



***Four projects, where NCM has different roles:***



***Four projects, where NCM has different roles:***

- *International Perspectives on Math Education*, books for pre-service and in-service teacher education



***Four projects, where NCM has different roles:***

- *International Perspectives on Math Education*, books for pre-service and in-service teacher education
- *Mathematics Biennials*, biannual national 2-3 days conferences since 1980



## ***Four projects, where NCM has different roles:***

- *International Perspectives on Math Education*, books for pre-service and in-service teacher education
- *Mathematics Biennials*, biannual national 2-3 days conferences since 1980
- *Small Children's Mathematics*, Pilot project documented by children 1-5 years old, their teachers and the teachers' supervisors from NCM



## ***Four projects, where NCM has different roles:***

- *International Perspectives on Math Education*, books for pre-service and in-service teacher education
- *Mathematics Biennials*, biannual national 2-3 days conferences since 1980
- *Small Children's Mathematics*, Pilot project documented by children 1-5 years old, their teachers and the teachers' supervisors from NCM
- *Hands-On Mathematics* in classrooms and in-service education

# **MIDSUMMER WORLD MATHEMATICS EDUCATION**

## **19–25 June, 2003**

# MIDSUMMER WORLD MATHEMATICS EDUCATION

## 19–25 June, 2003



**Prominent mathematics educators/researchers were asked to present and discuss papers addressing the following themes:**

- Confidence and interest in learning mathematics and in the use of mathematics
- What does it mean to know mathematics and what mathematics is worth knowing
- Value and use of representations for different purposes and contexts
- Transitions between related subject areas and school levels
- Teaching aids and artifacts supporting learning mathematics
- Learning and teaching in socially different contexts, ethnicity, language, gender issues

## **Prominent mathematics educators/researchers were asked to present and discuss papers addressing the following themes:**

- Confidence and interest in learning mathematics and in the use of mathematics
- What does it mean to know mathematics and what mathematics is worth knowing
- Value and use of representations for different purposes and contexts
- Transitions between related subject areas and school levels
- Teaching aids and artifacts supporting learning mathematics
- Learning and teaching in socially different contexts, ethnicity, language, gender issues

The themes were chosen from NCM investigations and reports to the government, and also from the directives for the Mathematics committee appointed by the government, January 2003.

## Each contribution should have two sections:

- a brief research paper
- a classroom material for teachers

Each of the sections should have explicit links pointing to the other section.

You remember that our guests knew a lot about the Swedish situation, which also was presented in the beginning of the conf.

## Each contribution should have two sections:

- a brief research paper
- a classroom material for teachers

## Both sections should address:

*What does international research tell us about mathematics teaching and learning?*

## Focus on

- *Maximizing interest in and opportunities for all students learning mathematics*
- *Implications of international research for classroom practice.*

Each of the sections should have explicit links pointing to the other section.

You remember that our guests knew a lot about the Swedish situation, which also was presented in the beginning of the conf.

The papers were discussed by the researchers,  
the NCM staff, the NCM board and the Mathematics Committee  
– researchers, educators, teachers representing all levels of our education system.



The papers were discussed by the researchers,  
the NCM staff, the NCM board and the Mathematics Committee  
– researchers, educators, teachers representing all levels of our education system.



After the conference, the authors revised their contributions  
in cooperation with the editors and reviewers, based on the seminars  
– for one book.

