

The Importance of Collaborative Disciplinary Expertise for Integrated Education

Candice M. Quinn, Joshua W. Reid

Mathematics and Science Education, Ph.D. Program, Middle Tennessee State University, Murfreesboro, TN 37130
cmq2b@mtmail.mtsu.edu; jwr4k@mtmail.mtsu.edu

Increasingly, post-secondary instructors are called upon to integrate subject matter, particularly between mathematics and science. Furthermore, students who wish to enter into science, technology, engineering, and mathematics (STEM) fields need to have a solid foundation in both mathematics and sciences. Research suggests that instructors should design, adapt, and implement integrated mathematics and science activities to foster this foundation. However, faculty in one discipline often lack the expertise to draw upon other disciplinary contexts. We propose collaborations between disciplinary experts as a way to overcome this challenge. In this presentation we will discuss how our individual expertise (i.e., mathematics education and biology education) have been collectively used to design and implement integrated activities within each of our courses (i.e., Calculus I and Introductory Biology). We will share our individual reflections of working cross-disciplinary. Furthermore, we will share findings from the above mentioned two integrated projects we have designed and successfully administered in our own classrooms to demonstrate how integrated activities can be designed, adapted, and implemented.