AN EDUCAUSE EXECUTIVE BRIEF

Foundations of Personalized Pathways:

Navigating Higher Education

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Introduction

Rates of student success and completion are increasingly consequential, for students and the institutions that serve them. Students come to college with varying levels of preparation and ability. They have different educational goals and learning preferences, and they face an expanding landscape of learning modes and choices. In this context, many colleges and universities are taking advantage of opportunities to bring more structure to educational programs and to provide students with better information about setting educational goals and progressing efficiently toward them.

No single path suits everyone, and technology can personalize the student experience, whether for learning, support, or degree planning. Student success initiatives depend on accurate and timely data, effective analysis, and the ability to communicate the right information to everyone involved, including the students themselves. Relevant information can include progress reports, learning tools, degree requirements and options, and other resources that help students chart a path and see it through. This information can be delivered in various ways:

- **Degree planning.** These services help a student select courses and move efficiently through a program of study, often reducing the time to degree, whether at a student's current institution or through the transfer of credits to another institution. Planning tools, which typically track student progress, can improve the use of advisor time and reduce errors.
- **Advising and coaching systems.** These systems help identify the support students need and link them to information, intervention, and coaching. Tools can help students develop personal action plans, along with reminders and tracking mechanisms. Case-management tools can help advisors, faculty, and others share necessary actions and observations.
- **Alerts.** Data from a variety of sources can feed analytics tools, which use predictive algorithms to identify at-risk students and can trigger interventions in the form of alerts to faculty, advisors, or students. The alerts serve as an early-warning system to help students know when their course success may be at risk and to advise them about available resources. Alternatively, alerts might send encouraging messages to students who are doing well.
- **Dashboards.** Information in a dashboard format allows faculty to quickly spot patterns of success or disengagement in student populations. Dashboards can also provide students with visibility into their own behaviors and how they are linked to learning outcomes.

Students are interested in tools that help them navigate the pathways of higher education. In recent research, three-quarters of undergraduates expressed strong or moderate interest in institutional recommendations about courses. Even more students were strongly (40%) or moderately (48%) interested in institutional alerts about academic resources.[1]

STRATEGIC IMPORTANCE

Improving student success can be an important part of an institution's strategic priorities, including degree completion, cost management, and institutional reputation.

- **Retention.** Every student retained returns revenue to the institution's bottom line and contributes to higher completion rates. Higher retention may be to the institution's advantage with performance-based funding.
- **Affordability.** Learner analytics and educational planning can increase success and persistence by helping students avoid unproductive credits, which raise costs without contributing to degree completion.
- **Resource utilization.** Providing students with better, more timely, and more data-driven support in pursuing their goals enables the institution to target its support services more cost-effectively—introducing the right kinds of interventions at the right times in the student's learning experience to impact student success.
- **Differentiation.** Adaptive and competency-based learning options offer the opportunity to differentiate courses and programs through more personalized—and personally relevant—learning experiences.

While technology plays a key role in making more student-focused and student-driven learning pathways possible, the key is integrating the knowledge and capabilities the technology makes possible into academic and student services processes. This may entail redesigning those processes to take advantage of the enhanced capabilities to positively impact the learner experience that the technology offers.

[1] Eden Dahlstrom et al., *ECAR Study of Undergraduate Students and Technology, 2013*, research report (Louisville, CO: EDUCAUSE Center for Analysis and Research, September 2013), available from http://www.educause.edu/ecar.

Examples

The following examples illustrate some of the ways in which technology can support students and institutions:

Student Success Plan

Sinclair Community College's Student Success Plan provides students with guidance about how to achieve their academic goals. The software components (case management, early alerts, action plans, reference guides for referrals, student self-help tools, and My Academic Plan) help students, advisors, and student-support professionals navigate successfully to program completion. Each student is given an individualized, clear, and coherent pathway to degree completion. The intent is to "assure that students take the right course, in the right sequence, for the right purpose." The system helps prevent course-selection confusion and degree misdirection, and it demystifies many issues, saving both the student and the institution time and money. The system has administrative advantages, as well, such as anticipating future staffing/course-scheduling needs.

