

The Mathematics Education into the 21st Century Project



**The University of North Carolina
Charlotte**



Programme

of the Ninth International Conference
***Mathematics Education in a
Global Community***

Sep 7-12, 2007

Major Sponsors

CASIO, Autograph, Charlotte Regional Visitors Authority

Printing supported by the Center for Mathematics, Science & Technology
Education, UNCC

International Program Committee

Chairman Dr. Alan Rogerson, International Coordinator of the Mathematics in Society Project (Poland).
Prof Khaled Abuloum, University of Jordan (Jordan).
Professor Roberto Baldino, UNESP (Brazil).
Dr. Andy Begg , University of Waikato (New Zealand).
Dr. Donna F. Berlin, The Ohio State University (USA)
Prof. Dr. Werner Blum, University of Kassel (Germany).
Professor Ubiratan D'Ambrosio, Campinas/UNICAMP, (Brazil).
Professor Bruno D'Amore, University of Bologna (Italy).
Professor Dr. Tilak de Alwis, Southeastern Louisiana University (USA)
Prof Dr William Ebeid, Emeritus Professor, Faculty of Education, Ain Shams University (Egypt).
Professor Paul Ernest, University of Exeter (UK).
Prof. Dr. Gabriele Kaiser, Hamburg University (Germany).
Dr. Madeleine J. Long, Hunter College, City University of New York (USA).
Prof Dr Fayez Mina, Faculty of Education, Ain Shams University (Egypt).
Prof Nicolina Malara, University of Modena (Italy)
Prof Dr M. Ali M. Nassar, Director of Planning Center, Institute of National Planning (Egypt).
Dr. Lionel Pereira Mendoza, Educational Consultant.
Professor Angela Pesci, University of Pavia (Italy)
Prof. Medhat Rahim, Lakehead University, Faculty of Education (Canada).
Professor Filippo Spagnolo, University of Palermo, Sicily, (Italy).
Professor Dr. Alicia Villar Icasuriaga, IPA, Montevideo, (Uruguay)
Dr. Arthur L. White, The Ohio State University (USA)
Professor. Wacek Zawadowski, Siedlce University (Poland).

Local Organizing Committee

Chairman: Associate Professor Dr. David K. Pugalee, (dkpugale@uncc.edu)
Sally Adkin, North Carolina School of Science and Mathematics (adkin@ncssm.edu)
Laura Brinker, University of South Carolina (LBrinker@gwm.sc.edu)
Vic Cifarelli, University of North Carolina Charlotte (vvcifare@uncc.edu)
Dr. Beth Costner, Winthrop University (costnerb@winthrop.edu)
Cos D Fi, University of North Carolina at Greensboro (cdfi@uncg.edu)
Patsy (Patricia) Douville, Winston-Salem State University
Susan Friel, University of North Carolina at Chapel Hill (sfriel@email.unc.edu)
Adam Harbaugh, University of North Carolina Charlotte (apharbau@uncc.edu)
Timothy Hendrix, Meredith College (Hendrixt@meredith.edu)
Karen Hollenbrands, North Carolina State University (karen_hollebrands@ncsu.edu)
Corey Lock, University of North Carolina Charlotte (crlock@uncc.edu)
Carol Malloy, UNC Chapel Hill (cmalloy@email.unc.edu)
Henry Neale, Charlotte Country Day School/UNC Charlotte (henry.neale@charlottecountryday.org)
Drew Polly, University of North Carolina Charlotte (abpolly@uncc.edu)
Ron Preston, East Carolina University (PRESTONR@MAIL.ECU.EDU)
Sid Rachlin, Association of Mathematics Teacher Educators, President, (rachlins@ecu.edu)
David Royster, Director, Center for Mathematics, Science & Technology Education, UNCC, (droyster@email.uncc.edu)
Norma Royster, Cabarrus County Schools/UNC Charlotte(nroyster@cabarrus.k12.nc.us)
Bill Scott, Charlotte-Mecklenburg Schools (bill.scott@cms.k12.nc.us)
Olof Steinhorsdottir, University of North Carolina at Chapel Hill (steintho@email.unc.edu)
Hollylynne Stohl Lee, North Carolina State University (Hollylynne@ncsu.edu)

