Campus Labs: Best Practices for Higher Education

Identifying More At-Risk Students with an Expanded Data Set

JD White, Ph.D.
Vice President, Product Management

campuslabs™
Data Driven Innovation

Table of Contents

Executive Summary

This white paper focuses on the issue of retention for colleges and universities. It addresses current practices in identifying at-risk students and provides administrators insights that may help them in vetting early alert systems.

Research has shown that retention rates in higher education have remained largely unchanged in recent years, with institutions losing approximately 25% of students between the first and second years (source: NCES, IPEDS data, 2009). Retention efforts have typically focused on identifying at-risk students based on academic factors (*e.g.*, GPA, attendance reports) and demographics. Some campuses have achieved slight improvements in their retention efforts by using non-cognitive data, often from student surveys administered at the beginning of the school year.

A common challenge facing campus administrators is that cognitive and non-cognitive data, while helpful, only provides information about a small part of a student's campus experience at a distinct moment in time. These data sets do not provide insight into a student's involvement with campus groups, her perception of course instruction, her ever-changing social circle, and other typically hidden data. Nor do they capture her ongoing activity, attitudes, and performance.

To identify more at-risk students and increase retention rates, campus administrators need to capture the continuous stream of information available for each student and turn data into action. By connecting all the available data, administrators can identify students who are most at-risk, and align their resources to address their specific retention challenges. This paper discusses the benefits of collecting, sharing, and connecting information using an expanded, continually updated data set.

The Retention Challenge: Keeping Students Enrolled

According to the U.S. Department of Education, National Center for Education Statistics, fewer than 60% of first-time students who are enrolled full-time in a four-year institution and seeking a bachelor's degree (or its equivalent) completed their degree at that institution within six years. One study found that one-third of students transferred to another institution at least once within five years (source: Hossler et al., 2012). Retention is a problem beginning in high school; a U.S. Department of Education study found that fewer than 75% of public school students (nationally) graduate from high school (source: Chapman et al., 2010).

At the college level, research has found that student success goes beyond attendance, academic performance and even non-cognitive skills. For example, students who know someone leaving campus are five times more likely to leave themselves (source: Eckles and Stradley, 2011). Other studies have shown that the more connections a student makes on campus, the more likely he or she is to remain enrolled at that institution (sources: Harris, 2006; Tinto, 1993, 2004). In turn, the responsibilities campus administrators are now tasked with include: identifying the various reasons a student may be at risk, determining the intensity of risk for each student, and taking appropriate measures to retain the students most at risk.

Reasons Behind a Lack of Student Success

A successful retention program begins with the significant challenge of identifying at-risk groups and individuals. Students drop out or transfer for a wide range of reasons, including (but not limited to) poor academic performance, lack of non-cognitive skills needed to manage campus life, housing issues, financial pressure, alcohol or drug use, and real or perceived opportunities at other campuses. Campus administrators typically do not measure many of the underlying issues that may place students at risk for leaving the institution. Even when data is captured, it may not be collected often enough, or it may not be shared in time with first-year seminar advisors and others who are responsible for student success. Knowing which students are at risk—and why—is key to increasing retention rates.

Using Technology to Identify At-Risk Students

Many campuses are investing in technology that is sold based on the premise that it will help institutions retain additional students each year. These software solutions differ widely in their ability to identify at-risk students. Basic systems predict student success based on institution-identified risk factors, while others alert administrators using past data from demonstrated student behavior. The most robust systems for identifying at-risk students allow administrators to act based on a continuous stream of campus-wide data.

The Three Types of Retention Systems

While there are numerous systems marketed to colleges and universities for addressing at-risk students, most of the tools can be categorized as one of the following:

» Predictive student surveys, including enhanced surveys that measure non-cognitive data

» Alert systems that utilize data from campus systems

» Insightful solutions that utilize an expanded data set and incorporate a continuous stream of data

Each of these tools has different benefits and drawbacks, and needs to be carefully considered when planning a retention strategy.

> Even when data is captured, it may not be collected often enough, or it may not be shared in time with first-year seminar advisors and others who are responsible for student success. Knowing which students are at risk—and why—is key to increasing retention rates.

