The purpose of this exploratory study was to investigate the impact of writing during mathematical problem solving. The study involved an analysis of ninth grade algebra students’ written and verbal descriptions of their mathematical problem solving processes. Through this comparison, a better understanding of the connection between problem solving and writing is realized. The written and verbal data show a relationship between the number of problem solving strategies tried by students and their success. The majority of problem solving behaviors involve execution actions such as carrying out goals and performing calculations. Students who construct global plans are more successful problem solvers. Students engage in verification behaviors at various stages of problem solving though the majority of students do not verify their final answers. While both oral and written descriptions serve as a tool for understanding students’ thinking processes, a comparison of the two modes of reporting, using a metacognitive framework as the lens of analysis, reveals some important variations. Students who wrote descriptions of their thinking were significantly more successful in the problem solving tasks ($p < 0.05$) than students who verbalized their thinking. Differences in metacognitive behaviors also support the premise that writing can be an effective tool in supporting metacognitive behaviors.

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