Conference Programme

Friday September 7

Arrival/Registration at the Hilton Charlotte University Place Hotel

6.00 - 9.30pm **Welcome Reception** in University Place Hilton Hotel

Saturday September 8 All Sessions in UNCC

7.30 - 8.00am Breakfast

8.00 - 8.30am Shuttle buses to UNCC - **Please be prompt!**

9.00 - 9.10am Welcome & Announcements (Woodward Hall, Room 106)
Professor Fayez Mina & Dr Alan Rogerson (Project Coordinators)
Associate Professor David K. Pugalee (Chairman of the LOC)
Dean Mary Lynne Calhoun, UNC Charlotte College of Education

9.10 - 9.25am Short welcomes from the **UNCC, CASIO & NCTM**

9.30 - 10.30am **Opening Plenary** by **Douglas Butler** chaired by **Henry Kepner, NCTM**

10.30 - 11.00am Morning Tea/Coffee (College of Education Atriums, Levels 0 and 1)

11.00 - 12.30pm **Open Forum of Ideas (College of Education Atriums)**
This repeats the successful sessions in previous conferences when educational materials and software are displayed, exhibited and discussed by all participants. It will be an “open market” or smorgasbord where people are free to wander around looking at everything, and/or exhibiting their own materials.

12.30 - 1.30pm Lunch (College of Education Atrium)

1.30 - 3.30pm **Session 1: Parallel Working Groups**

3.30 - 4.00pm Afternoon Tea/Coffee (College of Education Atrium, Levels 0 and 1)

4.00 - 6.00pm **Session 2: Parallel Working Groups**

6.00 - 7.30pm **Welcome Reception** hosted by the **College of Education, UNCC**
Dr. Mary Lynne Calhoun, Dean. (College of Education Atrium)

7.30pm - Shuttle buses to return to Hilton Hotel

Evening Free

Sunday September 9 All Sessions in UNCC

- 7.30 - 8.00am** Breakfast
- 8.00 - 8.30am** Shuttle buses to UNCC - **Please be prompt!**
- 9.00 - 10.45am** **Plenary Forum: The State of Mathematics Education in the US**
Chair: Professor David Royster
(College of Health and Human Services, Room 155)
- SPEAKERS:**
Everly Broadway, NC State Department of Public Instruction; Head, Mathematics and Science Division - (State of Mathematics Education at the State Level)
Dr. Sol Garfunkel, COMAP - (Mathematics and its Application)
Madeleine J. Long, City University of New York, (Partnerships within University Communities and with K-12 Educational Systems)
Dr. Bernie Madison, University of Arkansas - (Quantitative Literacy and College Mathematics)
Dr. Paola Sztajn, National Science Foundation, Research on Learning in Formal and Informal Settings - (State of Mathematics Education Being Supported by the Federal Government)
- 11.00 - 11.30am** Morning Tea/Coffee (College of Education Atriums, Levels 0 and 1)
- 11.30 - 1.00pm** **Session 3: Parallel Working Groups**
- 1.00 - 2.00pm** Lunch (Student Activity Center, Saloons)
- 2.00 - 4.00pm** **Session 4: Parallel Working Groups**
- 4.00 - 4.30pm** Afternoon Tea/Coffee (College of Education Atriums, Levels 0 and 1)
- 4.30 - 6.00pm** **Session 5: Parallel Working Groups**
- 6.00pm -** Shuttle buses to return to Hilton Hotel
- Evening free**

Monday September 10

- 7.30 - 8.00am** Breakfast
- 8.15am** **Buses depart for Biltmore Excursion (please be prompt!)**
- 11.00am** **Arrival at Biltmore House for 2hour tour**
- 1.00pm** **Lunch at DeerPark**
- 2.00pm** **Winery Tour**
- 4.00pm** **Departure Winery and Biltmore**
- 6.30pm** **Arrival back at Hilton Hotel**
- Evening free**

