Making sense of students' mathematical modeling activity

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Abstract: For students to be successful in STEM they need to know mathematics and how to use it. National K-16 curriculum reform efforts have suggested that augmenting the mathematics curricula with mathematical modeling tasks can help. Related research has identified key sites during the modeling process that present special challenges to students, such as making assumptions about what variables may or may not be important to the mathematical model. In this talk, I share a study of engineering students’ work on mathematical modeling tasks. I will present a qualitative model of their mathematical modeling activity and use it to argue that mathematical modeling – and identifying where students’ difficulties lie -- is not so simple as the theory would have us believe. Implications for curriculum and instruction and opportunities for research will be discussed.

Jennifer Czocher joined the Texas State University faculty this year. She earned her Ph.D. and M.A. in mathematics education and her M.S. and B.S. in mathematics from The Ohio State University.