Prediction Models: The Benefits and Limits of Student Surveys

In an effort to identify at-risk students, many campuses rely heavily upon student surveys. Self-reported data is captured once or twice during the year, and is used as the cornerstone of an institution's retention efforts. While student surveys provide some ability to predict student behavior, they typically do not offer alerts, nor do they give administrators the ability to act on the results.

In the student survey model, students take a survey one time at the beginning of the school year, and (in some cases) a follow-up survey mid-way through the year. These surveys capture demographic information (*e.g.*, age, housing status), and may also ask students questions regarding their attitudes and propensities. A typical survey question is, "How likely are you to return to this school next year?"

Given that cognitive data such as GPA and standardized test scores only account for approximately 25% of the variance in a student's success, some institutions have implemented enhanced surveys with questions that are designed to capture and interpret non-cognitive information (*e.g.*, a student's attitudes toward education) (source: Robbins et al., 2004). Data and analysis of these surveys help first-year students identify

their strengths and weaknesses. They also provide administrators the tools they need to identify individuals who might be at risk, but who many not be identified as such under the criteria of traditional risk assessment. Non-cognitive data helps administrators identify students who might have marginal academic performance but high levels of motivation and commitment—as well as students who may show a strong commitment to their studies but a have low threshold for stress and transition. Research has found that non-cognitive data improves predictive accuracy between 8-15%, depending on the population. Historical data suggests that the results are most substantial with first-generation students (source: Gore, 2009, 2011).

Regarding non-cognitive data, a meta-analysis of 109 studies found that psychosocial and study skill factors (PSFs) were a stronger predictor of student academic success than typical cognitive measures. Researchers studied students' achievement motivation, perceived social support and other non-cognitive data, and found that meta-analyses indicated, "moderate relationships between retention and academic goals, academic self-efficacy, and academic-related skills." Researchers also found that, "The best predictors for [college] GPA were academic self-efficacy and achievement motivation." Furthermore, they found that "supplementary regression analyses confirmed the incremental contributions of the PSF over and above those of socioeconomic status, standardized achievement, and high school GPA in predicting college outcomes" (source: Robbins et al., 2004).

One leading non-cognitive survey is the Student Strengths Inventory (SSI), the assessment instrument embedded in Beacon and available through Campus Labs. The SSI has excellent reliability (alphas range from .81 to .90), and focuses on the six factors that are the strongest predictors of student retention: academic engagement and discipline, educational commitment, campus engagement, social activity, academic self-efficacy, and resiliency. Like other leading surveys, the SSI produces customized recommendations and reports for both administrators and students based on the survey results.

Non-cognitive data can bolster retention efforts; however, any such survey is inherently limited due to the fact that it only looks at snapshots of information, capturing a relatively small percentage of the data that surrounds each student. Consider a likely scenario, one in which every student who indicates on a survey that he or she is not likely to return to campus is "red-flagged" for administrators. Student advisors then meet with each student one-on-one to determine if he or she is truly at risk, and whether or not there is an opportunity to retain that student. During these meetings, administrators often discover that, for many students, their situation has changed significantly in the months that have passed since the survey—and they are no longer at risk.

In summary, a survey is a basic predictive tool that captures specific moments in time. No matter how robust the survey, it alone cannot provide comprehensive information about the student's ongoing, campus-wide experience. Many campuses, however, continue to rely solely on student surveys because they are relatively inexpensive and easy to administer, while providing some predictive information about the student population.

Alert Tools: The Challenge of Relying on Academic Performance Data

Another common approach to retention is to collect data from within campus systems, and then use this data to trigger alerts. With this model, campus administrators do not receive alerts until after a student has missed a pre-defined number of classes, or their grades have fallen below a specified threshold.

These alerts have numerous challenges. First, they rely heavily on events or actions that have already occurred. Creating these alerts often triggers responses that arrive too late, past the period within which an intervention would have been effective. In addition, alerts are based solely on student behavior; they are not designed to capture the root cause of the poor attendance and / or low grades, nor do they give advisors or students a recommended course of action. Administrators, faced with a limited data set, are still required to undertake the time-consuming process of investigating each reported case to view the information in context. They must then determine if the student's academic performance truly puts him or her at risk by matching each student with the appropriate resources.