Tuesday September 11 All Sessions in UNCC (Cone Center)

7.30 - 8.00am	Breakfast
8.00 - 8.30am	Shuttle buses to UNCC Please be prompt!
9.00 - 10.30am	Session 6: Parallel Working Groups
10.30 - 11.00am	Morning Tea/Coffee (Cone Center, Lucas Room)
11.00 - 12.30pm	Session 7: Parallel Working Groups
1.00 - 2.30pm	Lunch (Cone Center, Lucas Room)
2.30 - 3.30pm	Session 8: Parallel Working Groups
3.30 - 4.00pm	Afternoon Tea/Coffee (Cone Center, Lucas Room)
4.00 - 4.45pm	Session 9: Parallel Working Groups
4.45pm -	Shuttle buses to return to Hilton Hotel
6.00 - 10.00pm	Special Gala Dinner – Hilton Hotel

Wednesday September 12 All sessions in Hilton Hotel

8.00 - 8.45am	Breakfast
9.00 - 10.30am	Plenary Address Azlan Zanzali chaired by Gail Burrill, NCTM
10.30 - 11.00am	Morning Tea/Coffee
11.00 - 12.00am	Closing Session & Farewells
12.00am -	Lunch

Working Group Leaders For Parallel Working Sessions

1. **Technology:** Ludwig Paditz, Douglas Butler & Iris Johnson
2. **Applications & Statistics:** Ivan Meznik, Gail Burril & Willy Mwakapenda
3. **Learning and Problem Solving:** Erik de Corte, George Malaty & Ginny Keen
4. **Teacher Education:** Agnes Tuska, Madeleine Long & Mohini Mohamed
5. **Comparative Education, Social & Equity Issues:** Hanan Innabi, Azlan Zanzali & Adam Harbaugh
6. **Rich Learning Tasks:** Gary Flewelling, Henry Kepner & Bronwyn Ewing

Saturday 1.30-3.30 pm Session 1 Parallel Working Groups

1. Technology (College of Education Computer Lab, Room 005)

Using the ClassPad300Plus in Analysis to Solve a System of Linear Differential Equations (45min)

Ludwig Paditz

Making the new MS Office 2007 Mathematically Friendly (45min)

Douglas Butler

Online Mathematics courses: A New Paradigm in teaching and learning (30min)

Behnaz Rouhani

2. Applications and Statistics (College of Education, Room 169)

Theory Practice Service Learning in a Statistics Class (30min)

Evelyn C. Bailey

Where the Gold is: Data Mining and Improving the Curriculum in the 21st Century

Deborah J. Gougeon (30min)

Through the Eye of the Camera: A Teacher's View of Video-Conferencing (30min)

Tom Potter

Using a Cultural Context to Integrate Mathematics and Science Education (30min)

Donna F. Berlin

3. Teacher Education (College of Education, Room 166)

A Sustained Professional Development Partnership in an Urban Middle School (30min)

Cathy Liebars

The Growth of the Dynamic Figural Concept – Sense-Making Strategies Applied to Conceptions of Shape (30min)

Doris J. Mohr, Crystal Walcott & Signe Kastberg

Reasoning Algebraically about Operations: Developing early algebraic thinking by examining the generalizations that underlie young student's mathematical thinking. What do teachers and those who prepare teachers need to understand? (30min)

Virginia Bastable

Critical Mathematics Pedagogy: Transforming Teachers' Practices (30min)

David W. Stinson, Carla R. Bidwell, Christopher C. Jett, Ginny C. Powell & Mary M. Thurman

4. Learning and Problem Solving (College of Education, Room 165)

The Role of Representations in Growth of Understanding in Pattern-Finding Tasks

P. Holt Wilson & Catherine C. Stein (30min)

The Effect of Using Prediction Questions in the Middle School Algebra Classroom

Ok-Kyeong Kim & Lisa Kasmer (30min)

