Student Self-Efficacy in Introductory Project-Based Learning Courses\textsuperscript{1} GEOFFREY PLEISS, YEVGENIYA V. ZASTAVKER, F. W. Olin College of Engineering — This study investigates first-year engineering students’ self-efficacy in two introductory Project-Based Learning (PjBL) courses – \textit{Physics (Mechanics) Laboratory} and \textit{Engineering Design} – taught at a small technical institution. Twelve students participated in semi-structured open-ended interviews about their experiences in both courses. Analysis was performed using grounded theory. Results indicate that students had lower self-efficacy in \textit{Physics Lab} than in \textit{Engineering Design}. In \textit{Physics Lab}, students reported high levels of faculty-supported scaffolding related to final project deliverables, which in turn established perceptions of an outcome-based course emphasis. Conversely, in \textit{Engineering Design}, students observed high levels of scaffolding related to the intermediate project deliverables, highlighting process-centered aspects of the course. Our analyses indicate that this difference in student perceptions of course emphases – resulting from the differences in scaffolding – is a primary factor for the discrepancy in self-efficacy between Physics \textit{Lab} and \textit{Engineering Design}. Future work will examine how other variables (e.g., academic background, perception of community, gender) affect students’ self-efficacy and perception of scaffolding in these PjBL courses.

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Yevgeniya V Zastavker
F. W. Olin College of Engineering

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