

Abstract Submitted  
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**Critical thinking in experimental physics: Features of physics lab curricula that promote higher-order thinking<sup>1</sup>** COLE WALSH, N.G. HOLMES, Cornell University — There have been recent calls to shift the focus of introductory physics labs towards developing students' experimentation and critical thinking skills. Making these changes successfully at a large scale will require that we understand what features of lab curricula are most important for developing these skills. We have developed a relevant assessment, the Physics Lab Inventory of Critical thinking (PLIC), which has been administered to 11,071 students enrolled in 119 courses across 47 institutions. We are using this assessment to evaluate how different features of lab instruction affect students' critical thinking skills. For example, how does the primary purpose of the lab, the amount of structure versus freedom, or the degree of discovery versus confirmation affect students' performance on the PLIC? We also examine how performance on the PLIC varies across student-level variables in connection with different lab curricula (such as students' gender or prior preparation).

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