Increasing Accessibility of Multiplication Facts with Large Factors and Products

Lynnea C. Salvo (30min)

Teaching and Learning Mathematics: Student Reflection Adds a New Dimension (30min)

Victor U. Odafe

5. Comparative Education, Social and Equity Issues (College of Education, Room 168)

Giving All Students a Voice in the Elementary Mathematics Classroom (30min)

Megan Burton

A Program that Promotes Responsive Mathematics Teaching for English Language Learners in Gr. 6-12 Classrooms (30min)

Sylvia Taube & Bill Jasper

Effective Organization of Instructional Time in a Content Mastery Math Resource Room for Students with Learning Disabilities (30min)

Julie P. Jones & Paul J. Riccomini

A Descriptive Analysis of Secondary Mathematics Students' Formal Report Writing

Adam P. Harbaugh, David K. Pugalee, and Margaret Adams (30min)

6. Rich Learning Tasks (College of Education, Room 110)

Math in a Zoo < - > Math in the Wild (30min)

Gary Flewelling RLT

What is the future of Wholemovement in the development of Mathematics Education?

Bradford Hansen-Smith (45min)

The CME Project (45min)

Anna Baccaglioni-Frank & Al Cuoco

Saturday 4.00-6.00 pm Session 2 Parallel Working Groups

1. Technology (College of Education, Room 005)

"Big-screen" technology for little hands: incorporating graphing calculators in the elementary/middle school mathematics curriculum (Workshop) (45min)

Christine Browning and Gina Garza-Kling

Different representations of functions in a dynamic geometry environment (45min)

Gunnar Gjone

Tablet PCs and Web-based Interaction in the Mathematics Classroom (30min)

M. Reba

2. Applications and Statistics (College of Education, Room 169)

Using Statistics to Improve Education: A Dilemma (30min)

Gail Burrill

Mathematical Relations in Architecture and Spatial Design (30min)

Jane Burry

Extending Pre-Service Teacher Education through an Interdisciplinary Mathematics, Health and Technology Approach (30min)

Douglas Franks, Michael McCabe & Barbara Olmsted

n-ary Relation Operations on Databases (30min)

Miloš Koch & Ivan Mezník

3. Teacher Education (College of Education, Room 166)

Investigating Properties of Isosceles Trapezoids with the GSP: The case of a Pre-service Teacher (30min)

Adalira Sáenz-Ludlow & Anna Athanasopoulou

The Family Maths Programme, Developing Inquiry-based Teaching (30min)

Pam Austin & Paul Webb

Findings from Two Countries Regarding Prospective Teachers' Knowledge of Addition and Division of Fractions (30min)

R. Elaine Carbone & P. Eaton

Retaining Beginning Mathematics Teachers in the United States (30min)

Molly H. Fisher

4. Learning and Problem Solving (College of Education, Room 165)

Growth of Mathematical Understanding Through Pattern Finding Viewed through Coactions and Conversions (30min)

Valerie Bell, Sarah Ives, Gemma Mojica & Ryan C. Smith

Mathematical Understanding: Analyzing Student Thought Processes while Completing Mathematical Tasks (30min)

Drew Polly, Corey Lock & Barbara Bissell

Power Series Explorations In Precalculus (30min)

Ken Collins

What are students thinking as they solve open-ended mathematics problems? (30min)

Mary Margaret Capraro, Robert M. Capraro & Victor V. Cifarelli

5. Comparative Education, Social and Equity Issues (College of Education, Room 168)

Impact on the implementation of bilingualism in science and mathematics in Malaysian school system (30min)

Mohini Mohamed

Structures, Journeys, and Tools: Using Metaphors to Unpack Student Beliefs about Mathematics (30min)

Amélie G. Schinck, Henry W. Neale, Jr., David K. Pugalee & Victor V. Cifarelli

PISA Results and School Mathematics in Finland: strengths, weaknesses and future

George Malaty (30min)

