysis for 2007 and Trends

30 achievement scales in total!

- 4 overall achievement scales - mathematics and science at grades 4 and 8
- 14 content domain scales
 - Mathematics grades 4(3) and 8(4)
 - Science grades 4(3) and 8(4)
- 12 cognitive domains scales
 - Knowing, applying, reasoning at grades 4 and 8

Major Activity – Prototype Tables for Two International Reports

- Mathematics - grades 4 and 8
- Science - grades 4 and 8

Contents of reports

Ch. 1: Achievement overall

Ch. 2: International Benchmarks

- Advanced, High, Intermediate, Low

Ch. 3: Content and cognitive domains

Major Activity – TIMSS 2007 International Reports

Contents of reports (cont.)

Ch. 4: Students' backgrounds and attitudes

Ch. 5: Curriculum – intended and
implemented

Ch. 6: Teachers' education and experience

Ch. 7: Classroom characteristics and
instruction

Ch. 8: School contexts

Major Activity – TIMSS 2007 International Reports

- NRCs submitted data to IEA DPC
 - September 2007
- TIMSS & PIRLS ISC and IEA DPC completed data almanacs and exhibits
 - November 2007
- NRCs reviewed report exhibits with background data at 7th NRC meeting
 - December 2007, Salzburg, Austria

Major Activity – TIMSS 2007 International Reports

- Sampling adjudication - TIMSS & PIRLS ISC, Statistics Canada, Sampling Referee
– January 2008
- TIMSS & PIRLS ISC and ETS completed achievement scaling
– April 2008
- SMIRC conducted scale anchoring
– May 2008, Kaoshiung, Chinese Taipei

Major Activity – TIMSS 2007 International Reports

- TIMSS & PIRLS ISC and IEA DPC completed data exhibits
- TIMSS & PIRLS ISC drafted Mathematics and Science International Reports
- NRCs reviewed drafts at 8th NRC meeting
 - June 2008, Gabarone, Botswana
- IEA Publications Committee reviewed drafts

Major Activity – TIMSS 2007 International Reports

- International Reports and Technical Report printed and distributed
 - November 2008
- International press release via web
 - December 9, 2008, Boston College
 - 10:00am EST

Major Activity – TIMSS 2007 International Database

9th NRC meeting, Sharm El-Sheikh,
February 8-13, 2009

- Distribution of final International Database and User Guide
- Training for participating countries

TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY

TIMSS

TIMSS 2007 International Mathematics Report

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

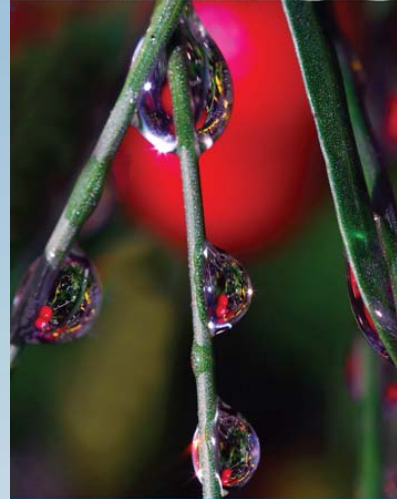
Ina V.S. Mullis
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In collaboration with
John F. Olson
Corinna Preuschoff
Ebru Erberber
Alka Arora
Joseph Galia



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TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY

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TIMSS 2007 International Science Report

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Trends in International Mathematics and Science Study



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TIMSS 2007 **International Report**

Confidential **Preview**

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