

**Session 1a: Whole number learning**Tuesday July 13<sup>th</sup>

14:30 – 16:30 (120 min)

Session Chair: Arthur Powell

Time slot	Participant number	Name and title of paper
6 min		Welcome and overview of TSG 5
20 min	2068 long oral	<b>Samantha Morrison (video)</b> Representational flexibility linked to higher attainment in early number learning
10 min	1797 short oral	<b>Nor'Arifahwati Abbas</b> Conceptual and procedural understanding on addition of fractions among Year 5 primary children
20 min	1860 long oral	<b>Herman M. Tshesane (live)</b> South African learner's patterns of performance on additive word problems
12 min		Discussion of presented papers
20 min	1973 long oral	<b>Ola Helenius &amp; Linda Marie Ahl (live)</b> The case against coherence in mathematics instruction
10 min	1122 short oral	<b>Sameera Hansa &amp; Hamsa Venkat (video)</b> Identifying South African primary learners doubling and halving reasoning through a written assessment
10 min	1318 short oral	<b>Mayamiko Malola (live)</b> The use of arrays in solving multiplication word problems in Grade 4
12 min		Discussion of presented papers

16:30 Chair-Meeting

**Session 1b: Multiplicative thinking and reasoning**Tuesday July 13<sup>th</sup>

19:30 – 21:00 (90 min)

Session Chair: Andrea Peter-Koop

Time slot	Participant number	Name and title of paper
5 min		Welcome back
20 min		<b>Ron Tzur (invited speaker) &amp; Rui Ding (live)</b> Toward a universal cognitive core: A cross-cultures (USA, China) progression in multiplicative reasoning
10 min		<b>Discussion</b>
10 min	1922 short oral	<b>Luciana Vellinho Corso, Sula Cristina Teixeira Nunes, Évelin Fulginiti de Assis (video)</b> Flexible mental calculation: A study with 2nd and 4th Grade Brazilian students
10 min	464 short oral	<b>Évelin Fulginiti de Assis, Sula Cristina Teixeira Nunes, Luciana Vellinho Corso (video)</b> The flexibility in mental calculation: Characterizing the profiles of a group of Brazilian Elementary Students
10 min	2044 short oral	<b>Beatriz Vargas Dorneles, Camila Peres Nogue, Elielson Magalhães Lima (video)</b> Precursors of problem-solving in two Brazilian cities: the role of social and economic differences
10 min	676 short oral	<b>Camila Peres Nogue, Elielson Magalhães Lima, Beatriz Vargas Dorneles (video)</b> The performance in domain-specific cognitive abilities among low and typical mathematical achievers
15 min		Discussion

21:00 Chair-Meeting

**Session 2: Teaching and learning of fractions**Wednesday, July 14<sup>th</sup>

19:30 – 21:00 (90 min)

Session Chair: Rui Ding

Time slot	Participant number	Name and title of paper
5 min		Welcome back
20 min	1602 long oral	<b>Arthur Belford Powell (live)</b> Improving student knowledge of fraction magnitude in the early grades
10 min	380 short oral	<b>Krista Francis, Sharon Friesen, Miwa Takeuchi, Armando Paulino Preciado Babb, Barb Brown (video)</b> Elementary teacher professional learning to explore and extend nuanced meaning of number
10 min		Discussion of presented papers
10 min	2183 short oral	<b>Daniela Fernandes &amp; Jeanne Koudogbo (live)</b> Difficulties of learning the decimal positional numeration (DPN) system: The principle of exchange
10 min	1655 short oral	<b>Jeanne Koudogbo &amp; Daniela Fernandes (live)</b> Decimal number system in Quebec Mathematics Program and in textbooks: What Knowledge and for which mathematical education
10 min	1507 short oral	<b>Maria T. Sanz, Carlos Valenzuleza, Olimpia Figueras &amp; Bernardo Gómez (live)</b> Students performance when solving word problems involving fractions
10 min		Discussion of presented papers
5 min		Planning for Saturday

21:00 Chair-Meeting

**Session 3: Continue discussion, non-replied presenters, publication options**Saturday, July 17<sup>th</sup>

21:30 – 23:00 (90 min)

Session Chair: Arthur Powell

Time slot	Participant number	Name and title of paper
10 min	1541 short oral	<b>Özdemir Tiflis &amp; Gwen Ireson</b> Errors in ratio and proportion: A framework for analysis
10 min	1454 short oral	<b>Andrea Peter-Koop (live)</b> School-readiness in mathematics: Development of a screening test for children starting school

**TSG 5 – Accepted Posters** (not included in the TSG discussion time)

408	<b>Miguel Diaz Chávez (video)</b> Elementary teacher's understanding mathematics in Mexico. Rate of change concept
470	<b>Yvonne Sanders</b> Learners' performance with negatives become more positive
904	<b>Shuyuan Yu, Dan Kim, Ho-Chieh Lin, Clarissa A. Thompson, John E. Opfer (video)</b> Fraction frequency in the wild helps fraction estimation
1338	<b>Maria T. Sanz &amp; Emilia López-Inesta</b> A Teaching model to solve additive word problems
2102	<b>Katsunori Matsuoka</b> Development of "theory-dependent teaching" in math education