**At the end of every session:**

**The Mathematics Delegation also organized a “Dialogue Café”.  
The key questions were discussed 3 hours in small groups:**

*What does international research tell us in Sweden about mathematics teaching and learning?*

*How can we maximise interest in and opportunities for Swedish students learning mathematics?*

*What are the implications of international research results for classroom practice?*

## **At the end of every session:**

*"As a result of today's presentations, I make the following recommendation for improving Swedish mathematics education ....*

**The Mathematics Delegation also organized a “Dialogue Café”.  
The key questions were discussed 3 hours in small groups:**

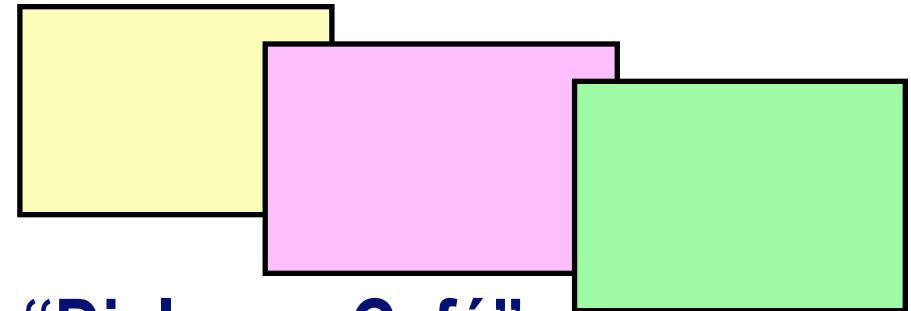
*What does international research tell us in Sweden about mathematics teaching and learning?*

*How can we maximise interest in and opportunities for Swedish students learning mathematics?*

*What are the implications of international research results for classroom practice?*

## At the end of every session:

*"As a result of today's presentations, I make the following recommendation for improving Swedish mathematics education ....*



**The Mathematics Delegation also organized a “Dialogue Café”.  
The key questions were discussed 3 hours in small groups:**

*What does international research tell us in Sweden about mathematics teaching and learning?*

*How can we maximise interest in and opportunities for Swedish students learning mathematics?*

*What are the implications of international research results for classroom practice?*

**A summary of the summaries condensed by Lars Mouwitz, NCM  
is published in *International Perspectives* ... p 16**



**A summary of the summaries condensed by Lars Mouwitz, NCM  
is published in *International Perspectives* ... p 16**

***Public sector***

Give concrete "images" of the use and importance of mathematics in society and research.  
Give "existence proofs" of good examples of classroom teaching and teacher education for  
distributing in the various communication media.

Undertake contacts with public policy makers.



## **A summary of the summaries condensed by Lars Mouwitz, NCM is published in *International Perspectives* ... p 16**

### ***Public sector***

Give concrete "images" of the use and importance of mathematics in society and research.  
Give "existence proofs" of good examples of classroom teaching and teacher education for distributing in the various communication media.

Undertake contacts with public policy makers.

### ***Professional identity***

Give attention to recruiting, preparing, retaining and re-training high quality teachers.

Evaluate teacher preparation programs, support on-going, life-long teacher professional development.

Promote effective teaching based on research and determine appropriate internal and external rewards for good teaching (e.g. by raising salaries).

Give teachers good mathematical experiences and involve teachers in reform projects.



## **A summary of the summaries condensed by Lars Mouwitz, NCM is published in *International Perspectives* ... p 16**

### ***Public sector***

Give concrete "images" of the use and importance of mathematics in society and research.  
Give "existence proofs" of good examples of classroom teaching and teacher education for distributing in the various communication media.

Undertake contacts with public policy makers.

### ***Professional identity***

Give attention to recruiting, preparing, retaining and re-training high quality teachers.  
Evaluate teacher preparation programs, support on-going, life-long teacher professional development.

Promote effective teaching based on research and determine appropriate internal and external rewards for good teaching (e.g. by raising salaries).

Give teachers good mathematical experiences and involve teachers in reform projects.

### ***Commitment of all participants***

Give special training for committed "lead teachers".

Induce and secure commitment from all relevant persons – teachers, school leaders, politicians, parents, students – in a proposed nationwide curriculum development project.



### ***Institutional issues***

Create a critical mass of research and researchers for on-going development.

Create a systemic structure for on-going networking and collaboration among researchers, teacher educators, and teachers.

Establish a dialogue among key individuals in the Ministry of Education, professional organizations, universities to create centers of excellence.