Authentic Values and Coping with some Paradigm Shifts as Determinants of Mathematics Education in a Global Community (30min)

Fayez M. Mina

6. Rich Learning Tasks (College of Education, Room 110)

Creative Thinking in Problem Solving (30min)

A G (Tony) Shannon

Origami, Papierfalten, Papiroflexia: Paper Folding in Mathematics Education (45min)

R. Alan Russell

Knots and Soap Film Minimal Surfaces (45min)

Nat Friedman

Sunday 11.30-1.00 pm Session 3 Parallel Working Groups

1. Technology (College of Education, Room 005)

Using the ClassPad as a Dynamic Learning Environment to Teach Mathematics (Workshop) (60min)

Hideshi Fukaya & Diane Whitfield

Mathematical Modeling with NetLogo: Cognitive Demand and Fidelity (30min)

Iris DeLoach Johnson

2. Applications and Statistics (College of Education, Room 169)

Outdoor Mathematical Experiences: Constructivism, Connections, and Health(Workshop)

Meg Moss (45min)

Pushing the boundaries with Autograph (Workshop for teachers of years 11-12) (45min)

Douglas Butler

3. Teacher Education (College of Education, Room 166)

A non-standard course for future High School mathematics teachers (30min)

Michel Helfgott

Helping Students Understand Technical Calculus via an Online Learning Supplement and Group Learning (30min)

David A. Miller

The Modern Geometry Course Works Overtime: Preservice Teachers Learn Content and Technological Pedagogical Content Knowledge with Geometer's Sketchpad (30min)

Kathryn G. Shafer

4. Learning and Problem Solving (College of Education, Room 165)

A Quest for Understanding Understanding in Mathematics Learning: Examining Theories of Learning with (Negotiating a Problem-Solving Teaching Approach Model: Exploring Ideas (Workshop)) (45min)

Dr. Kgomotso Gertrude Garegae

Developing Algebraic Habits of Mind from the Context of Computer Science (Workshop)

Phyllis Bolin & Connie H. Yarema (45min)

5. Comparative Education, Social and Equity Issues (College of Education, Room 168)

Mathematics Language Skills of Second Year Analysis Students (30min)

Tangül Kabael & Aynur Özdaş

Indigenous Mathematical Knowledge at South African Cultural Villages: Opportunities for Integration in Mathematics Classrooms (30min)

Mogege Mosimege

A Mathematical Problem Solving Process Model of Thai Gifted Students (30min)

Supattra Pativisan & Margaret L. Niess

6. Rich Learning Tasks (College of Education, Room 110)

Workshop of Mathematical Talent, a Wonderful Educational Experience (45min)

Fernando de la Cueva Landa & Elena Gil Clemente

Project M³: Mentoring Mathematical Minds (Workshop) (45min)

Linda Jensen Sheffield

Sunday 2.00-4.00 pm Session 4 Parallel Working Groups

SPECIAL NASA PRESENTATION

Developing Calculus Concepts through Applications Related to NASA's Space Exploration Program (60min) (College of Education, Room 103)

Chris Giersch, Josephine Letts, David K. Pugalee, Norman Robinson, Monica Trevathan,
& Natalee Lloyd

1. Technology (College of Education, Room 005)

Dynamic Geometry with ClassPad and ClassPad Manager (Workshop) (45min)

Gunnar Gjone

Fun with Autograph for the youngsters (Workshop for teachers of years 7-10) (45min)

Douglas Butler

Video Games and Mathematics Education: Studying Commercial Sports Video Games to Identify the Potential for Learning and Thinking About Mathematics (30min)

Candace Barriteau Phaire

2. Applications and Statistics (College of Education, Room 169)

Using the ClassPad300Plus in Statistics to Draw Step Functions and to Compute their Quantiles (Workshop) (90min)

Ludwig Paditz

Laplace transform to students of engineering (30min)

V.R.Lakshmi Gorty

3. Teacher Education (College of Education, Room 166)

The Use of Research-Based Methods and Materials for Preparing to Teach Mathematics with Technology (30min)

