

Einladung zum wissenschaftlichen Kolloquium des IDMI

Jennifer Czocher
(Texas State University, US)

Applying a Cognitive Constructivist Account of Mathematical Reasoning to Mathematical Modeling

One of the most challenging aspects of doing research in the mathematical modeling genre has been finding an appropriate characterization for the complex interaction of knowledge and cognitive acts that result in coordination of situational referents and mathematical inscriptions. That is, how do people even conceive mathematics in the real-world? What I've found from the literature is many partial explanations of how individuals "translate" information from a real-world system to a mathematical representation. But some of these explanations are more productive to operationalize than others. In this talk, we'll take a deep dive into the cognitive complexity of mathematical modeling, attending to multiple theories alive in the field that each partially explain mathematical reasoning during modeling, including modeling cycles, quantitative and covariational reasoning, symbolic forms and semiotics. Then, I will share some recent methodological approaches I've taken in order to leverage the cognitive constructivist perspective toward providing a clearer picture of the mathematical reasoning that drives mathematical modeling. All so that it too can be modeled.

Bio

Jennifer A. Czocher is an Associate Professor of Mathematics at Texas State University, which is happily situated in sunny San Marcos, TX, USA. She is a mathematics educator whose research program could be described as 'doing pure educational research about the learning of applied mathematics.' Czocher seeks to develop and test explanatory accounts of students' mathematical reasoning about real-world scenarios within educational settings, rather than directly evaluate teacher or curriculum effectiveness. Her particular interest lies with post-secondary students learning to apply their advanced mathematical knowledge to solve real-world problems. Currently, she is working on an NSF CAREER project (Award #1750813) whose dual purpose is to understand how students conceive mathematical structures within non-mathematical problems and to identify task features and facilitator scaffolding strategies that best support the growth of students' modeling abilities.

Dienstag, den 11. Mai, um 17 Uhr c.t. via Zoom

Vorgespräch mit dem Gast: um 16:45

Zoom-Meeting: <https://wwu.zoom.us/j/64599975534>

Meeting-ID: 645 9997 5534; Kenncode: 237342

Kontakt: Stanislaw Schukajlow, schukajlow@uni-muenster.de