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Abstract for an Invited Paper for the MAS17 Meeting of the American Physical Society

What are the goals of introductory physics courses and how can we help our students be successful? EUGENIA ETKINA, Rutgers, The State University of New Jersey

h - abstract - We are all passionate about student learning. We want them to succeed in our introductory courses. But what should the students learn in our introductory courses to be successful in the future? In my talk I will discuss how technological developments and changes in the workplace inspired global changes in the goals of science education in the US and in the world and what we can do in our introductory physics courses to prepare our students for their success in the future. I will present a different approach to teaching introductory physics and its effects on student learning. The main idea of this approach, called Investigative Science Learning Environment or ISLE, is that students construct their physics knowledge using processes that mirror processes that physicists use while they are doing physics. I will also discuss history of physics, achievements of brain science and findings of physics education research that support ISLE. Finally, I will address the issues of professional development that help instructors master ISLE. f1/pard-/abstract-