IEA Teacher Education Study in Mathematics

TEDS-M PROGRESS REPORT

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

Overall purpose

- TEDS-M 2008 is designed to inform and improve the policy and practice of mathematics teacher preparation, specifically, how future teachers learn to teach a challenging mathematics curriculum in primary and lower secondary school

- The first cross-national assessment of learning outcomes in higher education using representative national samples

From policy to outcomes

TEDS-M pays particular attention to the links between teacher education policies, organization, practices, outcomes and costs

Measured outcomes

- Level and depth of the mathematics and related teaching knowledge attained by prospective primary and lower secondary teachers
- Beliefs and self-reported preparedness to teach

Organization, practices and cost

- What learning opportunities are available to prospective primary and lower secondary mathematics teachers that allow them to attain such knowledge?
- How are these OTL structured and what is the content taught in teacher education programs?
- What are the costs?

Policy and context

- What are the intended and implemented policies that underlie the OTL of mathematics teacher education and what is the impact of these policies?

Policy relevance

In short, gather empirical data to address unresolved policy issues regarding **the nature, benefits and costs of mathematics teacher education**

The major components of TEDS-M

- National studies of policy, curricula, routes and costs

- Triple survey of TE institutions and programs, their teaching staffs and their students

TEDS instrument development

- Instruments have been developed at national, institutional, teacher educator and future teacher level
- Including instruments to assess future teacher knowledge of:
  - Mathematics content
  - Mathematics pedagogy

Policy Studies

Reports describing national policy and practices related to assuring quality in teacher education. Country reports will contain three main parts:

- Context and organization of teacher education;
- Quality assurance arrangements and program requirements;
- Funding and reform of teacher education

Curriculum Studies

This area includes analysis of:

- the mathematics K-12 curriculum and
- the teacher preparation curriculum across the countries participating in the study

Cost Studies

- TEDS-M has earnings data for mathematics oriented professions and teachers in 15 countries for two different years--the 1990s and a recent year
- We are currently collecting institution level data on teacher education costs

Institutional Questionnaire

To gather information from each participating institution on:

- the overall program structure,
- the background of the future teachers in the program,
- the program's selection policies, content, field experience, standards, staffing, and resources

Educator Questionnaire

To gather information on:

- Teacher educators' background,
- The opportunities to learn to teach mathematics provided future primary and lower secondary teachers
- Teaching approach
- Links between course content and practicum experience
- Beliefs

Future Teacher Questionnaire

To gather information on

- Opportunities to learn
- Perceptions of the program
- Attitudes and beliefs (Processes)
- Perceptions of their preparedness to teach
- Mathematical content knowledge
- Pedagogical content knowledge

(Outcomes)

For the overall design, see **Conceptual Framework document,** available on the TEDS-M website:

http://teds.educ.msu.edu/

19 Countries Participating

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

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Major Accomplishments 2006-2007

Implemented the Field Trial

- The Field Trial was carried out from February to June, 2007

- The participating countries included Botswana, Chile, Chinese Taipei, Georgia, Germany, Italy, Norway, Oman, Philippines, Poland, Singapore, Spain, Switzerland, and Thailand

3rd NRC Meeting and other meetings

- Field trial data were analyzed and presented in the 3rd NRC meeting in Taipei.
- Other working meetings;
  - Data Management Training (Dec 2006, Hamburg),
  - Syllabi Analysis and Scoring Training Workshop (Feb 2007, San Antonio),
  - Data Management Training (Sept 2007, Hamburg)

3rd NRC Meeting and other meetings

- Expert meetings for questionnaire development; close to 10 expert meetings since project planning began
- TEDS-M team holds twice monthly conference calls, communicates via a website with NRCs and uses a server set-up by IEA-DP$_R$C to post instruments, manuals, and other confidential project documents to the NRCs

Country sampling plans

- TEDS-M sampling referee and IEA-DP$_R$C have negotiated sampling plans tailored to participating countries to meet IEA standards for national probability samples of Teacher Education institutions, educators and future teachers
- In many cases where the target populations are small, a census will be required

Finalized the MS Instruments

Reflecting NRC feedback from the Field Trial together with psychometric analysis by the research team:

- Future teacher questionnaire reduced by 1/2
- Educator questionnaire reduced by 1/3
- Institution questionnaire reduced by 1/4

Future Teacher Questionnaire (FTQ)

- The mathematics and mathematics pedagogy areas have been re-designed to include:
  - Stronger emphasis on three of the four original areas in mathematics (number, algebra, and geometry—with less emphasis on data)
  - Stronger emphasis on 2 of the 3 original areas in mathematics pedagogy
- This re-designed version uses 60 minutes of the FTQ

Future Teacher Questionnaire (FTQ)

- General pedagogy will be provided as a national option. About 2/3 of the countries have opted for this, using primarily the instrument and methods developed by the ISC - MSU
- Counting the background section (5 minutes), the opportunities to learn sections (15 minutes), and the beliefs section (10 minutes), the FTQ now takes not more than 90 minutes

Teacher Educator Questionnaire

- Reduced from two field trial instruments to one for mathematics, mathematics pedagogy, and general pedagogy educators
- The questionnaire for the field experience educators will be provided as a national option

