

Editorial

The July issue of MTRJoL is very interesting. Number and reasoning are captured beautifully by the various authors. Cantor's extraordinary vision translated precisely to the degree of transfinite induction, mapping number not only to infinity but a chain of infinities and all with so much precision that millions of people around the world can grasp the scope of thinking. Hrbacek's vision calibrated along similar lines in different dimensions, very different dimensions, those of ultrasmall numbers with levels and levels of scrutiny all falling well beyond the realm of the ordinary thinking of "small". In the current article precision of thinking of mathematicians and mathematics educators is evident in the various articles. Donovan's article reports on the Geneva experiments of teaching infinitesimal methods to high school students.

It demonstrates teacher's craft knowledge acquiring the teacher-researcher posture and hence the strength of teaching-research as professional development

The presentation by Nagarjuna, Collaborative Creation of Teaching-Learning Sequences and an Atlas of Knowledge proposes the creation of the concept map of full knowledge governed by the concept dependency relation. The authors appeals to the education community to submit existing concept maps to the portal www.gnowledge.org for the inclusion in the atlas. Detailed organization of the concept maps is discussed with several example of different size presented. The nodes of the map are concepts and activities with incoming and outgoing links. The map is constructed on the assumption that understanding means the knowledge of links.

The paper by Ibrahim et al picks up on the familiar issue of problem solving showing that textbooks, instructors and students focus primarily on the computational solutions instead on the whole process of problems solving suggested by Polya. The authors demonstrate through the analysis of the results from a questionnaire administered to several sections of pre-algebra courses that the second (planning and strategy choice) and fourth step in Polya procedure cause extensive difficulties for students. The presented data suggest the hypothesis that teaching explicitly through 4 stages of Polya can significantly improve the planning and strategy choice in problem solving.

In a careful recording, Gonzales re-creates her classroom for the readers. In her creative approach, a standard mathematical issue is transformed to an intriguing problem. The clear cut goal articulated at the start, that of “deepening pre-service teachers’ conceptual understanding”, contributes to the underlying theme of teaching.

Prince’s short article demonstrates that careful attention to school and student work might stimulate mathematical discoveries by an instructor.

The presentation by Balsim et al. describes an extension of the industry-academia interface by outlining an educational program which incorporates applications to industry as well as interactions with professionals in industry. After describing the philosophy and structure of the program, the authors describe various collaborations between the faculty at a community college, a four year college, and the biomedical industry.

Thinking, thinking technology at work in mathematics classes in community colleges of CUNY, high schools of teachers in Geneva, or minds of teacher-researchers and



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researchers in the Bronx, or India, all contribute to the common goal of improvement of learning.