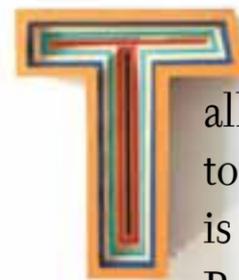


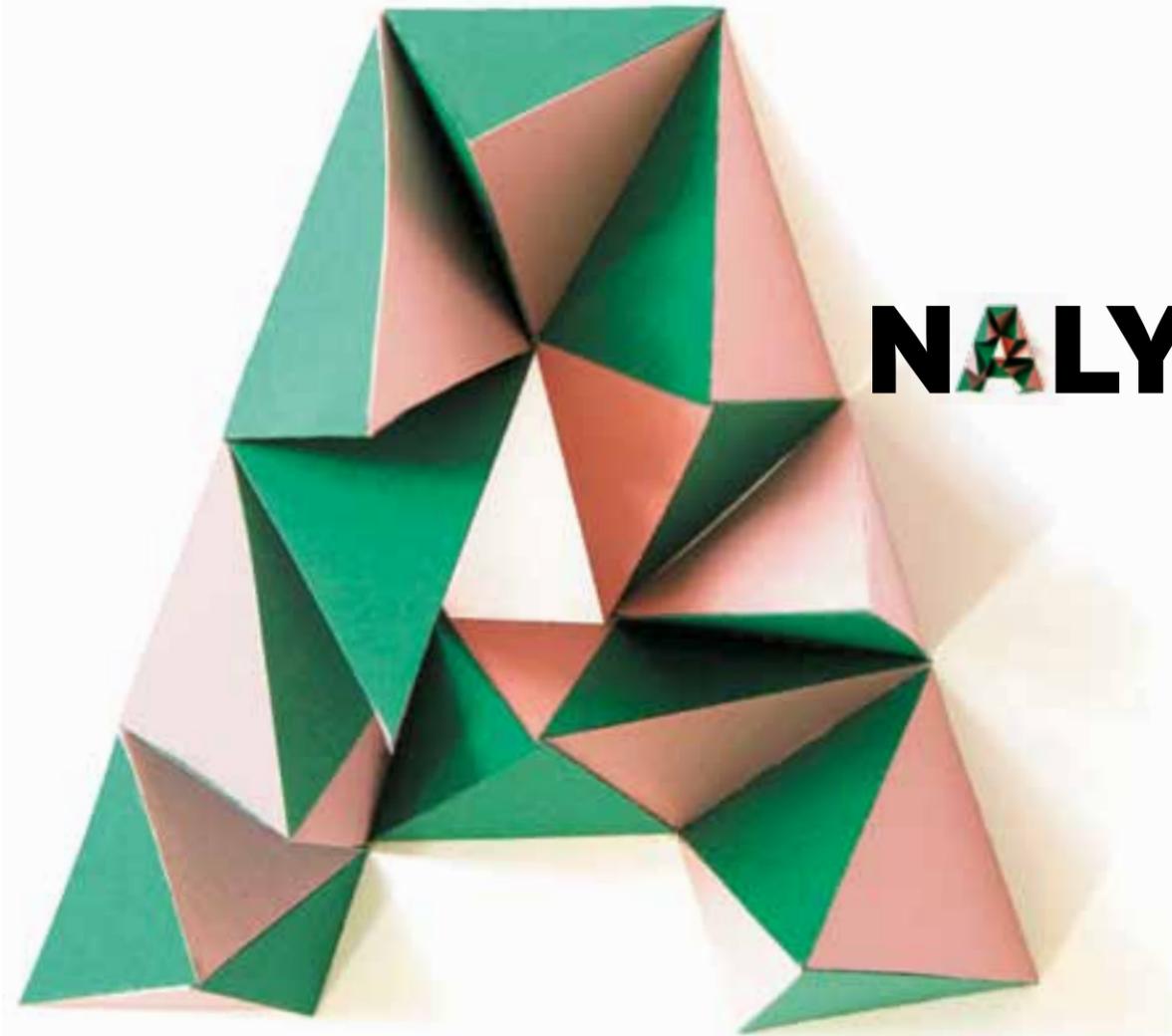
This is the first
in a three-article
EDUCAUSE Review
series exploring
analytics.

By Diana G. Oblinger

Let's Talk...



Talk about analytics seems to be everywhere. Everyone is talking about analytics. Presidents are talking. CIOs are talking. Corporate representatives are talking. Government representatives are talking. Media pundits are talking. Yet even with all the talk, many in higher education have questions about—and objections to—using analytics in colleges and universities.



ANALYTICS

“What is analytics?”

Analytics is the use of data, statistical and quantitative methods, and explanatory and predictive models to allow organizations and individuals to gain insights into and act on complex issues. In colleges and universities, analytics is used to improve operational efficiency and student success. The term *big data* is often used interchangeably with *analytics*, but the scientific community uses *big data* to describe research that uses massive amounts of data. The use of analytics to improve administrative functions is often called *business intelligence*; similarly, *academic analytics* is used to help run the business of the higher education institution. Finally, *learning analytics*

focuses specifically on students and their learning behaviors, gathering data from course management and student information systems in order to improve student success.¹ Although the labels can be confusing, overall the term *analytics* refers to an approach that can be used to explore a broad range of questions. The emphasis should be on the question to be addressed rather than the tool.

“We’ve been doing this for years. What’s new?”

