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Applied Physics Education: PER focused on Physics-Intensive Careers¹

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Physics education research is moving beyond classroom learning to study the application of physics education within STEM jobs and PhD-level research. Workforce-related PER is vital to supporting physics departments as they educate students for a diverse range of careers. Results from an on-going study involving interviews with entry-level employees, academic researchers, and supervisors in STEM jobs describe the ways that mathematics, physics, and communication are needed for workplace success. Math and physics are often used for solving ill-structured problems that involve data analysis, computational modeling, or hands-on work. Communication and collaboration are utilized in leadership, sales, and as way to transfer information capital throughout the organization through documentation, emails, memos, and face-to-face discussions. While managers and advisors think a physics degree typically establishes technical competency, communication skills are vetted through interviews and developed on the job. Significant learning continues after graduation, showing the importance of cultivating self-directed learning habits and the critical role of employers as educators of specialized technical abilities through on-the-job training.

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