

Using electronic interviews to explore student understanding of physics  
Fran Mateycik

This presentation will report on methods used to probe student understandings of total internal reflection and optical fibers. The study was conducted in part to improve web-based materials for an RPI course called The Science of Information Technology. Development of these materials includes the refinement of text, graphics, and multiple-choice diagnostic questions. Our examinations looked to find preconceptions and misconceptions commonly held by students. Initially, our convenience sample was conducted using face-to-face Piaget-style interviews, but due to physical limitations, we conducted "e-interviews" for the rest of our trials using a Chat Room. In this presentation, I will focus on the e-interview experience, discussing the similarities and differences between the traditional face-to-face approach and the electronic interview. In the process, I will also address how each method enlightens us to students' employment of prior experiences while trying to make sense of internal reflection and fiber optics.

Based upon the following paper:

DJ Wagner, JJ Rivera, Fran Mateycik, and Sybillyn Jennings, "Using Electronic Interviews to Explore Student Understanding," *AIP Conference Proceedings* **790** (3), 201–204 (2004).