ZMATH 2015e.00260

Szydlik, Stephen D.

Liberal arts mathematics students' beliefs about the nature of mathematics: a case study in survey research.

Dewar, Jacqueline M. (ed.) et al., Doing the scholarship of teaching and learning in mathematics. Washington, DC: The Mathematical Association of America (MAA) (ISBN 978-0-88385-193-7/pbk; 978-1-61444-318-6/ebook). MAA Notes 83, 145-156 (2015).

Summary: The author's experience teaching a problem-based inquiry seminar for over 10 years led him to question his perceptions about student learning. He lacked empirical evidence about student gains and he couldn't define what he meant by success in his course. This realization led him to a SoTL investigation that required work and reflection in order to frame a researchable question. Particularly worth noting is his description of how he came to define success in the course based on his desired outcomes. His realization that success meant student progress in the higher order activities inherent in doing mathematics led to a study of mathematical beliefs. His discussion of designing survey items about them, and checking for validity and reliability, is another highlight of the chapter. He also provides details of applying to his Institutional Review Board and a detailed discussion of options for publishing his work.

Classification: D20 C25
Keywords: scholarship of teaching and learning; universities; educational research; beliefs; student attitudes; evaluation; didactics of mathematics; educational diagnosis; analysis of learning outcomes; teaching-learning processes; academic approach; professional development; peer review