RESEARCH BRIEF

The New Data Frontier

Student-Success Efforts Transition Out of the Pandemic Era

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Turn data into wisdom

Over the last two decades, colleges and universities have implemented dozens of technology systems and business intelligence platforms to harness data for student success, organizational efficiency, and innovation. Institutional leaders over the last two years are forced to ask and answer new and difficult questions that are often challenging to unlock and activate their data in real time.

Amazon Web Services, Inc. (AWS) is working with institutions at every stage of their data maturity journey to build modern campus data platforms to accelerate data-enabled collaboration and innovation to ease the continued digital transformation of higher education.

We work with institutions like Maryville University who needs to scale up analytics to understand which students are at risk of not completing their courses during remote teaching. Maryville implement's a data lake in the cloud, to create visibility into students' course engagement, and lay the foundation for direct outreach and intervention with students who might be falling behind. Seattle University collaboration with AWS and AWS Partners led to InformSU: a one-stop, cloud-based analytics platform to empower more than 700 users across campus to access self-service reporting and analytics. At Portland State University, a partnership with AWS helps them leverage artificial intelligence and machine learning to assess successful students' degree pathways, and generate guided recommendations for current students.

The need over the past two years for more access to data—and quickly—has led to an inflection point for data-enabled agility. No matter where your institution stands on its data maturity journey today, AWS is here to collaborate, and help build the data capabilities you need to create a world where education is always available, personal, and lifelong for everyone.

Sincerely,

Mike

"We're committed to collaborating with you to drive innovation at your institution."
– Mike Hofherr, AWS

TABLE OF CONTENTS

The New Data Frontier

Student-Success Efforts Transition Out of the Pandemic Era

4 **Introduction**

8 **Overcoming Obstacles**

12 **Better Data Could Lead to Better Academic Support**

16 **Tracking the Whole Student**

20 **The Data-Informed Future**

Contact CI@chronicle.com with questions or comments.

"The New Data Frontier: Student-Success Efforts Transition Out of the Pandemic Era," is based on a survey underwritten by AWS and conducted by *The Chronicle*. This report was written by David Wheeler. *Chronicle* cover image from iStock. *The Chronicle* is fully responsible for the report's editorial content.

INTRODUCTION

The Covid-19 pandemic ramped up the need for colleges to use data to pinpoint where students need support but created new obstacles to achieving that, a *Chronicle* survey has found.

In separate interviews, leaders of student-success and data offices expressed an eagerness to move forward with long-planned innovations while taking on the lessons of the pandemic.

"We want to keep in mind the continuation of the things that worked well, but at the end of the day we're not all on Zoom anymore," says Kyle Ellis, director of the Center for Student Success and First-Year Experience at the University of Mississippi.

At the end of April and the beginning of May, *The Chronicle* surveyed administrators at two- and four-year U.S. colleges about how they collect and use data. Among the 505 people who answered the survey, 96 percent said they collect data to better support students and 65 percent said they use predictive analytics. The survey was underwritten by Amazon Web Services (AWS).

In interviews, administrators expressed surprise that predictive analytics has not been more widely adopted, given that its use has increased retention and graduation rates at many institutions. The majority of those who answered the *Chronicle* survey said the use of student data has helped their institution raise retention rates (63 percent) and graduation rates (59 percent).

In the *Chronicle* survey and in interviews, administrators highlighted three issues they believe are at the heart of progress in the wise use of student data: the desire for better data to improve academic advising; the desire to more successfully transform data into action; and, on some campuses, the desire to better track how students are doing on a broad index of basic needs that would include access to mental-health care, food, and child care.

During the pandemic, many students, fatigued by digital interaction, became less responsive to inquiries from administrators. Eighty-nine percent of those who answered the *Chronicle* survey cited "students not responding" as an issue when trying to engage students for data collection or related actions. (Only 39 percent of respondents said the issue got worse during the pandemic, however.) Smaller institutions that relied, before Covid, on face-to-face discussions to gauge how students were doing were suddenly stripped of that ability. They needed data they could collect remotely.

Bart Pursel, chief technology officer at Unizin, a consortium of 13 major public universities working on digital transformation, says the pandemic "shined a bright light on data in general." Pursel worked at Penn State as director of teaching and learning before joining Unizin in December. He says that although learning analytics is about a decade old, many faculty members and administrators joined the discussion about data during the pandemic because they suddenly saw the need for it. Bringing such people up to speed on the complexities of collecting and using data often took time, he says.

The pandemic impeded some basic data-collection tasks, such as taking class attendance, particularly in asynchronous courses. The rates at which students failed courses, dropped out, or didn't even enroll bumped up sharply at many colleges. At Georgia State University, widely considered one of the premier institutions in the successful use of student data, the proportion of students getting D's or F's in core curriculum courses or withdrawing from those courses rose to 20 percent or 25 percent from 10 percent or 15 percent, according to Allison Calhoun-Brown, vice president for student engagement and programs at Georgia State. "I'm hoping this is as bad as it gets," she says.

