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A Method for Identifying Variables for Predicting STEM Enrollment

This descriptive study is focused on identifying both differences and similarities between cohorts of students that select STEM or non-STEM majors as entering freshmen. In addition, we also examine possible differences and similarities by gender, ethnicity and school attended (University of Pittsburgh and Texas A&M University). To do this, we utilized the CIRP data sets from these two institutions, giving us a total sample of 12,000 students. By learning more about these factors, the potential for increasing STEM participation, especially among under-represented populations is greatly increased. This study was part of a much larger project focused on improving STEM performance primarily at the K-12 level.

While our analyses are relatively straight forward, we feel that by also concentrating on similarities we are going beyond what has typically been done in other studies that tend to just contrast differences within the various STEM sub-populations. This is best illustrated in Table 2 of the journal paper which provides the consistent, significant variables for the sub-populations studied.

While certain aspects of the findings are intuitive, the fact that there are such striking, consistent differences between STEM and non-STEM cohorts among the set of variables is an important confirmation. Further, this holds true for both the more quantitative measures as well as for measures of their self-assessed STEM abilities and academic and personal goals.

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