### ***Time resources***

Teachers must have time to reflect and collaborate.

Students must have time to investigate and communicate their thinking about important mathematical ideas.

### ***Institutional issues***

Create a critical mass of research and researchers for on-going development.  
Create a systemic structure for on-going networking and collaboration among researchers, teacher educators, and teachers.

Establish a dialogue among key individuals in the Ministry of Education, professional organizations, universities to create centers of excellence.

### ***Time resources***

Teachers must have time to reflect and collaborate.

Students must have time to investigate and communicate their thinking about important mathematical ideas.

### ***Curriculum content***

An excellent curriculum must be practicable by teachers.

Encourage teachers to become more involved in shaping curriculum, applications, contexts, and big ideas.

Formulate clear curriculum goals and promote continuity across levels of school and student ages. Clarify the aims of mathematics for all, and mathematics for some.

### ***Assessment***

New modes of student assessment, appropriate to curriculum and teaching goals, must be carefully designed and implemented.



**Editors from AUS, US and NCM**



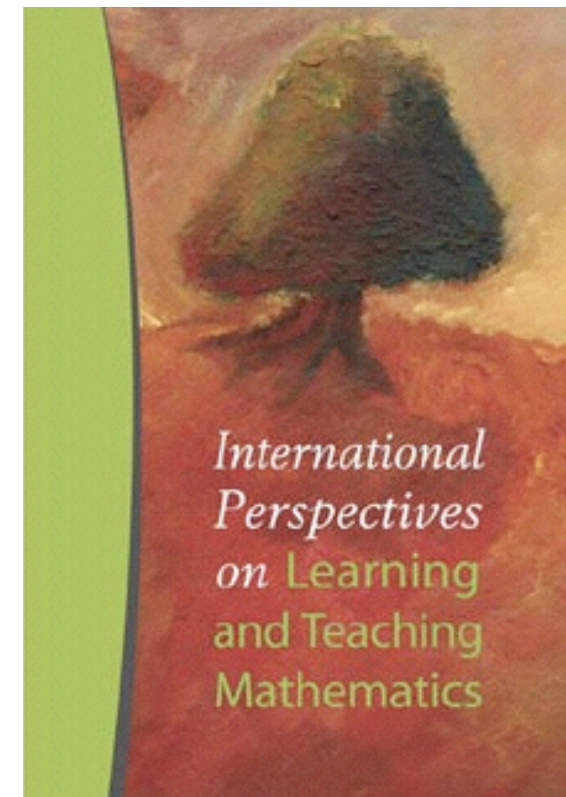
**Editors from AUS, US and NCM**

The volume was divided into seven sections:

1. International perspectives
2. Building children's understanding
3. Problem-solving and modeling
4. Learning from assessment
5. Theoretical perspectives on learning
6. Responding to contexts
7. Towards learner centered teaching



**Editors from AUS, US and NCM**

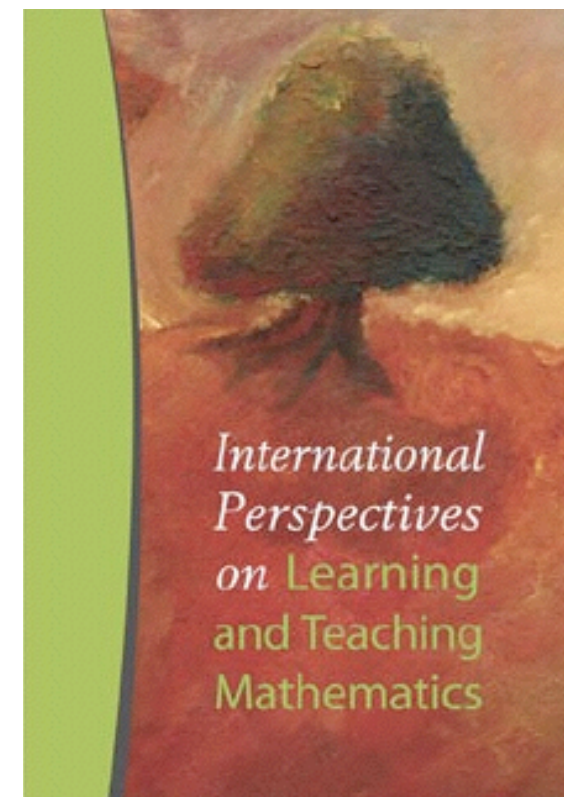


The volume was divided into seven sections:

