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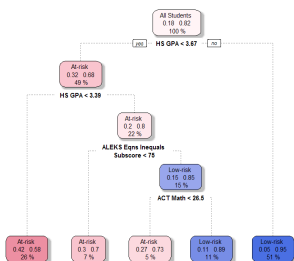
Beating the Odds: Success Strategies for At-Risk Students

Introduction

When students fail to thrive academically in their transition to college, both students and institutions experience negative consequences. In engineering programs, some students may fail to thrive due to poor prior academic preparation, while others may engage in behavior that puts their academic success at risk.

Identifying students who are unlikely to succeed and providing them tools to succeed, or guidance into other programs in which they can succeed, makes us a stronger institution and benefits students.

Motivation & Objectives



In prior work, we developed a classification & regression tree to identify at-risk first-term engineering students based on pre-enrollment data (Kaleita et al., 2016).

- 6% of predicted low-risk students fail to achieve a 2.0 GPA or better in their first semester.
- 62% of predicted at-risk students “beat the odds” (Note: our model cast an intentionally wide net here, for the purpose of intervention).

In this work, we:

- Identify behaviors and attitudes that differentiate at-risk students who “beat the odds” to achieve greater than a 2.0 GPA in their first semester from those who do not.
- Identify behaviors and attitudes in low-risk students who underachieve academically in their first semester.

Methodology

- First-semester students in the College of Engineering at our institution complete the MAP-Works survey (www.skyfactor.com), beginning in the fifth week of classes. The survey asks students about behaviors and feelings relevant to student success and the transition to college.
- MAP-Works responses were matched to student risk predictions from the above model, and de-identified for further analysis.
- Kruskal-Wallis analysis of variance tests were used to determine questions for which there were significant differences between performance levels for at-risk and low-risk groups.

Results

There were sixteen MAP-Works questions where the low-achieving student responses were significantly different from the achieving student responses, regardless of their initial risk category. An additional 20 questions showed significant differences between low-achievers and achievers, but only for low-risk students. A sampling of these results is shown here.

No real surprises! Students who achieve academically, regardless of their predicted risk category ...



Additionally, low-risk students who fail to achieve academically ...

- Report they are not self disciplined
- Don't intend to get involved in student organizations
- Regret leaving home for school, and don't feel like they belong
- Report they can't always sleep in their room.
- Don't take notes
- Don't participate in class
- Don't keep a calendar of assignments and exams
- Don't avoid distractions when they study