Attrition and Retention in Engineering

Analyzing Enrolment, Transfer, Drop-out and Stop-out activity

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Purpose

In an effort to improve retention in Engineering at the University of Saskatchewan, a study was undertaken to identify factors, evaluate recent efforts to reduce attrition, and implement new initiatives to attract and retain students from targeted populations.
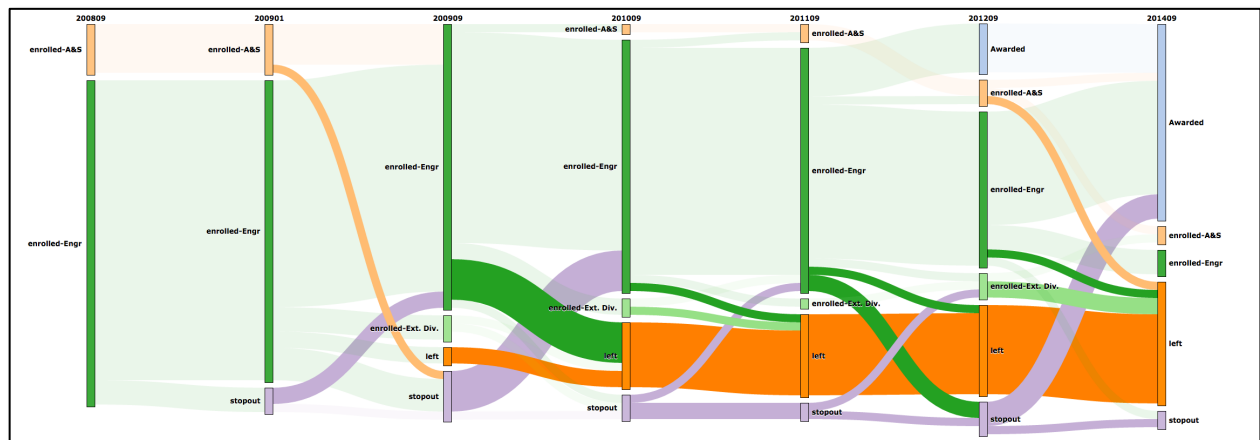

FIGURE 1. SIX YEAR GRADUATION AND ATTRITION FOR ENGINEERING STUDENTS.

Tool: Ribbon

Efforts to bring student data at the University of Saskatchewan into a University Data Warehouse have been successful and it is now relatively easy to build up a specific dataset for visualization in the Ribbon Tool. Engineering enrolment data for different demographic groups since 2008 have been collected and structured. Admission policies, enrolment quotas, freshman promotion standards, and probationary actions have been tweaked in recent years and the effects of these changes on attrition and retention have not yet been fully analyzed.

The Ribbon Tool helps track the changes in student flows into, through, and out of Engineering for various demographic subgroups.

Evidence

The Ribbon visualizations confirmed the drop-out and stop-out patterns as well as flows of students from Science to Engineering and from Engineering to other Colleges. The visualizations raised many other questions, such as the potential impact of adjusting admission policies (eg. What might happen if a Calculus pre-requisite was dropped, or what would happen if higher Math and Physics grades from High School were required).

Four, five and six-year graduation rates were also examined for students in different demographic categories. Students completing the professional internship program, which extends the minimum time to degree by one year, were separately analyzed via use of Ribbon filters.

Action

The visualizations have raised a number of very specific questions that require the gathering of additional data (eg. surveys), more detailed statistical analysis, and some predictive modeling. They also have helped motivate the development of an early alert and student advising system that will help to prevent students from falling behind as they transition into Engineering as freshmen.