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## Editorial: (Why) Yet another issue on Problem Solving?

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## **Editorial: Why (yet) another issue on Problem Solving?**

*Bharath Sriraman*

This is the 10<sup>th</sup> volume of *The Mathematics Enthusiast*, consisting of 500+ pages in 18 articles that give reflections, directions and the state of the art of mathematical problem solving as it relates to the field of mathematics education. This impressive collection compiled and guest edited by Manuel Santos-Trigo and Luis Moreno-Armella contains a treasure trove of scholarship from both the pioneers of this area of research (Alan Schoenfeld, Richard Lesh, Frank Lester, among others) as well as reports on new areas of study from Mexico, France and Spain. Two of the articles (Mamona-Downs & Downs, Selden& Selden) discuss the connections between problem solving and proof, and one piece (Flores & Braker) explores an interesting open-ended problem. There are many themes in this double issue- For instance those interested in advances in problem solving as a result of new technologies such as haptic devices will find articles (e.g., Hegedus) that report on cutting edge investigations. Others interested in cognition and learning trajectories as a result of problem solving practices will find articles that cater to this particular taste. The reflections by forerunners such as Alan Schoenfeld and Frank Lester are well worth reading for anyone that wants to catch up with developments in problem solving in the last 40 years.

Mathematics education (in the U.S) has been victimized as not having “really” progressed in terms of experimental research by the National Mathematics Advisory Panel (see Greer, 2008), which prescribed algebra as a panacea to cure our students mathematical ills. As noted in an earlier survey (English & Sriraman, 2010) and numerous articles in this double issue, there have been tremendous advances in the area of problem solving which unfortunately did not translate into curricular or “test-score” gains as measured by the testing industry. Problem solving as implemented in schools in the 90’s also became a fad caught in the pendulum swing of mathematics education reform. Polya style heuristics that capture the nuances of real mathematical thinking became didactically transposed and dogmatized by the textbook industry into prescriptive condition-action rules or flowcharts (Lesh & Sriraman, 2010). Several articles in this double issue revisit Polya style heuristics and capture its real essence. Some provide existence “proofs” of the mathematical thinking young children are capable of when presented with semi structured open-ended problems in conditions that foster novelty (see Lesh, English, Riggs & Sevis). This should offer the community hope that problem solving research and well documented empirically validated skill sets can be promoted and made relevant for the new generation of school children, particularly in an age where thinking across the disciplines is necessary in many professions. Hopefully this answers the question posed in the title of the editorial.

The journal imposed an 18 month embargo on submissions (**which will end on 04/2014**) to clear up the backlog of articles as well as make room for special issues in the works. In 2011, the journal received the honor of being selected by National Science Foundation's Math and Science Partnership (MSP) program committee to assemble and publish a set of papers over the next two years to expand avenues for more MSP projects to share what they are learning about

mathematics and science education through an internationally recognized peer-reviewed journal that is widely available. Over the next two years some special issues, starting with Vol10, no3 [July 2013] will feature articles reporting on MSP projects. These projects include large partnerships targeting science and/or mathematics teaching and learning in specific grade bands or disciplinary areas, institute partnerships focusing on developing teacher leadership, partnership incubator (or “Start”) projects focusing on learning about institutional partnership development.

Another important change to be noted is that TME now allows *authors to retain full copyright of their work* as opposed to transferring it to publishing entities that use our work to generate profit (Sriraman, 2012). Indeed the journal now exists as an independent entity, with open access, as well as supports professional associations like PMENA and other grass roots research groups by providing a peer reviewed outlet for ongoing research. Vol.11, no.3 [July 2014] will feature articles synthesizing 5+ years of research within the PMENA working group on *Pre-service Elementary Mathematics Teacher Content Knowledge*. This topic is particularly poignant to me since the first issue of this journal (vol1, no1, 04/2004) was the result of four idealistic elementary school teachers believing in the mission of this journal and writing about their attempts to reconcile the mathematics content they were learning in a mathematics for elementary school teachers course with existing mathematics education research found in practitioner’s journals as well as standards imposed by institutions framing policy.

I am thankful to the community for supporting the mission and the existence of this journal. Ten years ago, I dared to dream and imagine the possibilities *of and for* this journal. Time and dedicated work have allowed it to flourish in myriad uncharted directions and benefit many people. I wish the editors, authors and readers of The Mathematics Enthusiast a Happy 2013- Unlike the doomsday soothsayers predictions things continue to exist! To that end for T(i)ME to continue to exist (pun intended), I ask for your continued support...

Bangalore, India  
Jan 4, 2013.

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