Degree Compass

The Degree Compass system at Austin Peay State University analyzes hundreds of thousands of student grades—as well as each student's personal academic achievement, requirements for the current program of study, and graduation requirements—to make personalized recommendations for courses that meet degree completion requirements and in which the student is likely to succeed (earn an A, B, or C grade). Following its launch in 2011, there was a steady increase in the proportion of A, B, or C grades, especially among Pell Grant recipients.[2] The institution also uses analytics to assess the likelihood that a particular student will succeed in a specific discipline. This information is available to advisors as they work with students not only to register for courses but also to explore degree options. Degree programs identify "fingerprint" courses—courses that tend to determine a student's success within a discipline. If Degree Compass predicts that a student will do poorly in these fingerprint courses, the likelihood of success within that major is low. Advisors and students can rank the options in terms of those in which a student will have the best chance to succeed.

eAdvisor

Arizona State University's eAdvisor program offers online advising and personalized student support. The system informs students about degree requirements and intervenes when students are off track to complete their degree. Online academic support tools are also offered. Students are provided with progress reports and connections to advisors. From 2000 to 2010, ASU's freshmen retention rate improved from 73% to 84%, and the six-year graduation rate rose from 47% to 59%. Initially, only 22% of students were on the correct course path for their majors; it is now 95%.[3]

[2] See http://www.apsu.edu/academic-affairs/degree-compass-and-my-future.

[3] "New Initiatives Advance ASU's Effort to Enhance Student Success," ASU News, October 12, 2011, https://asunews.asu.edu/20111012_eAdvisor_expansion

Technology

Analytics is a key element of systems that support new advising and degree pathways. Analytics uses data, statistical analysis, and predictive models to power pathway and dashboard tools. It can be used to identify trends or make choices in areas such as admissions, fund raising, learning, student retention, and operational efficiency.

Equally important is the effective integration and communication of information through case management tools. Too often personnel such as instructors, advisors, tutors, and support staff are isolated, seeing only their own slice of data about a student and providing guidance without appropriate context. Students must retell their story repeatedly to different parties and act on advice that hasn't been documented, let alone shared. Using IT—as well as policy and culture—to enable smarter and more complete information sharing allows the institution to "close the loop" of student support and ensure that students get all the help they need.

Current Landscape

Colleges and universities have expressed keen interest in technologies that support personalized pathways, as well as equally strong concern about the challenges they present. In a 2012 study, 28% of institutions saw analytics as a major, institution-wide priority, and respondents predicted that analytics would be more important (86%) or just as important (14%) by 2014. Still, such technologies will be in place in fewer than 50% of institutions by the end of 2014.[4]

A 2013 study involving institutions actively pursuing student success initiatives found considerable interest in technologies that support "integrated planning and advising services" (IPAS). Among these institutions, 97% said their leadership places a high priority on improving student performance, and virtually all agreed that analytics will be increasingly important to their student success efforts in the next two years.[5]

[4] Jacqueline Bichsel, *Analytics in Higher Education: Benefits, Barriers, Progress, and Recommendations*, research report (Louisville, CO: EDUCUASE Center for Applied Research, August 2012), available from http://www.educause.edu/ecar.

[5] Ronald Yanosky and Karla Hignite, *Integrated Planning and Advising Services: A Benchmarking Study*, research report (Louisville, CO: EDUCAUSE Center for Analysis and Research, forthcoming, March 2014), available from http://www.educause.edu/ecar.

- Eight in ten said IPAS services will play a major role in their student success strategies, and nine in ten expect their use of such technology to increase in the next five years.
- Concern about the use of technology for these systems tends to be modest—faculty resistance is the greatest concern, while data-privacy issues represent a relatively small concern.
- Six in ten believe that the effectiveness of their institution's IPAS services suffers from lack of coordination between various parties who support students.

When asked about their drivers for investment, institutions highlighted student success factors (see figure 1).

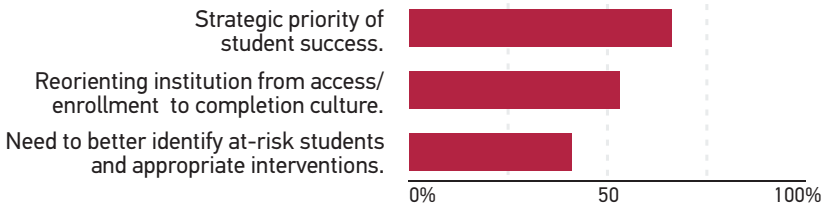

Figure 1. Top-Three Drivers for Investing in IPAS Services and Technologies

Systems that support personalized pathways can take many forms and are implemented at varying levels (see figure 2). "Degree audit/progress tracking" and "advising center management" tools are deployed at large majorities of the IPAS study group. About half have deployed "academic early alerts," while fewer than half reported a system for "education plan creation and tracking." In almost every case, adoption of these technologies would increase dramatically if those now planning or considering such systems actually deploy them.

