

ABSTRACT

Students choose engineering majors in college for multiple personally motivating reasons. However, 40 % of engineering students do not graduate from their initial engineering major, with most attrition occurring in the first two years of the degree program. These gatekeeping mechanisms exacerbate inequalities and barriers for systemically minoritized individuals (i.e., women, Black, Indigenous, Latina/o/x, etc.) and people at the intersection of these identities in STEM disciplines. Higher educational institutions must ensure that students enrolled in STEM degrees are well supported to pursue and achieve their career goals, especially as more students come from increasingly diverse backgrounds and different levels of prior academic preparation. We can look at motivation to understand why students choose engineering degrees and how they persist, considering the many challenges they face in obtaining their engineering degree. Motivation is essential for learning and predicts academic achievement and engagement. Motivated students learn more, persist longer, use appropriate learning strategies, and are more likely to achieve their learning outcomes. This research investigates how students navigate one institution's introductory chemical engineering course across multiple semesters. It focuses on the role of the classroom context in influencing students' motivation, learning strategies, learning experiences, and academic outcomes in a gateway chemical engineering course at Purdue University. The results of this research study will contribute to the literature on motivation theories by elucidating how a learning context influences students' motivation to learn and their learning outcomes. It will also contribute to efforts to retain and support students in undergraduate engineering programs.