



THE AGA KHAN UNIVERSITY

AFRICME 5

DAR ES SALAAM, TANZANIA



The Africa Regional Congress of ICMI on
Mathematical Education (AFRICME 5)

Quality Mathematics Education for All

CONFERENCE PROGRAMME

August 29-31, 2018

Aga Khan University

Institute for Educational Development, East Africa

Salama House, Dar es Salaam, Tanzania

CONFERENCE PROGRAMME

Wednesday 29 August, 2018

TIME	SCHEDULE				VENUE
7:30–8:30 am	Conference Registration				Registration Desk
8:30–10:00 am	Conference Opening <ul style="list-style-type: none"> Prof. Joe Lugalla, Director, Aga Khan University, Institute for Educational Development, East Africa Honourable Prof. Joyce Ndalichako, Minister, Ministry of Education, Science and Technology, Tanzania Prof. Jill Adler, SARChI Chair Mathematics Education, School of Education, University of the Witwatersrand, South Africa and President of the International Commission on Mathematical Instruction (ICMI) Prof. Anjum Halai, Associate Vice Provost, Research & Graduate Studies Aga Khan University and Chair AFRICME 2018 Dr. Fredrick Mtenzi, Aga Khan University, Institute for Educational Development, East Africa and Co-Chair AFRICME 2018 				Mandela Hall
10:00–10:30 am	<i>Health Break</i>				<i>Garden</i>
10:35–11:35 am	Keynote Address Prof. Barbara Jaworski Professor Mathematics Education, Loughborough University, Leicestershire UK Teaching mathematics with sensitivity and challenge Chair: Prof. Anjum Halai				Mandela Hall
<i>Parallel Presentations</i>					
11:40 am–1:40 pm	Mandela Hall Theme: Assessment and evaluation issues in mathematics education Chair: Dr. Fulgence Saronga, Aga Khan University - Institute for Educational Development, East Africa	Longonot Theme: Effective initial and continuing mathematics teacher education Chair: Dr. Said Sima – University of Dar es Salaam, Tanzania	Nyerere Theme: Inclusion and equity in mathematics education (gender, multilingualism, special needs) Chair: Isambi Mbalawata – African Institute for Mathematical Sciences, Tanzania	Kenyatta Theme: Mathematical thinking for nurturing quality education Chair: Dr. Alphonse Uworwabayeho College of Education, University of Rwanda, Rwanda	
	Paper 1 Textbooks' errors and students' misconceptions: A case of one secondary school in Tanzania Angelina Bijura Inspire Secondary School, Kibaha, Tanzania	Paper 1 Investigating a pre-service secondary school teacher's knowledge of solving quadratic equations Florence Thomo Mamba Faculty of Education, University of Malawi	Paper 1 Understanding the choice and use of examples in teacher education multilingual mathematics classrooms Anthony A Essien University of the Witwatersrand, South Africa	Paper 1 The co-emergence of visualisation and mathematical reasoning in word problem solving Beata Dongwi Rhodes University	

