

A New Technology for Teaching Math Problem-Solving

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Despite the wide-spread interest in teaching high-level problem-solving skills in the context of authentic mathematics problems, use of computer technology for this kind of teaching has generally been limited to the use of tools for computation and data analysis, “flat” problem scenarios, and a few applications of intelligent tutoring.

To overcome these limitations, TRO Learning, Inc. embarked four years ago on a research and development project, funded in part by the Advanced Research Projects Agency (ARPA). The result of this effort is the Problem-Solving Activity (PSA) architecture for the PLATO® computer-based learning system. *Math Problem Solving* for secondary mathematics applies the PSA architecture to a series of 19 problem-solving activities using multimedia authentic problem-based simulations supported by a unique intelligent subsystem for cognitive coaching. 17 key instructional design features derived from research have been incorporated into the PLATO PSA Architecture, and *Math Problem-Solving*.