Hollylynne Stohl Lee, Karen F. Hollebrands & P. Holt Wilson

Preparing Qualified Middle School Mathematics Teachers (30min)

Sharon M. Gronberg

Including Awareness of Assessment Issues in Teacher Content Preparation (30min)

Judith H. Hector

A Continuum of Secondary Mathematics Teacher Leadership (30min)

Jan A. Yow

4. Learning and Problem Solving (College of Education, Room 165)

Follow up Discussion to the Plenary Forum on The State of Mathematics Education in the US (30min)

Erik De Corte (chair)

Investigating Social and Individual aspects in Teachers' approaches to Mathematical Problem Solving (30min)

Erik De Corte, Fien Depaepe & Lieven Verschaffel

Development and Validation of the Calculus Concept Inventory (30min)

Jerome Epstein

Concentration or Lack of it (30min)

May Hamdan

5. Comparative Education, Social and Equity Issues (College of Education, Room 168)

Help for the Mathematics Learning Slump (30min)

Madeleine J. Long & Jeanne Weiler

The Effects of the Use of Explicit Number Names on Mathematical Understanding and Performance (30min)

Judith E. Beauford & Sandra Browning

Mathematics Education Issues in post-Soviet Kazakhstan: An International Perspective

Zaur Berkaliyev (30min)

Second Chance in Mathematics Education (30min)

Ariana-Stanca Văcărețu

6. Rich Learning Tasks (College of Education, Room 110)

Preparing Teachers for Democratic Mathematics Education (30min)

Mark Ellis & Carol E. Malloy

Translations towards connected mathematics (Workshop) (45min)

Mark Applebaum & Roza Leikin

Tackling Epistemological Problems (TEP) A didactical engineering to break through the amazing world of regular polyhedra (Workshop) (45min)

Bernardo Camou

Sunday 4.30-6.00 pm Session 5 Parallel Working Groups

SPECIAL NASA PRESENTATION

Developing Algebra Concepts through Applications Related to NASA's Space Exploration Program (60min) (College of Education, Room 103)

Josephine Letts, Chris Giersch, David K. Pugalee, Norman Robinson, Monica Trevathan, & Natalee Lloyd

1. Technology (College of Education, Room 005)

Building a Virtual Community of Problem Solvers: The CASMI project (Workshop)

Viktor Freiman, Nicole Lirette-Pitre, Dominic Manuel (45min)

Calculators: A Tool to Develop Number Sense for Pre-Service Elementary Teachers (Workshop) (45min)

Stuart Moskowitz

2. Applications and Statistics (College of Education, Room 169)

The Relationship between Preservice Teachers' Conceptions of Randomness and their Pedagogical Content Knowledge of Probability (30min)

Sarah Ives

Using *Inspiration 6*® in Introductory Statistics: A Preliminary Report (30min)

Alisa Izumi

Mathematics at Distance Education for Students in Prison (30min)

Genoveva Leví, Eduardo Ramos, María Pilar González & Luis Tejero

3. Teacher Education (College of Education, Room 166)

Penpals, Children's Books, and Learning Mathematics (30min)

Virginia (Ginny) Keen

Professional Competence in Teaching of Mathematics in Selected High Schools of India and U.S.: The Interplay of Cognition, Conceptions, and Context (30min)

Renu Ahuja

Student Teachers' Experiences with Mathematics Curriculum Materials: Issues of Autonomy and Teacher Learning (30min)

Stephanie L. Behm & Gwendolyn M. Lloyd

4. Learning and Problem Solving (College of Education, Room 165)

8th Grade Students' Understanding of Slope and its Antecedents in a Learning Situation based on Quantitative Reasoning Learning/ Research (30min)

John Olive & Günhan Çaglayan

A Cognitive Gap between Formal Arithmetic and Visual Representation in Fractional Operations (30min)

Nevin Orhun

A New Approach to *Conics* (30min)