> Many faculty members and administrators joined the discussion about data during the pandemic because they suddenly saw the need for it.

At the University of Central Florida, those working on student success suddenly found themselves checking on students' technology needs: internet access, laptops, webcams for laptops without built-in cameras, and special

calculators required for some classes, such as accounting. "The good news was that students communicated with us about what they needed to be able to learn effectively," says Theodorea Regina Berry, vice provost for student learning and academic success at Central Florida. "The challenge was being able to respond very quickly." The university was ultimately able to procure webcams, which were scarce at the time, and other equipment and put it in students' hands.

Now, with the pandemic subsiding — at least in its power to disrupt — and campuses largely back to in-person classes, those leading efforts to use student data are eager to push ahead on advances delayed by two years of stress and distraction. For the University of Mississippi, for example, the next step will be trying to expand the focus of its student-success efforts beyond freshmen, traditionally a year when retention is crucial, to include sophomores.

As colleges move out of a pandemic mind-set, the discussion has increasingly shifted from "predictive analytics" to "prescriptive analytics," shifting the focus from just measuring the factors that help students fail or succeed to also measuring the impact of interventions intended to support students.

Although "student success" has long been the label for the purpose of learning analytics, many administrators are more determined to define that label, make it real, and be careful not to focus exclusively on students at risk.

> "The good news was that students communicated with us about what they needed to be able to learn effectively, the challenge was being able to respond very quickly."

At Marshall University, in West Virginia, April Fugett, interim executive director of the Center for Teaching and Learning, doesn't like applying the term "risk" to students. "These are not risky humans," she says. "These are humans with different needs. We're all complicated humans, and that's okay."

"We never want a student to feel that they are being targeted or thought of as different in any way," she adds. "We just want to be as supportive of students as we can be."

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Overcoming Obstacles

Those who answered the *Chronicle* survey put "turning data into action" at the top of the list of biggest obstacles to using student data effectively. In interviews, experts and administrators elaborated on the barriers to digital progress.

"It's almost never a problem with the technology," says Martin Kurzweil, vice president for educational transformation at Ithaka S+R, a nonprofit organization that helps academic and cultural institutions navigate change. "It's almost always a human problem that prevents an institution from fully realizing the potential benefits of using data to help students."

Turning data into action starts at the top. At Georgia State, Calhoun-Brown credits the university's president in 2011 with kicking off the student-success efforts that have shortened the time to degree at Georgia State by a half a semester since then, saving students in the Class of 2021 an estimated $21 million. "He was willing to sit in a meeting with all the deans and all the directors of advising and say: 'This is what we're doing. We're buying a new system. We're all going to use it. This means you.'"

A data leader, Kurzweil says, should have the authority to regularly convene people from across the institution, develop and document data processes, and make sure that those collecting data and acting on it get proper training. The end result is an authoritative set of data managed

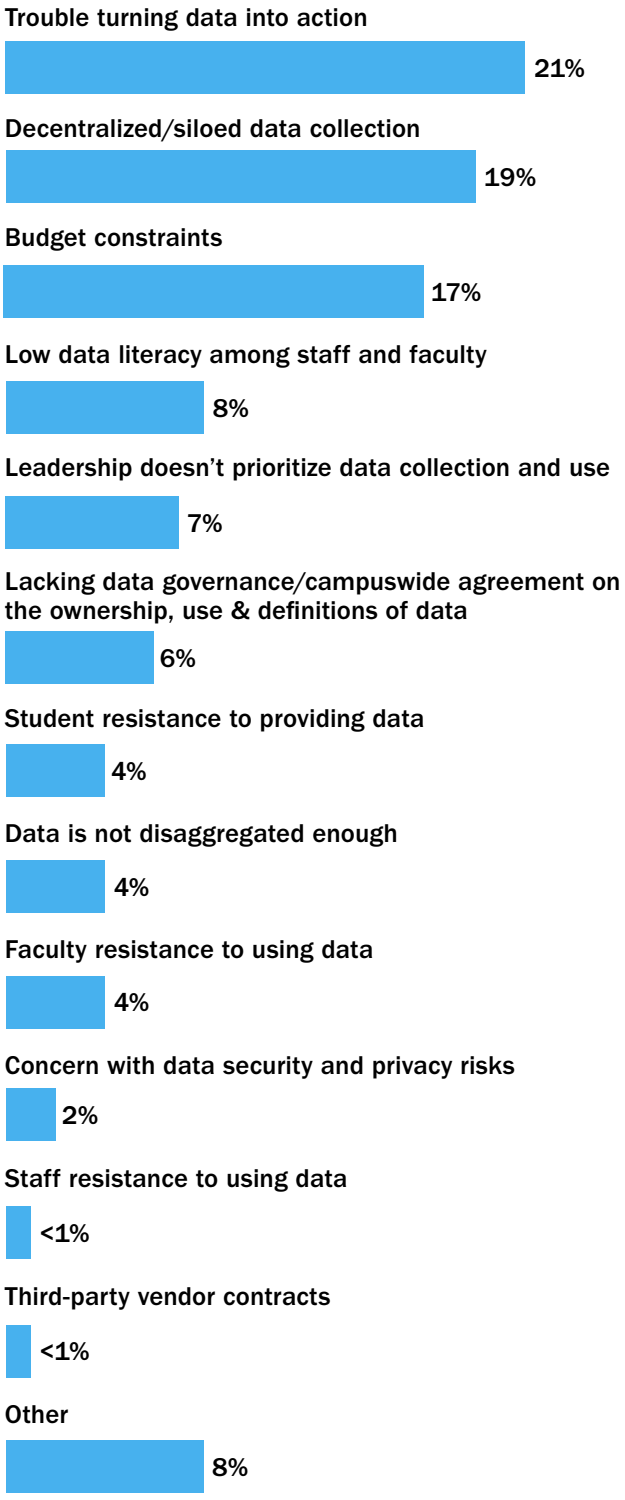
"It's almost always a human problem that prevents an institution from fully realizing the potential benefits of using data to help students."

