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Research Article

Eliciting Students' Critical Thinking to Connect Phenomena and Representations on Context-Based Writing-to-Learn Assignments in Mathematics

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This study presents writing-to-learn as an approach for eliciting students' use of representations as they engage in critical thinking about mathematical models. We characterize how students in an undergraduate differential equations course exhibited evidence of representational competence as they translated between representations and the phenomena they were modeling on three writing-to-learn assignments. Analysis indicates that students successfully connected formulaic and graphical representations to the phenomena of interest, suggesting that instructors can design writing-to-learn assignments to support students' representational competence in the context of mathematical modeling.