1. International perspectives
2. Building children's understanding
3. Problem-solving and modeling
4. Learning from assessment
5. Theoretical perspectives on learning
6. Responding to contexts
7. Towards learner centered teaching



**Editors from AUS, US and NCM**

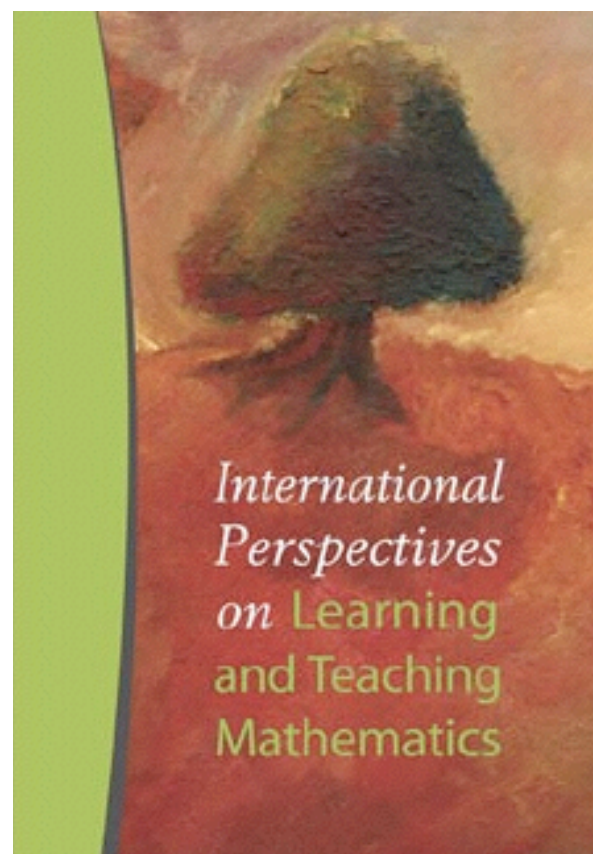


The volume was divided into seven sections:

1. International perspectives
2. Building children's understanding
3. Problem-solving and modeling
4. Learning from assessment
5. Theoretical perspectives on learning
6. Responding to contexts
7. Towards learner centered teaching

