

This is the third in a three-article *EDUCAUSE Review* series exploring analytics.

By Diana G. Oblinger

ANALYTICS

Changing the

We live in an information culture. We are accustomed to having information instantly available and accessible, along with feedback and recommendations. We want to know what people think and like (or dislike). We want to know how we compare with “others like me.” Just as analytics powers Amazon.com, Netflix, TheRestaurantFinder.com, and Yelp, it can support tools for student empowerment.

Empowerment hinges on having access to information, which can help students make better choices to navigate college more successfully. As we have explored student empowerment in higher education, several guidelines have emerged from what we are learning.

“Use data to change the conversation.”

Students, faculty, staff, and the public—we all make assumptions easily. Having data at hand can change the conversation by informing questions and providing concrete answers. In a highly complicated

environment, assumptions and anecdote aren't enough. Higher education has a responsibility to provide guidance to help students make good decisions based on data. But using data well requires the development of “data literacy.” We must help

students understand the data and what it means to them.

For example, too many course choices can be confusing for students, and making poor course selections could delay graduation. Degree Compass, a course-recommendation system developed at Austin Peay State University, uses predictive analytics to help students find the courses that best fit their degree program, overlaid with a model predicting the students' success in the course. The system guides students and advisors in deciding on a pathway to graduation. Recommended course lists, the role each course plays in a degree program, and class availability information are readily available to students.

“Move from the past to the predictive.”

Much of our data use has revolved around reporting on what happened—in the past. Data use is moving to the

and predictive algorithms, system alerts trigger individualized interventions that can help students, advisors, and/or faculty tap resources to avert failure.

“Empower choice, don’t restrict it.”

For almost any decision, there are more options than we may realize—sometimes so many that decision-making can become paralyzed. As noted above, choice—without good information and guidance—can be the enemy of student success. Analytic systems allow us to personalize recommendations that help students make better-informed choices. With good information, students might ask: “What should I do differently?” And they might use data to find alternative paths to their goal.

Knowing whether they are “on track” makes a difference to students. The

learners to personalized learning pathways tailored to their needs, aspirations, abilities, and timelines. Although data has historically flowed in only one direction, serving to validate compliance or trigger funding, data is actually most useful to inform thinking, questioning, planning, and next steps.

Rapid feedback enables accelerated learning for students. Carnegie Mellon University’s Open Learning Initiative uses feedback loops based on analytics. Students receive feedback in corrections, suggestions, and cues tailored to their performance. Student learning is accelerated, along with equal or better retention and performance compared with traditional instruction. Instructors receive feedback about students’ knowledge, how students are using course materials, and students’

Conversation

predictive—to what is likely to happen. Today’s online systems collect more data and more detailed information about how students learn, capturing inputs, problem-solving sequences, number of attempts, and time spent on task. Detailed learning activity can be used to predict how a student will perform in a future context, providing useful feedback to the student, the instructor, and the institution. The data is key to adaptive systems, diagnostics, and alerts that can make students aware of risks and can help students avoid problems. These systems are designed not to replace personal interaction but to make education more personal through timely alerts that assist individual students.

Purdue University and Rio Salado College are among the pioneers of predictive analytics, which allows institutions to make predictions and anticipate problems. Based on personalized data

eAdvisor system at Arizona State University and STAR at the University of Hawaii assist students in selecting appropriate courses and tracking progress toward their major. eAdvisor was designed to take the guesswork out of how to earn a degree so that students would stay on track to graduate. For example, it helps students choose a major based on their interests and career goals, and it then highlights appropriate course sequences. Because much of the degree requirements tracking is handled online, in-person advising services can be expanded, allowing more time to explore degree and career choices and address individual needs.

“Use data for gateways, not just gatekeeping.”

We have been conditioned to think of data as summative—as an end point. A report, a grade, or a test either opens a door or closes it. Thanks to analytics, data can point

use patterns. Instructors have better information on which to base course refinements and inform theories of learning.



Few transactions are as complicated as college. By informing questions and providing concrete answers, analytics can empower students to make good choices. Analytics can thus change the conversation, both for students and for institutions. ■

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