A Better Solution: Using an Ongoing Data Stream and the Entire Campus Experience to Identify At-Risk Students

Identifying at-risk students is a complex problem that demands more data and more insight than prediction-based or alert-based systems can offer. Nearly everything that a student experiences while enrolled at an institution can affect his or her risk; each day is filled with meaningful moments, from interactions with roommates to club meetings. How a student responds to one particular assessment given on one specific day—an assessment that may not be reviewed by administrators until weeks or even months later—is unlikely to give administrators the information they need to be most effective. Rather, institutions that are able to gain insight regarding a student's entire campus experience on an ongoing basis can use this information to help identify students who are at risk—including those who would not be identified using traditional means.

Consider a common scenario in which an advisor receives a list of 100 students who are considered "at-risk" based on their class attendance. The advisor must then contact and interview each of these students, and determine the level of risk for each student. The advisor may find that 30 of these supposedly "at-risk" students are missing class because they are highly involved as leaders in campus organizations. Conversely, consider a student who has perfect attendance, but gave all of his instructors poor reviews on his course evaluation surveys. With traditional tools, this student would not be considered "at risk," even though his attitudes about the school make him likely to transfer.

Administrators who wish to achieve a higher level of student success are advised to employ a three-pronged strategy: collect the right data, share data among all interested parties, and then connect this data using tools to identify at-risk students. While many campuses are rich with data, they often keep it locked away in silos. This ultimately prevents campuses from utilizing data in real-time to improve retention efforts.

Step 1: Collecting the Right Data

Collecting data is a familiar process for nearly every institution of higher learning. However, campuses vary widely in terms of the amount of data they collect, the quality of this data, and the time period during which they collect it. Some colleges and universities take a basic approach to assessment, administering a single survey per year that provides a one-time snapshot of the student body. Others take a much more pro-active approach, targeting various groups of students with assessments throughout the year.

Similarly, some campuses collect only as much data as they need for accreditation, while other institutions gather as much data as they can, measuring everything from student satisfaction with housing options to alumni giving preferences. Even campuses that do not actively focus on collecting data still often have vast amounts of information, ranging from meal plan usage to course evaluations to residence advisor reports. A continuous stream of data can reveal significant insights, but only if it is harnessed correctly.

Step 2: Sharing Data Across Campus

Another common challenge that campuses face is sharing data. Even institutions that collect an appropriate volume of data often keep this information in departmental silos. By failing to share this data, they are unintentionally passing up valuable opportunities to identify students who may be at risk.

As cited earlier, students who have a connection with someone who is leaving campus are five times more likely to leave themselves (source: Eckles and Stradley, 2011). A housing official may know that a student in a particular residence hall is transferring, but this information is typically not shared with student advisors, who could possibly help retain other students in that hall by checking on their status and serving as a resource. By sharing information and unlocking the data, campuses multiply their opportunities to promote student success.

> While many campuses are rich with data, they often keep it locked away in silos. This ultimately prevents campuses from utilizing data in real-time to improve retention efforts.

Step 3: Connecting Data to Identify Students that Traditional Systems Miss

Once a campus is collecting the right data and sharing it campus-wide, the next step is to connect various data sets. Each student has a network consisting of friends, professors, residence advisors student advisors, and many others. Making connections among these networks is extremely valuable when it comes to accurately identifying at-risk students. GPA on its own only accounts for approximately 25% of an advisor's ability to predict a student's success (source: Robbins et al., 2004). Other data sets—such as campus involvement—provide insight into the additional 75%. Research has shown that a student's first six weeks on campus are critical in terms of reducing risk; the more connections a student makes, the more likely he or she is to stay at that institution (sources: Harris, 2006; Tinto, 1993, 2004). If administrators and advisors are only looking at one data set, it is possible that they may miss students who cannot be identified based solely on this limited data.

Consider the case of two first-year students: Joe has a 2.3 average, and Kelli has a 3.1 average. A traditional early alert risk management system might alert Joe's advisor to the fact that his GPA is low, and that he should be scheduled for an interview to determine what actions can help raise his grades. Meanwhile, Kelli's grades are strong enough that the advisor does not receive an alert.