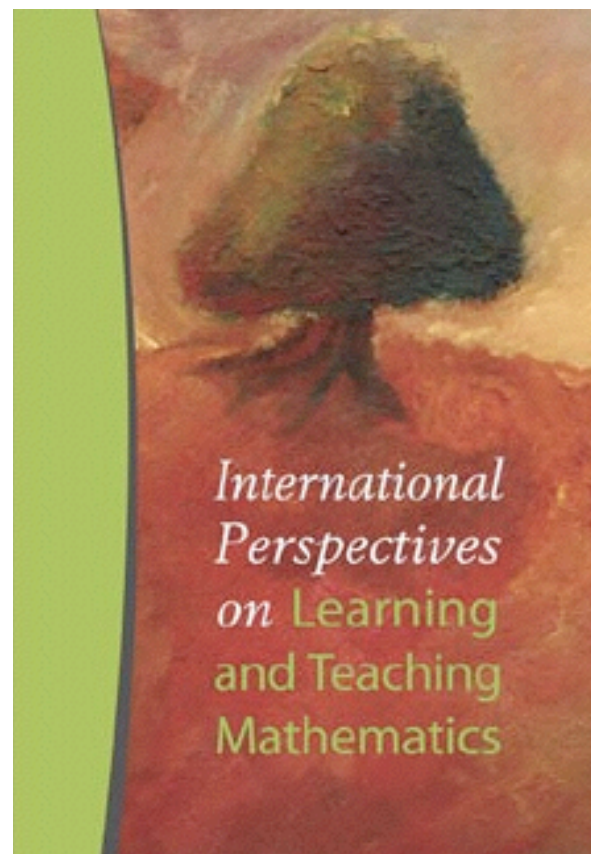
**... released in Copenhagen, July**





published July 2004  
600 p

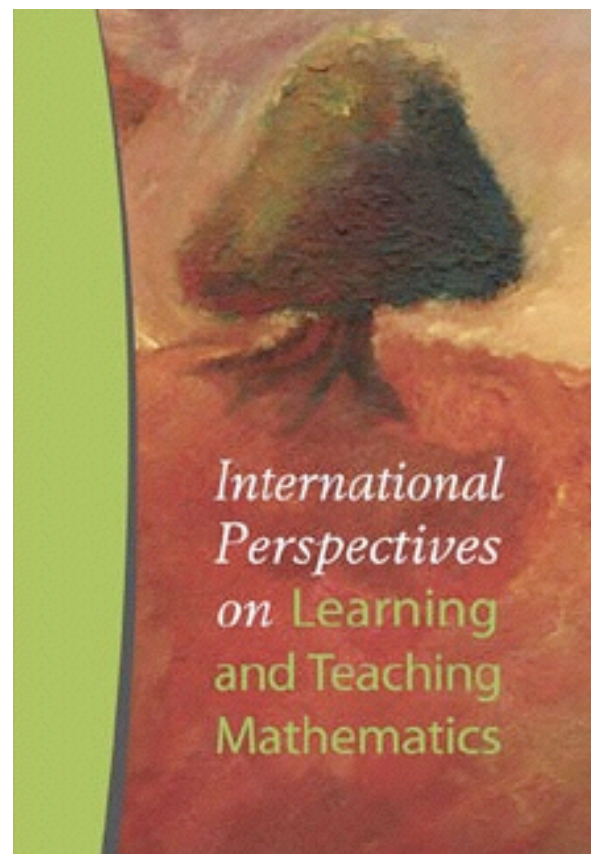
We directly started a process selecting the most valuable articles for translation to Swedish – led by the suggestions from MD.



published July 2004  
600 p

We directly started a process selecting the most valuable articles for translation to Swedish – led by the suggestions from MD.

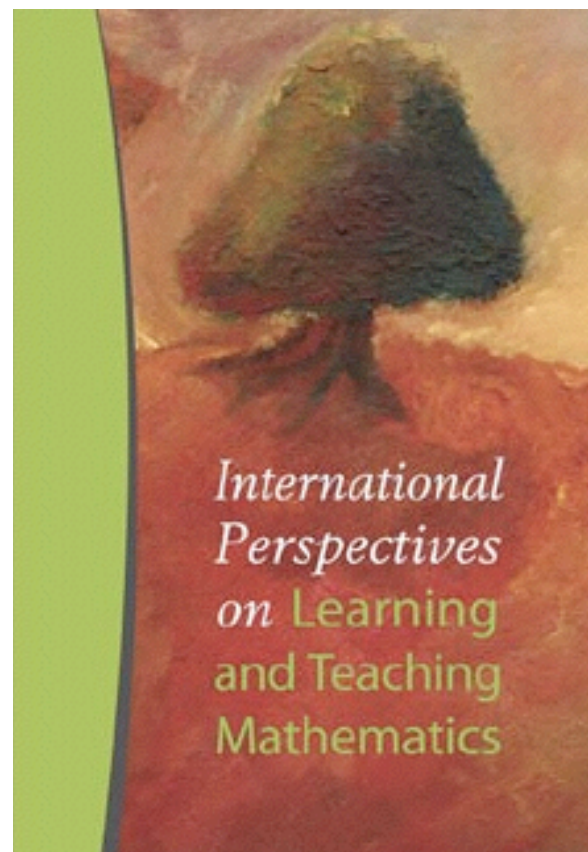
A team from NCM edited the second book:  
*Lära och undervisa matematik – internationella perspektiv*



published July 2004  
600 p

We directly started a process selecting the most valuable articles for translation to Swedish – led by the suggestions from MD.

