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Jane F. Schielack* (janie@its.tamu.edu), Department of Mathematics, 3368 TAMU, Texas A&M University, College Station, TX 77843-3368. *Developing Questioning Skills to Enhance Students' Mathematical Thinking: A Professional Development Experience for Middle School Mathematics Teachers*. Preliminary report.

Mathematics teachers often enter a professional development experience expecting to do some mathematical activities, learn some mathematics, and then replicate the learning experience with their students in their classrooms. However, the transition between "doing" the mathematics and "teaching" the mathematics is often overlooked in the professional development experience. As a teacher, I must consider the following: How can I encourage students to model situations and communicate results through various representations? How can I lead students into logical analysis to uncover important characteristics of what is going on and discover why things work? How can I ensure that students are making and testing inferences? How can I introduce the idea of using mathematics to find the best or most efficient way to do something? Finally, how do I know that students are forming abstractions by identifying the mathematical purpose and forming connections and relationships between major ideas or concepts? Teachers must learn how to ask the questions that will enhance students' mathematical thinking while they are involved in an activity. This paper presents a design for improving mathematics instruction by improving middle school mathematics teachers' questioning skills. (Received September 28, 2005)