Hussein Tahir

5. Comparative Education, Social and Equity Issues (College of Education, Room 168)

The Inequity Of Mathematics Education In The United States (30min)

Karen S. Norwood

Designing a Program to Support Underrepresented (UREP) Students in Mathematics and Computer Science (Workshop) (45min)

Stacie S. Nunes

Keeping all Students on the Learning Path (15min)

Judy Mousley, Peter Sullivan & Robyn Zevenbergen (presented by Fayeza Mina)

6. Rich Learning Tasks (College of Education 110)

Frameworks for Improving Mathematical Sophistication and Teaching Philosophies

Gideon Weinstein (30min)

Fractions Without Pain! (Workshop) (45min)

Hugo Rodriguez

Tuesday 9.00-10.30 am Session 6 Parallel Working Groups

1. Technology (Cone Center, Room 210A)

Developing Innovative Technology Based Mathematics Learning Resources (30min)

Conrad Lotze

Spreadsheet Investigations in Modular Arithmetic (30min)

Steve Sugden

Let's Do Math with Technology (30min)

Martha Tapia

2. Applications and Statistics (Cone Center, Room 210B)

The Use of Writing to Teach and Learn Mathematics: Results of Research Testify to Benefits (30min)

L. Diane Miller

The Cultural and Language Challenges in Teaching Saudi Arabian Students, in the English Language, the Mathematics Needed in Order to be Successful in the Degree Programs of Engineering, Computer Technology and Business Management (30min)

John E. Sasser & Raja Clouse

Understanding Probability Using Algebra (30min)

Natalya Vinogradova

3. Teacher Education (Cone Center, Room 112)

The Effects of Participating in Lesson Studies on Practices of Teaching Mathematics

Agnes Tuska & Rajee Amarasinghe (30min)

I Think I Can, I Think I Can: Impacting Pre-service Teachers' Dispositions toward Mathematics (Workshop) (30min)

Nancy Cerezo, Sylvia Rockwell, Carol Walker, Valerie Wright & Monika Vo

Examining the influence of learner-centered professional development on elementary mathematics' teachers enacted and espoused practices (30min)

Drew Polly

4. Learning and Problem Solving (Cone Center, Room 113)

Participation and Non-Participation in Mathematics Classrooms (30min)

Bronwyn Ewing

Non-verbal arithmetic (30min)

Éva Szeredi and Katalin Fried

Proof in Dynamic Geometry: More than Verification PS MathsLearning (30min)

Michael de Villiers

5. Comparative Education, Social and Equity Issues (Cone Center, Room 208)

Affective Pathways and Structures in Urban Student's Mathematical Learning (30min)

Gerald A. Goldin, Yakov M. Epstein & Roberta Y. Schorr

Mathematics in the Middle: Enhancing Teachers' Understanding of the Interplay Between "School Math" and Professional Uses of Mathematics (30min)

Barbara Garii & Marcia M. Burrell

Success Starts at Home - An educational partnership (30min)

Maria-Joao Peres

6. Rich Learning Tasks (Cone Center, Room 111)

WORKING GROUP DISCUSSIONS

Tuesday 11.00-12.30 pm Session 7 Parallel Working Groups

1. Technology (Cone Center, Room 210A)

Discovering functional and dynamic aspects of parametric equations by creating computer animations (30min)

Andreas Filler

Technology for Pre-service Teachers (30min)

N. Leveille

Using 3D Computer Graphics Multimedia to Motivate Teachers' Learning of Geometry and Pedagogy (30min)

Tracy Goodson-Espy, Kathleen Lynch-Davis, Samuel L. Espy, Pamela Schram
& Art Quickenton

2. Applications and Statistics (Cone Center, Room 210B)

Encouraging Technology and Hands On Science: A School System Model for Systemic Change in Science Education (30min)

Danae' Wirth

Improve Mathematics Education –Teach Mathematics as an Experimental Science (45min)

Peter Baptist

3. Teacher Education (Cone Center, Room 112)

Teachers' Perceptions of a Learning Community (30min)

