



IEA Teacher Education Study in Mathematics



TEDS-M PRESENTATION

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TEDS-M Website (<http://teds.educ.msu.edu/>)

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The TEDS-M study gathered data at the following three levels of teacher education systems across participating countries:

1. ***National policy:*** What is the national policy context for mathematics teacher education, and how do these policies vary across countries?
2. ***Institutions and programs:*** What are the main characteristics of teacher education programs that provide mathematics preparation to future primary and secondary teachers? In what ways do these vary across countries?
3. ***Outcomes:*** What is the level and depth of the mathematics and related teaching knowledge attained by prospective primary and secondary teachers? How does this knowledge vary across countries?

17 Countries Participated

Botswana	Norway	Spain
Canada	Oman	Switzerland
Chile	Philippines	Chinese
Georgia	Poland	Taipei
Germany	Russia	Thailand
Malaysia	Singapore	USA



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Triple Survey

- **Main Study data collection ended in late 2008.**
 - **Institution and Program Questionnaire**
 - **Teacher Educator Questionnaire**
 - **Future Teacher Questionnaire (90 minutes):**
 - **Background**
 - **Opportunities to learn**
 - **Beliefs**

Triple Survey Future Teacher Questionnaire Mathematics Data

Future Teacher Questionnaire (90 minutes):

➤ Mathematics & Mathematics Pedagogy Knowledge:

- primary level instruments: a total of 70 items
- secondary level instruments: total of 49 items
- close to 2/3 items measured mathematics knowledge (algebra, geometry, number and data) and
- close to 1/3 items measured mathematics pedagogy knowledge (curriculum, planning and enacting)
- two-block test that used a rotated 5-block design for primary and 3-block design for secondary to cover all these items in 60 minutes.
- this design permits estimation and analysis of the full covariance matrix, and includes enough items and score points to generate IRT (item response theory) scales.



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- **Surveyed:**
 - **15,163 Primary Future Teachers**
 - **9,389 Secondary Future Teachers**
 - **500 institutions which included**
 - 451 units preparing future primary teachers, and
 - 339 units preparing future secondary teachers
 - **4837 teacher educators**

- **Currently in the data analysis and report writing phase**



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Activities highlights

- November 28, 2008: DPC sent cleaned MS data to International Centers and to NRCs
- December 2008: Begin analysis of Main Study data
- The TEDS-M Sample Characteristics Summary was finalized by the Sampling team at DPC (1/2009).
- Sample adjudication for most countries was finalized at the ISC at MSU and submitted to IEA-TEG (2/2009).



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- March 9 – 12, 2009: 5th NRC Meeting (Chicago, USA): Discuss tables and structure of the International Reports
- Two scale anchoring workshops in East Lansing, MI:
 - Secondary (June 4 & 5)
 - Primary (July 1 & 2)
- July 2009 DPC sent first international data version to NRCs
- July 20 -24, 2009: 6th NRC Meeting (Santiago, Chile):
 - Initial training on the use of TEDS-M International /national database (DPC)
- September, 2009: Data analysis workshop at MSU.



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- During this period, we finalized the scales for the main outcome measures and for opportunities to learn:
 - Mathematics Content Knowledge (primary and secondary)
 - Mathematics Pedagogy Knowledge (primary and secondary)
 - Beliefs
 - Opportunity to Learn



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PROGRAM TYPES PRESENTATION



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- The Data Base & Guide draft outline has been developed including deadlines for the delivery and training on the use of the database.
- The Technical Report is under development by the TEDS-M team.
- The TEDS-M Final Report outline has been developed and is currently under discussion. The lead for this report falls under the MSU ISC.
- 1st version of international database was finalized by DPC after all countries responded to queries (May/June 2009). 2nd version will be finalized this month.

Three-Stage Release all to occur in 2010

- Release of “First International Findings” in Washington, D.C.

- Release of two full international reports:
 - Volume 1: National policies and regulatory arrangements for the mathematics preparation of future teachers in 17 countries
 - Volume 2: Institutions, programs, opportunities to learn and outcomes for the mathematics preparation of future teachers in 17 countries
 - Technical reports

- Release international data base (IDB).

GROUPING PROGRAM TYPES FOR ANALYSIS

- Each country's teacher education system is subdivided into one or more program-types representing those programs that share important organizational features
- Program-types prepare teachers for different levels of schooling and different combinations of subject-matter



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- For purposes of analysis, the future teachers in these program types have been grouped by
 - Their inclusion in the TEDS-M primary sample, secondary sample or both
 - The highest grade level which they will be qualified to teach
 - Their preparation as specialists (teaching math only or math plus one other subject) vs generalists (teaching three or more subjects)
- Resulting in 4 primary & 3 secondary groups

Primary Program Type Groupings

Lower primary generalist (no higher than grade 4)	Germany, Poland, Switzerland, Russian Federation
Lower and upper primary generalist (no higher than grade 6)	C. Taipei, Georgia, Malaysia, Philippines, Singapore, Spain, Switzerland, USA

PRIMARY PROGRAM TYPE GROUPINGS (CONT)

Primary and lower secondary generalists (no higher than grade 10)	Botswana, Chile*, Germany, Norway
Primary and lower secondary specialists (no higher than grade 10)	Germany,*Poland*, Thailand* USA*

Secondary Program Type Groupings

<p>Primary and lower secondary OR lower secondary only specialists (no higher than grade 10)</p>	<p>Botswana, C. Taipei, Germany*, Philippines, Poland*, Switzerland, USA*</p>
<p>Lower and upper secondary specialists (no higher than grade 12/13)</p>	<p>Botswana, Georgia, Germany, Malaysia, Oman, Norway, Poland, Russian Federation, Singapore, Thailand*, USA</p>
<p>Lower secondary generalist</p>	<p>Chile*</p>

Program-types for generalists no higher than grade 4

COUNTRY	PROGRAM-TYPE NAME	TEDS-M LEVEL	GRADE SPAN	SPECIALIZATION	CONSEC VS CONCURRENT
Germany	Teachers of Grades 1-4 with math	Primary	1-4	Generalist	Consecutive
Germany	Teachers of Grades 1-4 without math	Primary	1-4	Generalist	Consecutive
Poland	B. Ped, integrated teaching, 1 st cycle	Primary	1-3	Generalist	Concurrent
Poland	B.Ped, integrated teaching, long cycle	Primary	1-3	Generalist	Concurrent
Russia	Primary teacher education	Primary	1-4	Generalist	Concurrent
Switzerland	Teachers for Grades 1-2	Primary	1-2	Generalist	Concurrent
Switzerland	Teachers for Grades 1-3	Primary	1-3	Generalist	Concurrent

Specialists for combined primary-lower secondary OR lower secondary only

COUNTRY	PROGRAM-TYPE NAME	TEDS-M LEVEL	GRADE SPAN	SPECIALIZATION	CONSECUTIVE VS CONCURRENT
Botswana	Diploma in Sec Education	Lower secondary	8-10	Specialist	Concurrent
Chinese Taipei	Sec Math Teacher Preparation	Lower secondary	7-9	Specialist	Concurrent
Germany	Teacher for Grades 1-10 with math	Primary & lower secondary	1-10	Specialist	Consec
Germany	Teacher for Grades 5-10	Lower secondary	5-10	Specialist	Consec
Poland	Mathematics BA, 1 st cycle	Primary & lower secondary	4-9	Specialist	Concurrent



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Thank You!

We will be happy to take questions.