When the advisor meets with Joe, he discovers that Joe is very active in four campus organizations, holding leadership positions in two of them. The advisor also learns that Joe has a strong network of friends, an excellent relationship with his roommates, and has received encouraging comments from his professors. Finally, the advisor learns that, since the alert was issued five weeks ago, Joe has raised his GPA to an acceptable level. Joe is not at risk—he simply needed time to adjust to campus life.

Meanwhile, Kelli is not involved in any campus groups, gave her professors low ratings in her course evaluations, and has spoken with her residence advisor about problems with her roommates. The advisor might be missing this data for a variety of reasons: because the data is not being collected frequently enough, because the data is not being shared, or because the campus does not use technology that can connect key data to help identify at-risk students. Regardless of the reasons, a few weeks later, Kelli decides to transfer.

Connecting data is the ultimate step in helping advisors be more efficient, more proactive, and retain more students. By focusing on the right students—including those they did not even know were at risk—advisors can gain a much deeper understanding of student success and retention.

Beacon: How an Expanded Data Set Can Help Identify At-Risk Students

Given the numerous challenges faced by colleges and universities, Campus Labs has designed a comprehensive early alert solution that encompasses all elements of a successful retention strategy, giving institutions the tools to collect, share and connect data campus-wide on an ongoing basis. This web-based product, called Beacon, takes advantage of an expanded data set to help institutions identify at-risk students who are often missed by traditional, less powerful screening methods. By collecting a continuous stream of data and connecting to other assessment, planning, and involvement solutions from Campus Labs, Beacon allows advisors to get a more accurate, up-to-date picture of each student's campus experience—including insight into dozens of "hidden" issues that may be putting students at risk.

Beacon is the only product in the market that uses these additional data points to help institutions identify at-risk students. By bringing together all of the information about each student, (including ongoing reports from residence advisors, notes from professors, and even self-reported data about their campus experience) Beacon identifies students that advisors otherwise might never have known were at risk. For example, Beacon may identify an at-risk student based on a combination of her grades, her campus involvement, and her self-reported data from three recent surveys. The advisor can then go online and see all the data presented on a single screen, including the student's co-curricular transcript, her course evaluation comments, notes from her residence advisor, her social comfort score, and her academic performance. Beacon gives campuses better tools for *predicting* which students are at risk, *alerting* them to at-risk students, and helping them *act* by providing reports and customized recommendations for each student.

Beacon taps into a continuous stream of data, and can help advisors see which students are at risk at any moment based on the most recent available data, rather than relying on outdated surveys that may be weeks or even months old. Advisors can also identify students who may have been at risk in the past but are no longer at risk because they have self-corrected (signs of self-correction include increased engagement with campus activities, recent positive remarks from residence advisors, and results from targeted surveys).

By creating a comprehensive, centralized, and timely assessment approach for the whole campus, Beacon gives every division, every department, and every member of the faculty and staff access to robust assessment and planning tools. Colleges and universities can then align their resources more efficiently based on this comprehensive, accurate picture of which students are most at risk.

> Beacon allows advisors to get a more accurate, up-to-date picture of each student's campus experience—including insight into dozens of "hidden" issues that may be putting students at risk.

Beacon looks at data points across a student's entire campus experience—not just academic performance. It is the only student success tool that leverages data from across the Campus Labs platform to better inform faculty and administrators about student issues, participation and engagement.

If you need...	Campus Labs Products
A robust early alert system for identifying students who are at-risk	Be Beacon is an early alert system that collects data about each student's non-cognitive skills, increasing the ability to predict future academic success.
Early alert system + information about student involvement and integration into campus life	Be + C By connecting Beacon with CollegiateLink (our involvement management solution), advisors can view a continuously updated record of an at-risk student's involvement across campus. Making this connection unlocks the ability for advisors to see the relationship between a student's grades and his or her involvement in campus groups.
Early alert system + insight into the ongoing student experience	Be + B When campuses use both Beacon and Baseline—our student learning assessment tool—they are able to use responses to survey questions as the basis for follow-up assessments of specific at-risk populations.
Early alert system + comprehensive data about student learning and campus experiences	Be + B + C By combining Beacon with both Baseline and CollegiateLink, a campus can get an even more robust picture of campus success. For example, advisors can discover how a student's perceptions of course instruction combined with her lack of involvement in campus organizations make her more likely to transfer.
Early alert system + documentation and tracking of retention outcomes	Be + Ca Used together, these products allow campuses to connect retention efforts to outcomes, goals, and objectives while providing evidence of these efforts for planning, program review, and accreditation purposes.

