

910. Generating Ideas To Learn: Examining The Value Of Original Student Production In BME Instruction

S. RIVALE, T. MARTIN, J. PIERSON AND K.R. DILLER

University of Texas at Austin, Austin, TX

This study was conducted as part of the VaNTH Engineering Research Center, which has promoted links between bioengineers and learning scientists. The studies reported here involved the implementation of curriculum designed as Legacy Cycle challenges. We conducted two studies to investigate how the Generate Ideas segment of the Legacy Cycle promotes adaptive expertise. The first is a design research study in an HPL biotransport course that examined how different structuring of the Generate Ideas phase affected adaptive expertise. The second was an experimental study, a single ethics module presented in an introductory biomedical engineering course, that examined how generating ideas affected metacognition. We found that more directed models for generating ideas improved exam performance, but it also hurt students' adaptive expertise in that it decreases their reported value of taking multiple approaches to problems. We found that generating ideas helped students develop both multiple perspectives and metacognition, which are important aspects of adaptive expertise. We also found that engaging in open generate ideas followed by more directed generate ideas could promote adaptive expertise more than directed alone. This research is promising, and we will continue to focus on isolating elements of the Legacy cycle while looking carefully at the optimal configurations of structuring these elements.