

Enhance Metacognition and Problem-Solving by Talking Out Loud to Yourself

Posted By [Judith C. Tingley, PhD](#) On February 9, 2012 @ 8:16 In [Cognitive Neuroscience, Education & Lifelong Learning, Health & Wellness](#) | [Comments Disabled](#)



[1] The MC at the University of Michigan's reunion dinner encouraged audience members to reveal the most significant take-away from their undergraduate nursing education. The greatest benefit was quickly clear to me — problem-solving thinking. Memory produced a mind video: a short, dark-haired, nursing instructor lecturing a small group of first year students in an empty patient room. "Don't memorize the steps of sterile technique. Use a problem-solving thinking process." She described the sequential, cyclical process: define the problem, gather information, develop a solution strategy, allocate resources, monitor progress, and evaluate the solution.

Predictably, the perception, application, and even taxonomy of problem-solving has changed in the last several decades. Then, it might have been called the Socratic or scientific method of thinking. Now, problem-solving stands under the metacognition canopy joined by close, but not quite synonymous siblings such as critical thinking, design thinking, lateral thinking, and creative thinking. Metacognition, which means most simply, thinking about thinking, was described and defined in the seventies by John Flavell, a developmental psychologist at Stanford. The enthusiasm created by his theory contributed to a revitalization of problem-solving research.

From origins in the field of psychology and philosophy, the study of problem-solving slid into the ballpark of educational psychology and later became of interest to cognitive neuroscience. Problem-solving bloomed anew with a cool, trendy identity. A variety of recent research studies fields produced facts and findings that we can use today: some funny, others thought provoking, and all interesting.

Talking Aloud Partner Problem-Solving (TAPPS) is a teaching/learning strategy that evolved in the late eighties and nineties. The basic idea is simple. Pair two people, one the designated problem solver and one the monitor, and provide problems for them to solve. The monitor's job is to listen, but not contribute any advice about the problem and its solution. She can alert

the problem solver to his own thinking pattern by saying for example, "I heard you mention a potential obstacle to solving the problem earlier, but then I didn't hear more about that." But she can't add, "I see a couple of other obstacles that you didn't talk about." Monitoring comments are exclusively about the designated problem solver's talking aloud process. Generally, increased speed and efficiency of problem-solving resulted when the pairs group was compared with a control group.

In recent research on TAPPS, reported in the University of Arkansas publication Research Foundations, Spring 2011, the author noted that the increased speed and effectiveness of partner problem-solving has little to do with the monitor and much to do with the problem solver's own behavior; thinking aloud or TA. The constant verbalization of their thoughts out loud encouraged the problem solvers to continuously correct faulty steps in logic. The causal mechanism of success was the problem-solver's metacognition.

Another study on talking aloud reported in the journal Aging, Neuropsychology, and Cognition carries the intriguing title, "How to Gain Eleven IQ Points in Ten Minutes: Thinking Aloud Improves Raven's Matrices Performance in Older Adults." At the end of the article, following the usual identification of study limitations, the authors stated, "Nonetheless, these studies provide some evidence that individuals with lower fluid ability (e.g., children and older adults) may benefit most from concurrent verbalization."

H-m-m-m. Interesting. We might need to have renewed respect for people we notice talking to themselves. Instead of assuming they're off the wall, we'll more generously ascribe good problem-solving skills to them. And for us? Let's give talking out loud problem-solving a shot — perhaps alone, at home in a locked bathroom for the first attempt.

My advice? Start out with a simple problem that fits rational problem solving rather than a problem better suited for the intuitive style of thinking. E.g. "What organizational structure will work best for my book in progress?" rather than "What's a catchy title for my book on problem solving thinking?" I'll acknowledge I haven't been highly successful with the TA approach that I'm describing and I'm quite sure my IQ hasn't increased yet, but I'm having fun practicing. Let me know what you find out thinking aloud, alone, at home.



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