Na-Young Kwon

Mathematics Education Candidates' Orientations toward the Infusion Approach in Teaching Mathematics and Thinking Skills (30min)

Hanan Innabi

Developing the Deductive Reasoning of BS Mathematics Students (30min)

Marliza E. Rubenecia

4. Learning and Problem Solving (Cone Center, Room 113)

Relational Notation & Mapping Structures: A Data Analysis Framework (30min)

Günhan Caglayan

The Affects of a Dynamic Program for Geometry on College Students' Understandings of Properties of Quadrilaterals in the Poincaré Disk Model (30min)

Ryan Smith, Karen Hollebrands, Kathleen Iwancio & Irina Kogan

Impact of individual laptop use on middle school mathematics teaching and learning: implementation of problem based learning scenarios (30min)

Viktor Freiman, Nicole Lirette-Pitre, Dominic Manuel, Sylvie Blain, Marcia Cormier,
Carole Essiembre & Jacinthe Beauchamp

5. Comparative Education, Social and Equity Issues (Cone Center, Room 208)

In what sense is it true to claim that mathematics is culture-free? (30min)

David M. Davison

Quantitative Reasoning Applications and Modelling in The Real World at Zayed University (30min)

Nakhshin Karim

The Relationship between Learning Styles and Achievement in Physics Course and Calculus Course (30min)

Önder Orhun & Nevin Orhun

6. Rich Learning Tasks (Cone Center, Room 111)

WORKING GROUP DISCUSSIONS

Tuesday 2.30-3.30 pm Session 8 Parallel Working Groups

1. Technology (Cone Center, Room 210A)

Using a Touchscreen Calculator in a Calculus Course to obtain Multiple Representations of Functions (30min)

Benjamin G. Klein

Teaching linear equations using mathematica at senior secondary school level (10min)

Luckson M. Kaino (presented by Fayez Mina)

2. Applications and Statistics (Cone Center, Room 210B)

An Analysis of Reformatting Curriculum and Instruction in the Calculus Sequence (30min)

Mary Zachary & Sherry Biggers

Tough to Teach/Tough to Learn Mathematics (30min)

Gail Burrill

3. Teacher Education (Cone Center, Room 112)

Mathematics Education Program in Malaysian Universities: Curriculum Emphasis and Preparedness of Students to Become Teachers (30min)

Aida Suraya Md.Yunus, Ramlah Hamzah & Habsah Ismail

4. Learning and Problem Solving (Cone Center, Room 113)

Project CSUMS at Rensselaer (30min)

Mark H. Holmes

5. Comparative Education, Social and Equity Issues (Cone Center, Room 208)

A contextualised approach towards making connections between mathematics and other school curriculum disciplines (30min)

Willy Mwakapenda,

Evaluation of The learning achievement levels of pupils in the 5th class in Primary School in Mathematics (10min)

Mohammed Fdhle Ali Ahmed (presented by A.N.Other)

6. Rich Learning Tasks (Cone Center, Room 111)

WORKING GROUP DISCUSSIONS

Tuesday 4.00-4.45 pm Session 9 Parallel Working Groups

1. Technology (Cone Center, Room 210A)

WORKING GROUP DISCUSSIONS

2. Applications and Statistics (Cone Center, Room 210B)

WORKING GROUP DISCUSSIONS

3. Teacher Education (Cone Center, Room 112)

WORKING GROUP DISCUSSIONS

4. Learning and Problem Solving (Cone Center, Room 113)

WORKING GROUP DISCUSSIONS

5. Comparative Education, Social and Equity Issues (Cone Center, Room 208)

WORKING GROUP DISCUSSIONS

6. Rich Learning Tasks (Cone Center, Room 111)

WORKING GROUP DISCUSSIONS

All Rights Reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the copyright holder.

The Mathematics Education into the 21st Century Project wishes to thank for their support:

**Wholemovement, The Hong Kong Institute of Education
ALMA Teacher Training Centre, Poland**

Major Sponsors

CASIO.



Autograph

