Chapter 12
Mind the Gap: From Analytics to Action in Student Retention

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ABSTRACT

The issue of student attrition is a complex one and has been an area of research interest among education researchers. Recently, education researchers are proposing to tap into the large amount of student data that are housed within the institution’s data warehouse. This big student data of demography, learning journey, and their interactions with the institution presents a rich source of insights that can be discovered using advanced analytics. Consequently, education researchers have put forward predictive models, suggest the use of data triggers and dashboards aimed at improving student retention. This however has been met with limited success to date. From experience, there remains a gap between the analytics and the operationalization of the analytics. Consequently, this gap needs to be addressed to achieve student retention. The authors propose a dual framework to close this gap. While this framework was developed in the context of creating a solution for student attrition, it is sufficiently generalizable to analytical solutions for problems around student learning.

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1. INTRODUCTION

Student attrition is one of the biggest challenges facing universities worldwide. The cost of student attrition is high, impacting not only individual students but also universities and society as a whole. Higher education (Johnson, Brett, & Deary, 2010) facilitates upward social mobility with university graduates enjoying higher incomes over their lifetimes. Education is also a powerful enabler of social and economic development in both developed and developing countries. From the university prospective, student attrition not only results in direct loss of revenue, but it can damage a university’s reputation and undermine its aspirations for increasing access and equity to higher education.

There has been a lot of research over the past fifty years into the determinants of student attrition. Several theoretical models have been proposed, notably those put forward by (Tinto, 1987) and (Bean & Metzner, 1985). These theories informed us of the reasons behind students leaving higher education and have since being used by universities to implement preventive programs. Unfortunately, though, these programs have not led to substantial improvements in student retention according to (Seidman, 2005).

There are many reasons for the disappointing outcome. One of them is the increase in the diversity and mobility of student cohorts (Tremblay, 2013), which has made the task a lot more challenging and resource intensive. Furthermore, the research to date has also confirmed the issue of student attrition and retention to be a challenging and complex issue, often with factors interlaced by that of an individual, or the social and organization environment. These combination of factors mean that intervention that are effective in one context may not be so in another. For example, an individual’s previous academic success, level of commitment to current study as well emotional intelligence scores have all been shown to be correlated or are predictors of attrition (Sparkman, Maulding, & Roberts, 2012). Yet social factors, including the support of family, friends and community also play a part in retention and hence, attrition. It is also further recognized that the broad attrition and retention outcome from a university is also very much tied to the social, economic and political environment that the university operates in (Seidman, 2005). To further complicate the issue, the university as an organization also contribute to the student’s success. The influencing factors can include the university’s location, student-staff interaction, the cohort characteristics, the learning environment provided, as well as the fit of the university’s teaching model to the students’ learning needs (Seidman, 2005). These factors all play a role in triggering a student’s decision to leave a course, or the university altogether.

Consequently, a key message that we synthesized from current works is that these factors all contribute to predicting attrition and that, we should not look at a subset of factors in isolation. In other words, if attrition is to be meaningfully understood and purposefully managed, then the institution needs to implement their student success strategies, policies, and actions with specific social, cultural and organizational context in mind. Yet to do this is no simply feat. Recent developments in managing attrition has started to lean towards the use of data driven models in formulating strategies, policies and delivery of interventions (Wagner & Longanecker, 2016). It is very promising and research into the use of data to manage attrition is starting to get traction, particularly in this age of ‘big data’. However, progress in this area is also hampered by the lack of reliable data and clear data analysis methods to inform the university’s approach and methodology to manage their own attrition issue. This situation is an interesting one because universities are traditionally forerunners of new ideas and development but not so in this case if we draw parallels between student retention and customer retention in customer-facing industries.

Yet, they share a lot of parallels. The big student data that university has includes the student demography, the student’s learning journey, as well as their interaction with the learning organization. This
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