



# MATHEMATICS TEACHING-RESEARCH JOURNAL ONLINE

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#### Editorial

The Summer of 2012 was very rich for the editors of MTRJ and their TR Teams from Hostos CC and Bronx CC of CUNY. Together, this issue of MTRJ presents interests, understanding and achievements of the Bronx Mathematics Teaching-Research Team during the Summer 2012 and informs about the future directions (below).

#### List of Content

1. **B. Czarnocha, W.Baker, O.Dias, V. Prabhu** ...*Teaching-Research Guide to Problem Solving: Jump Starting Reform. ICME 12, Seoul, Korea*
2. **V. Prabhu, B. Czarnocha** ...*Problem Solving in Remedial Mathematics: PPP presentation ICME 12, Seoul, Korea*
3. **V. Prabhu, P. Barbatis** ...*Making Sense of Learning in Remedial Mathematics, ICME 12, Seoul, Korea.*
4. **B. Czarnocha, W.Baker, O.Dias, V. Prabhu** ...*Teaching-Research for the 21<sup>st</sup> Century-Discussion Group #4, PME 36, Taipei, Taiwan*
5. **R.Ye & B. Czarnocha** ...*Universal and Existential Quantifiers revisited, PME 36, Taipei, Taiwan*
6. **V. Prabhu and J. Watson** ...*Development of Conceptual Structures. Fifth Concept Mapping Conference, Malta*
7. **B. Czarnocha, W.Baker, O.Dias, V. Prabhu** ...*Learning Trajectories from the Arithmetic/Algebra divide. NA-PME, Kalamazoo, Mich.*

Two issues come to the fore:

- making sense or understanding in mathematics, and
- Learning Trajectories as the underlying framework of Common Core Standards in Mathematics.

The two issues have a lot in common; teaching along learning trajectories facilitates making connections between the concepts involved in the particular learning trajectory. The clarity of those connections is understanding of mathematics, or of what Barody (2003) calls “adaptive expertise” that is “well connected knowledge”. And what is equally important is that both teacher – the designer of instruction and the student - the “discoverer of mathematics” develop those connections, often almost simultaneously. One of the questions of assessment is how to measure understanding that is how to measure the degree of connections between the concepts, how to measure the adaptivity of the expertise. The questions of measurability of understanding comes to the fore because of the repeated instances of elimination of “understanding” as one of the Student Learning Outcomes in remedial mathematics courses under a pretext of non-measurability of understanding. The consequences of this elimination can be devastating. There are several posts discussing the issue by one of the editors (BC) on the CUNY Mathblog at <http://cunymathblog.commons.gc.cuny.edu> .