A team from NCM edited the second book:  
*Lära och undervisa matematik – internationella perspektiv*



published July 2004  
600 p



published July 2006  
290 p

***Mathematikbiennaler, Mathematics Biennials***

1980, 1982, 1984, 1986, 1988,  
1990, 1992, 1994, 1996, 1998,  
**2000**, 2002, 2004, 2006, 2008

## ***Matematikbiennaler, Mathematics Biennials***

1980, 1982, 1984, 1986, 1988,  
1990, 1992, 1994, 1996, 1998,  
**2000**, 2002, 2004, 2006, 2008



### ***The primary purposes of the Biennials***

- To create an arena for teachers to share and discuss experiences and ideas from the classroom
  - To be inspired from developmental work and research in mathematics education.

### ***The primary purposes of the Biennials***

- To create an arena for teachers to share and discuss experiences and ideas from the classroom
  - To be inspired from developmental work and research in mathematics education.

The conferences offer seminars, lectures, workshops, exhibitions from publishers, displays prepared by teachers.

### ***The primary purposes of the Biennials***

- To create an arena for teachers to share and discuss experiences and ideas from the classroom
  - To be inspired from developmental work and research in mathematics education.

The conferences offer seminars, lectures, workshops, exhibitions from publishers, displays prepared by teachers.

Between two Biennials there are regional *Biennettes*, 200–1500 participants.

## ***The primary purposes of the Biennials***

- To create an arena for teachers to share and discuss experiences and ideas from the classroom
  - To be inspired from developmental work and research in mathematics education.

The conferences offer seminars, lectures, workshops, exhibitions from publishers, displays prepared by teachers.

Between two Biennials there are regional *Biennettes*, 200–1500 participants.

Since 1998, the Swedish Society for Research in Mathematics Education (SMDF) has planned and organized a pre-session for researchers and educators including international guests, <http://www.mai.liu.se/~chber/SMDF>

# Nämnaren award



# Nämnnaren award



# Nämnaren award



# Nämnnaren award



The winners describes their work in Nämnnaren.

# Documentation



# Documentation



# Documentation



# Documentation

***Proceedings***  
in books or dvd  
since 1992



# Documentation

***Proceedings***  
in books or dvd  
since 1992



However, it would be possible to make better use of the ideas and opportunities offered by the Biennial conferences to strengthen the mathematics teaching competence in Swedish schools.

# Documentation

***Proceedings***  
in books or dvd  
since 1992



However, it would be possible to make better use of the ideas and opportunities offered by the Biennial conferences to strengthen the mathematics teaching competence in Swedish schools.  
Municipalities and schools don't take advantage of the potential

# Documentation

***Proceedings***  
in books or dvd  
since 1992



However, it would be possible to make better use of the ideas and opportunities offered by the Biennial conferences to strengthen the mathematics teaching competence in Swedish schools.

Municipalities and schools don't take advantage of the potential  
– in the teachers' enthusiasm,

# Documentation

***Proceedings***  
in books or dvd  
since 1992



However, it would be possible to make better use of the ideas and opportunities offered by the Biennial conferences to strengthen the mathematics teaching competence in Swedish schools.

Municipalities and schools don't take advantage of the potential

- in the teachers' enthusiasm,
- in the presented developmental work and research.

# *WELCOME TO*



*Matematikbiennalen i Stockholm 31 Jan – 1 Feb, 2008*

# WELCOME TO



*Matematikbiennalen i Stockholm 31 Jan – 1 Feb, 2008*



matematikbiennalen.se