	<p>Paper 2</p> <p>Assessment for learning in Africa: insights from classrooms in Tanzania</p> <p>Anjum Halai and Veronica Sarungi, Aga Khan University Institute for Educational Development, East Africa and Therese N. Hopfenbeck Oxford University, UK</p>	<p>Paper 2</p> <p>Promoting quality teaching through a learning study at an initial teacher education institution</p> <p>Judah P. Makonye and Brantina Chirinda University of the Witwatersrand, South Africa</p>	<p>Paper 2</p> <p>Teaching and learning through the use of an instructional mathematics application programme in multilingual mathematics classrooms</p> <p>Evalisa Katabua University of Witwatersrand, South Africa</p>	<p>Paper 2</p> <p>First year students perception of the Use of Symbols in mathematics learning</p> <p>Elias Kaphesi Nkhoma University Lilongwe, Malawi</p>
	<p>Paper 3</p> <p>The role of written feedback in enhancing students' mathematics learning in Tanzanian lower secondary schools: an intervention study at a lower secondary school in Bukoba municipality, Tanzania</p> <p>Evodius Jackson Almutazir schools Dar es Salaam, Tanzania</p>	<p>Paper 3</p> <p>Investigating pre-service teachers' learning through a pedagogy of enactment</p> <p>Mary A. Ochieng Western Michigan University, USA</p>	<p>Paper 3</p> <p>Exploring mathematical meaning in two languages and the dilemmas it presents for trilingual mathematics students</p> <p>Evelyn Njurai Kiriri Women's University of Science and Technology</p>	<p>Paper 3</p> <p>Educational neuroscience and the critical role it could play in mathematics teacher education curricula</p> <p>Kakoma Luneta University of Johannesburg, South Africa</p>
	<p>Paper 4</p> <p>What are the relevant assessment techniques in Mathematics in the context of competency-based curriculum?</p> <p>Septimi Kitta Department of Educational Psychology and Curriculum Studies, Mkwawa University College of Education,</p>	<p>Paper 4</p> <p>Analysing affordances of a mathematics textbook: implications for teachers' pedagogical design capacity</p> <p>Moneoang Leshota University of the Witwatersrand, South Africa</p>	<p>Paper 4</p> <p>Using peer-mediated instruction to achieve equitable access to mathematics education in limited resource schools in Malawi</p> <p>Fraser Gobede Department of Curriculum and Teaching Studies, University of Malawi</p>	<p>Paper 4</p> <p>Teachers Knowledge on Students Thinking towards Learning Mathematical Concepts of Area of a triangle in Primary Schools in Nairobi County</p> <p>Amuko Sheila Kenyatta University, Kenya</p>
13:40-14:40pm	<i>Lunch</i>			<i>At the Garden</i>
2:40:3:40 pm	Three Parallel Workshops			
	<p><i>Overcoming learning difficulties in basic computation</i></p> <p>Workshop leaders: Prof. Andrea Peter-Koop, Ms. Veronica Sarungi</p> <p>Room 1: Mandela Hall</p>	<p><i>Use of ICT in mathematics teaching and learning</i></p> <p>Workshop leaders: Dr. Alphonse Uworwabayeho</p> <p>Room 2: Longonot</p>	<p><i>African Data Initiative</i></p> <p>Workshop leaders: Dr. David Stern, James Khaleli Musyoka, Mbasu Zachariah</p> <p>Room 3: Nyerere</p>	

3:45-4:00 pm	<i>Health Break</i>
4:00-5:30 pm	<i>East Africa Presentations:</i> Chair: <i>Dr. Marjorie S. K. Batiibwe, Department of Science, Technical and Vocational Education, Makerere University, Uganda</i>
	<ul style="list-style-type: none"> • Presentation from Kenya: <i>Dr. Marguerite Khakasa Miheso-O'Connor, Kenyatta University, Kenya</i> • Presentation from Uganda: <i>Richard Wanzala, Busuubizi Teachers College, Kampala-Uganda</i> • Presentation from Tanzania: <i>Dr. Septimi Kitta, Department of Educational Psychology and Curriculum Studies, Mkwawa University College of Education, Iringa-Tanzania</i> • Presentation from Rwanda: <i>Dr. Alphonse Uworwabayeho, Department of Early Childhood and Primary Education, School of Education, College of Education, University of Rwanda, Kigali-Rwanda</i>

Day Two: Thursday 30, August 2018

Parallel Paper Presentation				
08:30-09:30 am	Mandela Hall	Longonot	Nyerere	Kenyatta
	Theme: Mathematics knowledge in and for teaching Chair: Dr. Marguerite Khakasa Miheso-O'Connor , Kenyatta University, Kenya	Theme: The role of contextually relevant research in quality mathematics education Chair: Prof. Mercy Kazima , Chancellor College, University of Malawi, Malawi	Theme: Integrating information and communication technology (ICT) in mathematical education Chair: Dr. Anthony Essien , University of the Witwatersrand, South Africa	
	Paper 1 Impact of using complexity science on capacity development for primary mathematics teaching in rural and remote communities Florence Glanfield , University of Alberta, Canada Joyce Mgombelo , Brock University, Canada Andrew Binde , University of Dodoma, Tanzania Elaine Simmt , University of Alberta, Canada, Laura Paslawski , University of Alberta, Canada and Prudence Ching'ole University of Dodoma, Tanzania	Paper 1 Introducing the strangers: mathematics teacher leaders and their roles in the professional learning context in Tanzania Calvin Zakaria Swai , University of Dodoma, Tanzania and Florence Glanfield , University of Alberta, Canada	Paper 1 Indigenous mathematical knowledge, traditional arithmetical algorithms and modern technologies Franco Favilli C.A.F.R.E. and Department of Mathematics, University of Pisa, Italy	