Institution Program Questionnaire

- Includes more detailed description of program content
- Includes more detailed description of field experience

Obtained Supplemental Funding

From NSF to cover unanticipated expenses, resulting from

- the more complex measurement design,
- the complexity of the sample design, and
- the recruitment of more countries

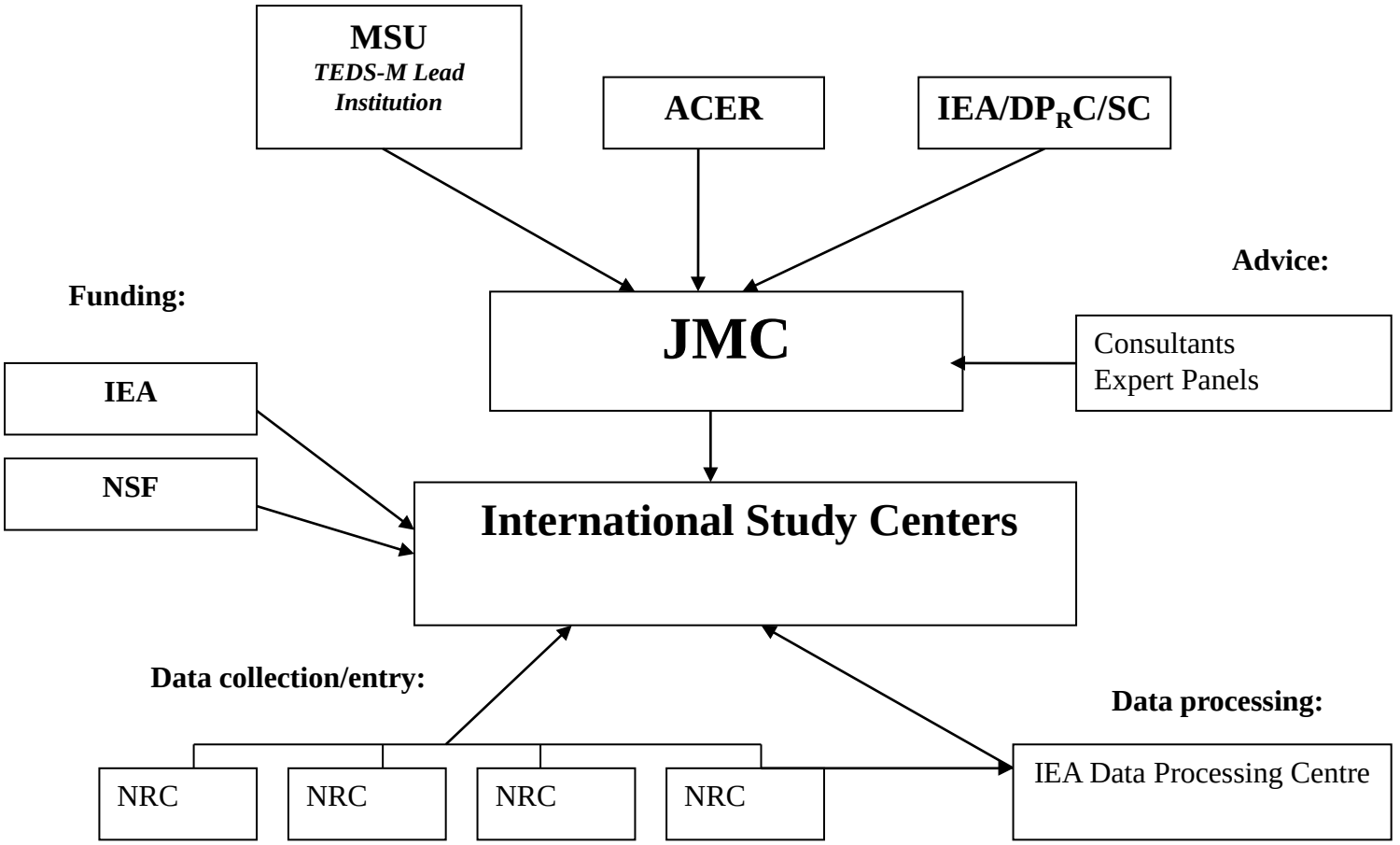
Timeline: key events to come

Data management seminar	Sept 2007
Main data collection, earliest start date	Oct 2007
Scoring training seminar	Nov 2007
2nd International quality control seminar	Jan 2008
Main data collection, latest end date	May 2008
Scoring Training, Fribourg, Switzerland	April 2008
Curriculum workshop, Warsaw, Poland	June 2008
NRCs submit data to DPC (end date)	Aug 2008
4th NRC meeting, Bergen, Norway	Sep 2008
DPC sends datasets to MSU/ACER	Nov 2008
Final expert/advisory board meeting	Feb 2009
Release of final reports	Oct 2009

Organizational Leadership and Expertise

- IEA
- Michigan State University
- Australian Council for Educational R.
- IEA/DP$_R$C
- STATISTICS CANADA
- National Research Centers

TEDS-M organizational chart



On behalf of the TEDS-M team

Thank you all!!

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