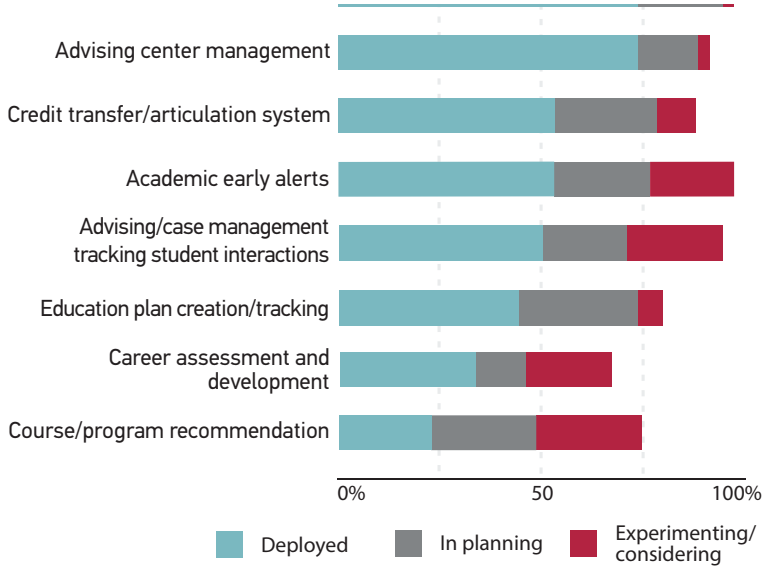

Figure 2. Status of IPAS Systems

A variety of factors aid progress in the use of student success analytics. Interest among senior leadership is high (see figure 3), and a culture of data-driven decisions is growing at many institutions. Progress still needs to be made to ensure that advisors, faculty, and staff have access to the student analytics they need.

Figure 3. Status of Factors for Student Success Analytics

Risks and Rewards

A common concern about IT is that it dehumanizes education. In many cases, however, technology can make education more personal and thereby improve student success. Technology can closely monitor very large numbers of students, tracking progress and detecting problems that might otherwise go unnoticed by the student and faculty. Such systems could then alert the student, instructors, or advisors, who could address the issues. This kind of assistance, which targets specific students and their unique needs, has been shown to be effective in helping students succeed.

The cost of student success programs—and the analytics that underpins such efforts—can be a concern. Establishing the infrastructure, developing needed policies, and cultivating the necessary technical skills require resources. Making a broad commitment to using data and technology to support students in this way, however, will not only benefit students and the institution but can also be leveraged for other efforts, such as business intelligence. State reporting requirements demand an increasing level of sophistication, and success metrics are increasingly being factored into state funding formulas. Institutions face new pressures for accountability, affordability, and effectiveness. Boards, trustees, and legislative groups increasingly call for information, analysis, and projections, all of which can be supported by the same data and analytics tools. Ultimately, being without these tools could be a significant risk.

Strategies for Institutional Leaders

Catalyze organizational change. Senior institutional leaders, both within and outside IT, will play a vital role in any successful effort to develop analytics capabilities and bring that knowledge to bear on new forms of advising and degree pathways. Enabling these new pathways will require process and culture changes that are best led with high-level support. Articulating the risks and returns and helping campus stakeholders think through their roles are critical to developing leaders at all levels who champion such programs for greater organizational success.

Encourage collaboration. Reshaping educational pathways requires collaboration between different divisions such as academic affairs, student affairs, institutional research, information technology, finance, and so on. The questions are complex, the assets dispersed, and resources scarce; thus, the effort relies on teamwork, often between units that haven't traditionally worked closely together. Trustees, presidents, vice presidents, deans, faculty, and staff all have important roles in creating effective mechanisms for collaboration.

Invest in human and technical infrastructure. Information technology and information resources are critical, but campus and governmental policies are also part of the infrastructure needed to support new pathways. Attention to all of the aspects of such a program is important.

Identify risks and manage them. Higher education already collects massive amounts of data about students, and using that data to facilitate new pathways and improve student success comes with some risk. Many of the policy and ethical issues are complex. For example, should students be able to opt-out of having their learning analytics data collected? What recourse is available for individuals whose data has been misused or inappropriately shared? Who owns student data—the institution, a third party, or the student? Leaders must adopt best practices for policy, privacy, and security to manage risk, not avoid it.

About This Brief

This report is one of a series of executive briefs designed to help institutional leaders optimize the impact of IT in higher education. To read the other briefs and access related resources, go to Resources for Presidents and Senior Executives.

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