Case Study: Helping Northern Arizona University Prioritize At-Risk Students

Last year, NAU's outreach program that is fueled by data from the SSI increased retention rates by approximately 7% for students with whom staff were able to connect and meet.

In 2011, Northern Arizona University began using Beacon as the main component of their freshman outreach program. Specifically, the University administered the Student Strengths Inventory® (SSI)—the assessment instrument that is part of Beacon—to each student during new student orientation.

"Freshman outreach has been very successful for us," stated Erin Grisham, Executive Director of Educational Support Services at Northern Arizona. "Students we meet with retain at higher rates than those we don't meet with." Fueled by data from the SSI, NAU's outreach program increased retention rates by approximately 7% last year, specifically among those students with whom staff were able to connect and meet.

The problem, noted Grisham, was that other tools—in addition to becoming cost-prohibitive—were not as effective in terms of identifying at-risk students and helping prioritize them for her staff. "I wanted something that did a better job with the psychosocial scales, so I made the decision to switch to the SSI."

With a freshman class of approximately 3,800 students, Northern Arizona began 2011 in typical fashion, assigning approximately 70% of these students to a specific support services program based on traditional risk criteria. All out-of-state students were assigned to a peer-mentoring program, while Student Support Services targeted all first-generation, low-income students. Every student who was at risk based on institution-identified risk factors, GPA and other traditional criteria was assigned to a program designed to help these specific at-risk populations. The director of each unit then used Beacon to help prioritize the hundreds of students in each group.

"The SSI scores allowed us to focus our outreach efforts," stated Grisham. Rather than attempting to manage a long list of students, administrators and advisors could see which students scored low on academic self-confidence and other non-cognitive data, and could then reach out to the most at-risk students first.

Beacon also helped identify resources that could help students based on their SSI scores. If students scored low in terms of social skills, advisors made a concerted effort to get these students connected to clubs and organizations. "The goal of the freshman outreach program is to connect freshmen [to resources] based on their scores, and help them be more successful," noted Grisham.

One unexpected benefit of Beacon was the ability to identify not just at-risk students, but also students who scored in the higher range for social connections and engagement. The Educational Support Services team shared this list with other departments, and connected these high-scoring students with programs that were looking to hire active, engaged campus leaders.

Based on these successes, Grisham planned to review options for expanding the use of Beacon on campus, including integrating it with other Campus Labs products to gain further insight and promote student success.

Conclusion

There are many technology-based tools that allow advisors to identify some at-risk students. These solutions include surveys designed to predict results, and systems that can alert administrators based on performance data. However, these traditional tools typically rely on limited data collected over a short period of time, which subsequently limits the amount of insight and knowledge that they provide.

With Beacon, colleges and universities have the opportunity to use an expanded and ongoing data set that incorporates data about a student's involvement with the entire campus experience. With tools to collect, share, and connect data in an ongoing and continuous data stream, campuses have the opportunity to identify greater numbers of at-risk students and promote student success.

About Campus Labs

Campus Labs is a leading provider of campus-wide assessment and planning technology for higher education. Founded in 2001, Campus Labs provides products and services that are used by more than 650 member campus institutions for a wide variety of key functions, including strategic planning, accreditation, risk assessment, and both curricular and co-curricular learning outcomes assessments. Campus Labs employs more than 80 associates, and has offices in Buffalo, NY and Atlanta, GA.

To learn more, please visit www.campuslabs.com

Contact Information
JD White, Ph.D.
Vice President, Product Management
716-270-0000
jwhite@campuslabs.com

Campus Labs
210 Ellicott Street, Suite 200
Buffalo, NY 14203
www.campuslabs.com