Yes, we have been compiling data and generating reports in higher education for decades, but several things are new about analytics today. One is the volume of data being collected. Some of it is

automated; other data comes from “data trails,” whether left in social media, online purchases, or course management systems. Our computational capacity is radically different—in terms of speed, complexity, and throughput. And much of the use of analytics today goes beyond reporting—it is predictive and prescriptive. Analytics can provide a report on a query or a hypothesis. Analytics can predict which majors or courses match student profiles, which interventions are likely to help at-risk learners, and thus which actions should be taken next. Visualization is also an important element of analytics, revealing patterns that would have been impossible to discern by looking at the data alone. Lastly,

demand has risen significantly. Public pressure for accountability, efforts to increase efficiency, and concerns about college affordability are driving up the demand for analytics.

“Faculty and students don’t trust us with their data.”

People like to control data, often preferring to set context or provide interpretation. There are very legitimate concerns about data privacy and security. However, the lack of “trust” may be a fear that information will be used against someone. For example, a faculty member might fear that students’ performance data will be used to judge his or her effectiveness as an instructor. Analytics enables comparisons that are not typically performed today—such as expenditures across colleges or cost-to-degree across majors. This transparency can be threatening. Data governance is an essential issue for institutions to address; without it, distrust

“We can’t use student data because of FERPA.”

Institutions must be concerned about the privacy of student information. Yet though the Family Educational Rights and Privacy Act (FERPA) is an often-cited concern, it isn’t necessarily a roadblock. FERPA stipulates that institutions must not disclose personally identifiable information from a student’s education records without consent. But there are recognized exceptions for use by college officials. Using data about students to make decisions within the institution, such as to help advisors monitor students’ academic progress or decide which courses to suggest for a particular student, is acceptable. Students may also consent to the use of their data (e.g., for plagiarism detection through services like Turnitin) or may voluntarily disclose information about their educational record (e.g., as part of the college admission process). Transparency—whether or

To be without the tools that allow an institution to improve graduation rates or reduce unnecessary costs is a risk. Pressures on accountability, affordability, and effectiveness are making analytics essential. Very few colleges and universities can afford not to use analytics.

“Analytics is all hype and will go away.”

Although higher education analytics might be in a hype cycle, analytics has become a staple of other industries: retail, finance, insurance, health care, government. Even in higher education, few believe that analytics will go away. A growing emphasis on institutional performance, including calls for cost containment and outcomes-based funding tied to measures of college completion, requires that institutions have the capacity to understand what drives not only their performance but also that of their students. The trend toward more compliance and reporting at the federal and state levels is unlikely to change; in fact, most in higher education expect that the demand will only increase. The importance of accreditation is also a constant driver. Still, it is important to note that analytics is not the answer for everything. Sometimes analytics does not apply or is not practical. Even when analytics does apply, the best decisions are made by combining analytics with sound reasoning.

The pressures on accountability, affordability, and effectiveness are making analytics essential. Very few colleges and universities can afford not to use analytics.

grows. Knowing the purposes for which data is being collected and how sensitive data will be handled is important.

“Numbers aren’t enough to dictate what to do.”

Analytics is a tool—one that must be used for the right purposes. The key is asking good questions. But making incorrect assumptions and failing to test them can undercut even good questions. Any numbers, unwisely used, can be misleading. When using analytics, institutions need to let the facts be the guide to the right answer. Incorrect conclusions can be reached by failing to take the time to understand alternatives or interpret the data correctly. There are different decision-making styles, of course. Some people trust analysis over judgment. Others prefer to rely exclusively on intuition. Most seek a balance between intuition and analysis.

not it is required by law or regulation—is the key consideration. Letting students know what information about them will be used for what purposes, by whom, and for what benefit is critical. In addition, students should know what they can do about any data-privacy concerns. Being clear about data, its use, benefits, and safeguards may allay fears.

“We can’t afford to use analytics.”

Colleges and universities cannot afford *not* to use analytics. Yes, there is a cost to establish the infrastructure as well as to obtain the right talent for analytics. However, few institutions will be able to cope with today’s information demands or decision making without analytics. State reporting requirements call for an increasing level of sophistication. Boards, trustees, and legislative groups are demanding information, analysis, and projections that hinge on analytics.

“Analytics will dehumanize education.”

Rather than dehumanizing education, analytics is being used to personalize education and improve student success. The behavior of individual students can be monitored, and alerts can be sent if a student is lagging. The kind of assistance provided to the student can be targeted to his or her specific needs. Without tools such as analytics, students’ progress—and problems—may be hard to detect. Rather than allowing students to fall through the cracks or become “just a number,” colleges and universities can—through analytics—see and act upon individual students’ needs.

“What’s in it for me and my institution?”

Better insight. Clearer choices. Faster decision making. Analytics allows faculty to see patterns of success or disengagement in student populations. Analytics allows students to understand how their behaviors are linked to learning outcomes, not just to improving their grade in a single course. Analytics allows institution leaders to make better decisions about energy utilization, financial models, and staffing. Large data sets, powerful analytics engines, and skillfully designed visualization techniques can send alerts about matters requiring attention and can extrapolate to the future using predictive modeling and optimization techniques.

“What’s the next step?”

Individuals and institutions must engage in a dialogue about analytics. While the

technical issues might seem straightforward, 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 is the recourse for individuals who have had their data misused or inappropriately shared? Who owns the data mined from a learning process?

Analytics is being used in, and all around, higher education. Policies are being established. Statewide longitudinal data systems are being implemented. Massive amounts of data about students are being collected by corporations. If colleges and universities do not begin talking about how to leverage analytics, others will. Those of us in higher education can afford to ignore analytics only if we are willing to accept what others decide. If we aren’t willing to do that, we must be part of the solution—so that we

will have a voice in, and an ability to influence, the future directions of the use of analytics in higher education. ■

Note

1. Angela van Barneveld, Kimberly E. Arnold, and John P. Campbell, “Analytics in Higher Education: Establishing a Common Language,” *ELI Paper 1: 2012* (January 2012), <<http://net.educause.edu/ir/library/pdf/ELI3026.pdf>>.

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