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The spreadsheet as a tool for mathematical modeling: a case study.

DiSessa, Andrea A. et al., Computers and exploratory learning. Springer, Heidelberg (ISBN 3-540-59202-4). 321-336 (1995).

How do students use a spreadsheet to deal with a real-world problem situation? How does the structure of the spreadsheet model the way students interact with the situation? How do students' conceptual models reflect the structure imposed by the spreadsheet? How is the evolution of the modeling process constrained by the use of a spreadsheet? What about the stability of these models? How does it reflect the use of the spreadsheet? To address these questions I suggest a theoretical framework of analysis of mathematical modeling processes. I then stress the role of computers in that process, in particular the case of the spreadsheet, and present a case study of a group of 10th grade students using a spreadsheet in a modeling activity in their regular mathematics class. Finally I discuss the role of the spreadsheet in mathematical modeling activities. (orig.)

Classification: M10