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The role of departmental support structures and self-efficacy on the persistence of physics graduate students

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High attrition rates and a lack of equitable gender and racial representation are common and persistent issues across the Science, Technology, Engineering, and Mathematics (STEM) disciplines. To date, little work has focused on the student experience and how it contributes to attrition or persistence. There is also a lack of information regarding the causes of demographic disparities in graduate student attrition. This study examined students' experiences of departmental support structures and how these influence their academic self-efficacy and intention to persist. We developed a survey instrument, the Aspects of Student Experience Scale (ASES), that measures how students experience support structures in their graduate program. ASES was based on support structures recommended by the American Physical Society - Bridge Program (APS-BP) that have been shown to improve student retention. We then used ASES to understand the influence of departmental support structures on academic self-efficacy and persistence. We collected 396 student responses from 19 physics graduate programs across the United States, 20 follow-up semi-structured student interviews, and 9 department leaders interviews. In this talk, I will describe the ASES survey instrument, which departments can use to assess their graduate program and potentially identify ways to better support their students. I will also discuss our findings related to the relationship between support structures, student self-efficacy, and intention to persist in the program. Important implications include recommendations such as building a safe environment that supports effective student-faculty communication and creating a formal peer mentoring program.