	<p>Paper 2</p> <p>Collaborative workshops for sustainable teacher development</p> <p>Jennie Golding University College London Institute of Education, United Kingdom</p>	<p>Paper 2</p> <p>An exploratory study of teachers' experiences of Professional Development (PD) courses in South Africa</p> <p>Fatou Sey and Jill Adler University of Witwatersrand, South Africa</p>	<p>Paper 2</p> <p>Using technology to support mathematics education for learners with vision loss. Lessons from Mwangaza project, Kenya</p> <p>Miheso O'Connor Marguerite Kenyatta University, Kenya</p>	
Three Parallel Workshops				
09:35-10:35 am	<p>Academic writing</p> <p>Workshop leaders: Dr. Thorsten Scheiner</p> <p>Room 1: Mandela Hall</p>	<p>Developing mathematical thinking</p> <p>Workshop leaders: Dr. Angelina Bijura, Dr. Fredrick Mtenzi</p> <p>Room 2: Longonot</p>	<p>Classroom-based research for mathematics Learning</p> <p>Workshop leaders: Dr. Munira Amirali</p> <p>Room 3: Nyerere</p>	
10:35-11:00 am	<i>Health Break</i>			
Parallel Paper Presentation				
11:05 am-1:05 pm	<p>Room 1 Mandela</p> <p>Theme: Mathematics knowledge in and for teaching</p> <p>Chair: Dr. Angelina Bijura, Inspire Secondary School, Tanzania</p>	<p>Room 2 Longonot</p> <p>Theme: The role of contextually relevant research in quality mathematics education</p> <p>Chair: Dr. Fredrick Mtenzi, Aga Khan University, Institute for Educational Development, East Africa</p>	<p>Room 3 Nyerere</p> <p>Theme: Effective initial and continuing mathematics teacher education</p> <p>Chair: Dr. Andrew Binde, University of Dodoma, Tanzania</p>	<p>Room 4 Kenyatta</p> <p>Theme: Integrating Information and Communication Technology (ICT) in mathematical education</p> <p>Chair: Prof. Maurice O'Reilly, Dublin City University, Ireland</p>

<p>Paper 1</p> <p>Mathematics knowledge in and for teaching</p> <p>Kirabo Esther Teacher-Educator Bishop Stuart Core Primary Teachers' College, Mbarara, Uganda</p>	<p>Paper 1</p> <p>Relationship between the instructional practices and epistemic beliefs of Kenya secondary schools mathematics teachers</p> <p>Herine Otieno Sheffield Hallam University, England</p>	<p>Paper 1</p> <p>Comparative study: the case of Mathematics Teacher Preparation (MTP) programs in Norway and Ethiopia</p> <p>Solomon A. Tesfamicael, Department of Teacher Education, Faculty of Social and Educational Studies, Norwegian University of Science and Technology, Norway Dereje Taye, Faculty of Education and Behavioral Sciences, Bahir Dar University, Bahir Dar, Ethiopia Gizachew Belay, Kotebe Metropolitan University, Addis Ababa, Ethiopia Abraham Tulu, Hawassa University, Hawassa, Ethiopia and Abreha Tesfay, Mekele University, Mekele, Ethiopia</p>	<p>Paper 1</p> <p>Understanding the meaning of the equal sign</p> <p>Mbewe Rose David Livingstone College of Education, Livingstone, Zambia</p>
<p>Paper 2</p> <p>An examination of content knowledge for developing geometric proofs</p> <p>Lisnet Mwadzaangati Faculty of Education, University of Malawi</p>	<p>Paper 2</p> <p>Mathematics teachers' understanding of smasse principles of ASEI</p> <p>Ida Talent Kamoto Department of Curriculum and Teaching Studies, Chancellor College, University of Malawi</p>	<p>Paper 2</p> <p>Problematizing knowledge for teaching</p> <p>Thorsten Scheiner The University of Auckland, New Zealand</p>	<p>Paper 2</p> <p>Issues and trends in current math classrooms</p> <p>Rachel Ayieko, Duquesne University Dushimimana Jean Claude, University of Rwanda Penina Kamina, Suny Oneonta Enock Obuba, Kisii University Peter Olszewski Penn State University and Innocente Uwineza University of Rwanda</p>

