



STUDENT ATTRITION

RYAN KALLICHARRAN
TEREZA SHTERENBERG

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Research

- Why They Leave: Understanding Student Attrition from Engineering Majors by D. Raj Raman & Brandi N. Geisinger



Low course grades drive students away (regardless of conceptual understanding)

Research

- Understanding Student Attrition in the Six Greater Toronto Area (GTA) Colleges by Tet S. Lopez-Rabson (Seneca College) et al.

25 years old or younder

↓ Personal Reasons

↑ Financial Reasons

↑ Academics(changes/Issues)

↑ Interest in Program

26 years old to 36 years old

↑ Personal Reasons

↓ Financial Reasons

↓ Academics(changes/Issues)

↓ Interest in Program

37 years old+

Research

- Student Attrition: Consequences, Contributing Factors, and Remedies by Ascend Learning, LLC

Admission
scores



Success in Program

Research

- The "Big Picture": Key Causes of Student Attrition & Key Components of a Comprehensive Student Retention Plan, by Joe Cuseo (Marymount College)

Root causes of student attrition:

- Academic Roots
- Motivational Roots
- Psychosocial Roots
- Financial Roots



How should Retention Programs be delivered:

- 1.Student-centered
- 2.Purposeful (intentional)
- 3.Proactive
- 4.Intrusive
- 5.Diversified
- 6.Personalized
- 7.Comprehensive
- 8.Systematic
- 9.Developmental
- 10.Durable
- 11.Collaborative
- 12.Empirical (Evidentiary)



Research

- The Institutional Costs of Student Attrition by Nate Johnson, Postsecondary Analytics LLC

33% of students leave without a degree:



Reducing attrition is crucial to
enhancing productivity

- Beginning Postsecondary Data (BPS)
- Integrated Postsecondary Education Data System (IPEDS)

Research

- College Student Attrition and Retention, by Leonard Ramist, College Board Report No.81-1



Overall Graduation and Dropout Rates:

- 35-40 % graduate within 4 years
- 30-50 % graduate after 4 years
- 10-35 % dropout without a degree

Reasons for dropping out:

- Academic matters, financial difficulties, motivational problems personal considerations, dissatisfaction with college, military service, full-time jobs, need for practical non-academic experience, lack of initial plan to obtain a degree

Hypothesis & Goal



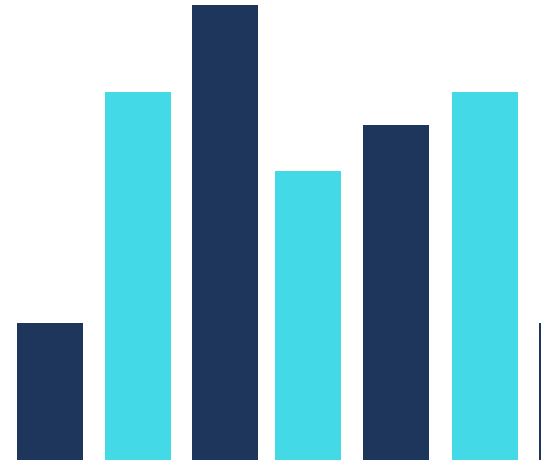
***Student's age, GPA, and standardize test score
predict students attrition***

Our Goal:

- Identify students at risk of dropping out and intervene with resolution

Data

- Sensitive data
- 1,000,000 points approx.
- Characteristics:
 - GPA
 - Age
 - SAT score
 - Gender
 - Race
 - Part/Full time enrollment
 - Admission Scores



Method

Clean the data for use

25%

Select student within a 6 year duration in school

50%

Select students currently enrolled

Use two machine learning algorithm

75%

Examine the data and compute

Test our Hypothesis

100%

predict student at risk

Tools

- Weka, (TS) - Data Mining Software in Java
- Stata, (TS) - Data Analysis and Statistical Software
- Python (TS, RK) - Bokeh, Pandas, etc
- R, Mathematica (RK)
- Server (RK)



Conclusion



We will try to prove our hypothesis and if it is true we will take it a step further by predicting student risk of attrition.

<https://github.com/ryankall/capstoneProject>