Why instructors other than Joe Redish should care about epistemological framing

ANDREW ELBY, University of Maryland

In diagnosing and addressing students' difficulties with learning physics, instructors and researchers have traditionally focused on students' alternative conceptions and math skills. More recently, researchers have attributed some students' difficulties to their epistemological beliefs—their views about what counts as knowing and learning physics—and their expectations about how to do well in a given course. In this talk, I discuss a related diagnostic lens for understanding and addressing many student difficulties. In general, a person's *framing* of an activity is her perhaps-tacit answer to the question "What's going on here?" and her associated expectations about which behaviors are appropriate. Similarly, Redish's notion of *epistemological framing* is a student's perhaps-tacit answer to the question "What's going on here with respect to knowledge?" For instance, in a lecture hall, suppose the instructor regularly breaks students into small groups to answer conceptual questions. Some students might epistemologically frame these small-group conversations as *debate*, an opportunity to make and respond to arguments, play devil's advocate, and so on. By contrast, other students might epistemologically frame these conversations as *assessment*, a place to display correct understandings and to be evaluated—a stressful activity that's not about learning. Noticing that some students learn little from small-group work in lecture, an instructor might check how students are framing these discussions. If some students frame these episodes as *assessment*, the instructor could try to help students reframe the discussions, e.g., by asking each small group to come up with two plausible answers and the best argument for each. More generally, the notion of epistemological framing can expand a physics instructor's toolbox of instructional diagnoses and strategies.