	<p>Paper 3</p> <p>Teachers’ pedagogical content knowledge and the teaching of statistics in secondary schools Wakiso district in Uganda</p> <p>Marjorie S. K. Batiibwe Department of Science, Technical and Vocational Education, Makerere University, Uganda</p>	<p>Paper 3</p> <p>Investigating primary school teachers’ experiences in teaching mathematics using learner centred approaches in Malawi</p> <p>Justina Melina Longwe-Mandala Department of Curriculum & Teaching Studies, University of Malawi</p>	<p>Paper 3</p> <p>Teachers’ experiencing of one component of professional development: what does it mean?</p> <p>Shadrack Moalosi University of the Witwatersrand, South Africa</p>	<p>Paper 3</p> <p>The use of visual mediators in the learning of subgroups</p> <p>Marios Ioannou Alexander College</p>
	<p>Paper 4</p> <p>Teachers’ knowledge about the nature of mathematics: a case from Pakistan</p> <p>Munira Amirali Aga Khan University Institute for Educational Development, Karachi, Pakistan</p>	<p>Paper 4</p> <p>From quantity to quality mathematics education in Malawi: lessons from a five year project</p> <p>Mercy Kazima University of Malawi and Arne Jakobsen University of Stavanger</p>	<p>Paper 4</p> <p>Assessment of learners’ abilities in numeracy</p> <p>Veronica Sarungi Aga Khan University Institute for Educational Development, East Africa Joshua McGrane Oxford University, UK Anjum Halai Aga Khan University Institute for Educational Development, East Africa, Therese Hopfenbeck Oxford University UK</p>	
1:05-2:05 pm	<i>Lunch</i>			
2:05-3:35 pm	<p>Round Table: The Future of AFRICME</p> <p>Chair: Veronica Sarungi Aga Khan University, Institute for Educational Development, East Africa</p> <p>Discussants</p> <ul style="list-style-type: none"> • Dr. Marguerite Khakasa Miheso-O’Connor – Kenya • Richard Wanzala – Uganda • Dr. Alphonse Uworwabayeho – Rwanda • Dr. Anthony Eissien – South Africa • Prof. Mercy Kazima – Malawi • Rose Mbewe – Zambia • Peter Kajoro - Tanzania 			

3:35-3:55 pm	Health Break
4:00-5:00 pm	Poster Display <ol style="list-style-type: none"> 1. Enea Sadala, Tanzania - Primary school teacher's perception of teaching mathematics 2. Farida Athumani Sebarua, Tanzania - How mathematics concept are used and supported in chemistry classrooms 3. Hamza Sheshe, Tanzania - Integrating mathematics in teaching science and mathematics: Tools and means for understanding science 4. Rehema Mdoe, Tanzania - Role of school leadership in implementation of learner centred pedagogy in teaching mathematics 5. Silke Ruwisch - Length measurement and estimation in primary school 6. Steven George - Examining the Application of Mathematical Skills in Chemistry: A Case of Public Secondary School in Moshi Rural District, Kilimanjaro, Tanzania 7. Williams C Ndlovu and Willy Mwakapenda, South Africa - What it means to be introduced to mathematics: an exposition of secondary school students from an intervention study

Day Three: Friday August 31, 2018

8:30-9:30 am	Symposia			
	<i>Developing a research community: role of graduate programs</i> Chair: Dr. Jean-Luc Dorier , University of Geneva, the Faculty of Psychology and Educational Sciences, Switzerland Room 1: Mandela Hall		<i>Publishing in the era of digital technology: potential and pitfalls</i> Chair: Dr. Anthony Essien , Mathematics Education Division, School of Education, University of the Witwatersrand, South Africa Room 2: Nyerere	
Parallel Paper Presentations				
9:35-10:35 am	Mandela	Longonot	Nyerere	Kenyatta
	Theme: Mathematics knowledge in and for teaching Chair: Dr. Munira Amirali Aga Khan University - Institute for Educational Development, Pakistan	Theme: The role of contextually relevant research in quality mathematics education Chair: Prof. Mercy Kazima Chancellor College, University of Malawi, Malawi	Theme: Integrating information and communication technology (ICT) in mathematical education Chair: Prof. Florence Glanfeld University of Alberta, Canada	
	Paper 1 Form one students' understanding of the inclusion relationships among quadrilaterals: A case of a school in Tanzania Peter Kajoro Aga Khan University Institute for Educational Development, East Africa	Paper 1 Investigating mathematics teacher learning when using a research-designed resource in a lessoning study Gcasamba Lizeka University of the Witwatersrand, South Africa	Paper 1 Investigating student engagement in learning mathematics with GeoGebra in Rwanda Alphonse Uworwabayeho and Hyacinthe Mushimiyimana University of Rwanda	

	<p>Paper 2</p> <p>Student’s strategies in mathematics word problem solving</p> <p>Richard Phiri Hillcrest National Technical School, Livingstone, Zambia</p>	<p>Paper 2</p> <p>An international development intervention in mathematics education in Tanzania: looking back 25 years later</p> <p>Peter McEvoy and Maurice O’Reilly Dublin City University, Ireland</p>	<p>Paper 2</p> <p>Using programming to improve problem solving ability in primary three mathematics</p> <p>Fredrick Mtenzi Aga Khan University Institute for Educational Development, East Africa</p>	
10:35-11:00 am	<i>Tea Break and Networking</i>			
11:05 am-12:05 pm	Display of Local teaching-Learning Materials			
12:10-2:00 pm	Lunch		Garden	
2:00-2:30 pm	Conference Closing		Mandela Hall	
2:30-3:30 pm	Vote of Thanks			



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