

Final Report of Working Group 5: Comparative Education, Social and Equity Issues

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During the final session for the Comparative Education, Social and Equity Issues working group, presenters and attendees discussed some of the themes to emerge from the presentations beyond the general working group category. The overall theme applicable to each of the presentations was the importance of the natural or purposeful integration of mathematics into the lives of students. Mathematics permeates many different aspects of life in and out of school and, where these connections are not obvious, educators and educational researchers need to make these connections more transparent.

The specific, non-exclusive themes of the papers presented that became apparent during our final discussion were the connections between:

- mathematics and language (also mathematical language such as terminologies and symbols)
- mathematics and culture,
- mathematics and communication,
- mathematics and authentic contexts, and
- mathematics and other content strains, and
- mathematics and underrepresented groups (e.g., ELL, gifted, marginalized groups)

Below are listed each of the themes and the papers that helped determine the theme related to comparative education, social and equity issues.

Theme	Papers
Mathematics and Language	A contextualized approach towards making connections between mathematics and other school curriculum disciplines Willy Mwakapenda
	In what sense is it true to claim that mathematics is culture-free? David M. Davison
	Quantitative reasoning applications and modeling in the real world at Zayed University Nakhshin Karim
	Mathematics in the middle: Enhancing teachers' understanding of the interplay between "school math" and professional uses of mathematics Barbara Garii & Marcia M. Burrell
	Success starts at home - An educational partnership Maria-Joao Peres
	The effects of the use of explicit number names on mathematical understanding and performance Judith E. Beauford & Sandra Browning
	Mathematics education issues in post-Soviet Kazakhstan: An international perspective Zaur Berkaliyev
	Mathematics language skills of second year analysis students Tangül Kabael & Aynur Özdas

	<p>Impact on the implementation of bilingualism in science and mathematics in Malaysian school system Mohini Mohamed</p>
	<p>Structures, journeys, and tools: Using metaphors to unpack student beliefs about mathematics Amélie G. Schinck, Henry W. Neale, Jr., David K. Pugalee & Victor V. Cifarelli</p>
	<p>A descriptive analysis of secondary mathematics students' formal report writing Adam P. Harbaugh, David K. Pugalee, & Margaret Adams</p>
Mathematics and Culture	<p>Authentic values and coping with some paradigm shifts as determinants of mathematics education in a global community Fayez M. Mina</p>
	<p>Indigenous mathematical knowledge at South African cultural villages: Opportunities for integration in mathematics classrooms Mogege Mosimege</p>
	<p>Second chance in mathematics education Ariana-Stanca Văcărețu</p>
	<p>In what sense is it true to claim that mathematics is culture-free? David M. Davison</p>
	<p>A contextualised approach towards making connections between mathematics and other school curriculum disciplines Willy Mwakapenda</p>
	<p>Help for the mathematics learning slump Madeleine J. Long & Jeanne Weiler</p>
Mathematics and Communication	<p>Giving all students a voice in the elementary mathematics classroom Megan Burton</p>
	<p>A program that promotes responsive mathematics teaching for English language learners in Gr. 6-12 classrooms Sylvia Taube & Bill Jasper</p>
	<p>A descriptive analysis of secondary mathematics students' formal report writing Adam P. Harbaugh, David K. Pugalee, and Margaret Adams</p>
	<p>Impact on the implementation of bilingualism in science and mathematics in Malaysian school system Mohini Mohamed</p>
	<p>Mathematics education issues in post-Soviet Kazakhstan: An international perspective Zaur Berkaliev</p>
Mathematics and Authentic Contexts	<p>Effective organization of instructional time in a content mastery: Math resource room for students with learning disabilities Julie P. Jones & Paul J. Riccomini</p>
	<p>Structures, journeys, and tools: Using metaphors to unpack student beliefs about mathematics Amélie G. Schinck, Henry W. Neale, Jr., David K. Pugalee & Victor V. Cifarelli</p>
	<p>Authentic values and coping with some paradigm shifts as determinants of mathematics education in a global community Fayez M. Mina</p>
	<p>Second chance in mathematics education Ariana-Stanca Văcărețu</p>
Mathematics and Other Content Strains	<p>Mathematics in the middle: Enhancing teachers' understanding of the interplay between "school math" and professional uses of mathematics Barbara Garii & Marcia M. Burrell</p>
	<p>Authentic values and coping with some paradigm shifts as determinants of mathematics education in a global community Fayez M. Mina</p>
	<p>Success starts at home: An educational partnership Maria-Joao Peres</p>
	<p>A contextualised approach towards making connections between mathematics and other school curriculum disciplines Willy Mwakapenda</p>

Mathematics and Underrepresented Groups (e.g., ELL, gifted, marginalized groups)	PISA results and school mathematics in Finland: strengths, weaknesses and future George Malaty
	A mathematical problem solving process model of Thai gifted students Supattra Pativisan & Margaret L. Niess
	Second chance in mathematics education Ariana-Stanca Văcărețu
	The inequity of mathematics education in the United States Karen S. Norwood
	Designing a program to support underrepresented (UREP) students in mathematics and computer science (workshop) Stacie S. Nunes
	Keeping all students on the learning path Judy Mousley, Peter Sullivan & Robyn Zevenbergen (presented by Fayez Mina)
	Affective pathways and structures in urban student's mathematical learning Gerald A. Goldin, Yakov M. Epstein & Roberta Y. Schorr
	Success starts at home: An educational partnership Maria-Joao Peres
	In what sense is it true to claim that mathematics is culture-free? David M. Davison
	Quantitative reasoning applications and modeling in the real world at Zayed University Nakhshin Karim

In summary, the working concluded that there is a need to:

- 1) Identify and integrate the key cultural differences amongst students in teaching and learning activities
- 2) The need to meet the needs of underrepresented groups such as English Language Learners (ELL), gifted, marginalized groups in the classroom.
- 3) To look into the role of communication (such as writing formal reports in mathematics) in the teaching and learning of mathematics.
- 4) Make stronger connections with other areas such as culture, other subject areas and daily experiences.

The working group enjoyed very interesting and stimulating discussions of the various issues raised. The working group also emphasized that mathematics is not culture-free. Thus, mathematics teaching

- a) needs to be planned in order to meet the needs of underrepresented groups in the classrooms and
- b) make stronger connections with culture, language and students' experiences