



Predictive Analytics – First to Second Year Retention

Introduction

This report provides a brief overview of the freshman to sophomore retention rate analysis completed by Institutional Research and Planning in Spring 2017. UW-Whitewater is currently developing a new strategic plan, which will set new retention goals and is focused on addressing the opportunity gap. This analysis was conducted in order to determine whether certain student populations demonstrate higher rates of attrition - specifically, underrepresented minority (URM) students, low-income students, and first-generation college students.

Methods of Analysis

A statistical analysis of the factors influencing retention was conducted. The analysis included five years of freshman cohort data (Fall 2011 through Fall 2015), and the second-year retention data for those students. Forty-one variables were considered in the retention model to proxy for factors that might influence a student's decision to re-enroll at UW-Whitewater in his/her second year. These variables fall into four categories:

- Demographic information (including ethnicity, income and first-generation status)
- Academic readiness (derived from application materials)
- First semester experience (including academic and housing information)
- Financial aid package

Several statistical models were tested, with various iterations of the factors identified above before drawing the conclusions outlined below.

Findings

Results of the statistical analysis indicate that the factors with the greatest influence on student retention include:

- a student's academic achievement in their first semester
- the proximity of UWW to the student's home address, and
- the size of a student's financial aid package

Specifically, students with higher first semester grade point averages (GPAs) and larger financial aid packages were more likely to re-enroll at UW-Whitewater than other students. With the exception of Pell Grants (which acts as a low-income indicator), individual grants did not impact a student's decision to return for their second year as strongly as the overall financial aid package offered to the student. In addition, students who lived in

closer proximity to campus were more likely to be retained (particularly students who lived more than 150 miles from campus).

In contrast to expectations, demographic factors of ethnicity, income and first-generation status do not appear to consistently or strongly influence student retention from freshman to sophomore year. While lower family income and URM status are both negatively correlated with retention, these variables rarely achieved significance in the models tested. This implies that these factors are not in-and-of-themselves playing a critical role in retention decisions. Similarly, academic preparedness (measured in terms of high school GPA) also appears to play little or no role in determining whether a student returns as a sophomore. While the statistical models suggest that first-generation students are slightly more likely than their counterparts to leave the university within their freshman year, the negative association between first-generation status and attrition is relatively weak in comparison to first-semester academic achievement, proximity to home and financial aid.¹

It should also be noted that this analysis did investigate whether attrition was influenced by a student's course of study. The analysis indicated that first-time first year students who did not declare a major were less likely than their peers to return to UW-Whitewater in their sophomore year. This may suggest that students who fail to develop an affiliation with an academic department early in their freshman year may be at greater risk of attrition than their peers.

Conclusion

The statistical analysis of freshman-to-sophomore retention patterns suggests that first-semester academic achievement, proximity to home, and financial aid play a prominent role in student decisions to return to UW-Whitewater for a second year. Demographic factors often associated with opportunity gap data – specifically, underrepresented minority (URM) students, low-income students, and first-generation college students – are correlated with attrition. However, the analysis demonstrates that these factors – examined individually and holding all other variables constant – do not explain attrition patterns at UW-Whitewater. However, this does not mean that students who encounter multiple challenges to success are just as likely to be retained as their peers. Rather, it indicates that, for example, a student from a low-income background is not less likely to re-enroll in his/her second year based solely on that factor.

The data used in this analysis is limited to first-time first-year freshman students at UW-Whitewater in the fall semester. Given that transfer students and spring enrollees constitute a growing portion of the undergraduate population, an expansion of the statistical analysis to include these populations may be warranted. It may also be advisable to conduct this analysis on an annual basis, as the profile of the UW-Whitewater student population is likely to change over time. Annual review of the factors impacting retention will allow stakeholders to pro-actively respond to new trends in student behavior as they arise.

¹ In Fall 2016, 40.5% of undergraduate students self-identified as first-generation students..