and analyzed by a single group but recognized campuswide. The places that are supposed to be turning data into action, such as institutional-research offices or student-success offices, need to have sufficient staffing, he says.

At Marshall University, Fugett says interventions based on data often start out as smaller pilot projects before being scaled up. Last fall, for instance, Marshall tried a faculty mentoring program along with a metacognition program — helping students become more aware of their own thinking and learning. The mentoring program didn't scale up, because students weren't that interested in faculty members as mentors, perhaps not understanding the benefit. As a substitute, students with lower high-school GPAs who would have been candidates for the mentoring were put in freshman seminars with fewer students so they could get more individual attention. The metacognition work has also been incorporated into the first-year seminar, since it seemed to reduce the proportion of students failing or withdrawing from courses. "At any given time, we may have two or three different new interventions that we're trying," Fugett says. "It's not been a problem for me to turn data into action."

Kurzweil says that faculty members are often the best ambassadors to engage other faculty members in data collection and use. He says it is helpful to first introduce faculty to a small function of whatever system a college hopes to use, a function that has a very short term, very practical benefit, perhaps pointing to which

What is the biggest obstacle to digital transformation on your campus?



Source: *Chronicle of Higher Education* survey of 505 senior college administrators.

students need what kind of assistance. "Quick and useful feedback," he says, "can generate more buy-in and bigger wins down the road."

Pursel says he has encountered a wide spectrum of faculty responses, from those who may want to focus too zealously only on students who are at risk, to others who bluntly say: "I don't have time for this. I am paid to do research and get grants."

At Georgia State, about 500 visitors have trooped through inquiring about how it has managed to use student data so successfully. "There's no magic in the box," Calhoun-Brown says of student-data systems. "It really is about the implementation."

Georgia State consolidated academic advising, improved communication among colleges about academic advising and predictive analytics; set up a new pay scale for academic advisers, and engaged information and technology staff in the use of data management. Lastly, the institution created some metrics to measure how effectively data was being used.

The university also began to make curricular adjustments to smooth students' paths to graduation. Those adjustments do not, as some faculty members might fear, just lighten academic demands. The student-success office noticed, for instance, that a thousand students were waiting to take upper-division business courses because they were required to have a grade-point average of at least 2.5. In the meantime, many students were taking courses with no relevance to business just to try to lift their GPA. After further analysis, the university found that a GPA of 2.75 in five classes, such as macroeconomics and accounting, would better predict success in upper-division business classes. The requirement was changed and today students spend less time and money spinning their wheels.

While institutions strive to respond quickly to issues they notice in data or student focus groups, they also need to move carefully and avoid knee-jerk reactions to anecdotal evidence. At Central Florida, Berry said that a student might say that they have been waiting for two semesters to take a course that they need to graduate. That could trigger a call from the student-affairs office to a dean. But

> "Quick and useful feedback can generate more buy-in and bigger wins down the road."

the student might lack a prerequisite for the course, and so may be an outlier, not a symptom of a larger problem.

In the *Chronicle* survey, decentralized data collection was the second-most-cited obstacle to digital transformation, after "turning data into action."

Officials at the Association of Public and Land-grant Universities say they are trying to create communities of practice among college leaders in an effort to break down those silos. A Data Literacy Institute, for instance, started in 2020, takes about 20 people from across a campus who work with data but have a variety of roles. The group identifies and defines a problem to solve, develops a hypothesis, then collects and analyzes the relevant data and presents the results to college leaders. The institute's hope is that the effort will leave behind a strong cross-campus collaboration.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Better Data Could Lead to Better Academic Support

Ninety-three percent of those who answered the *Chronicle* survey said that better data and insights were needed to inform academic advising.

Discussions of using data to inform academic advising quickly turn to the role of faculty members, and at some institutions, full-time academic advisers. "It's really important that the faculty aren't just the source of information, but are getting analysis back that is useful to them," says Kurzweil, of Ithaka S+R.

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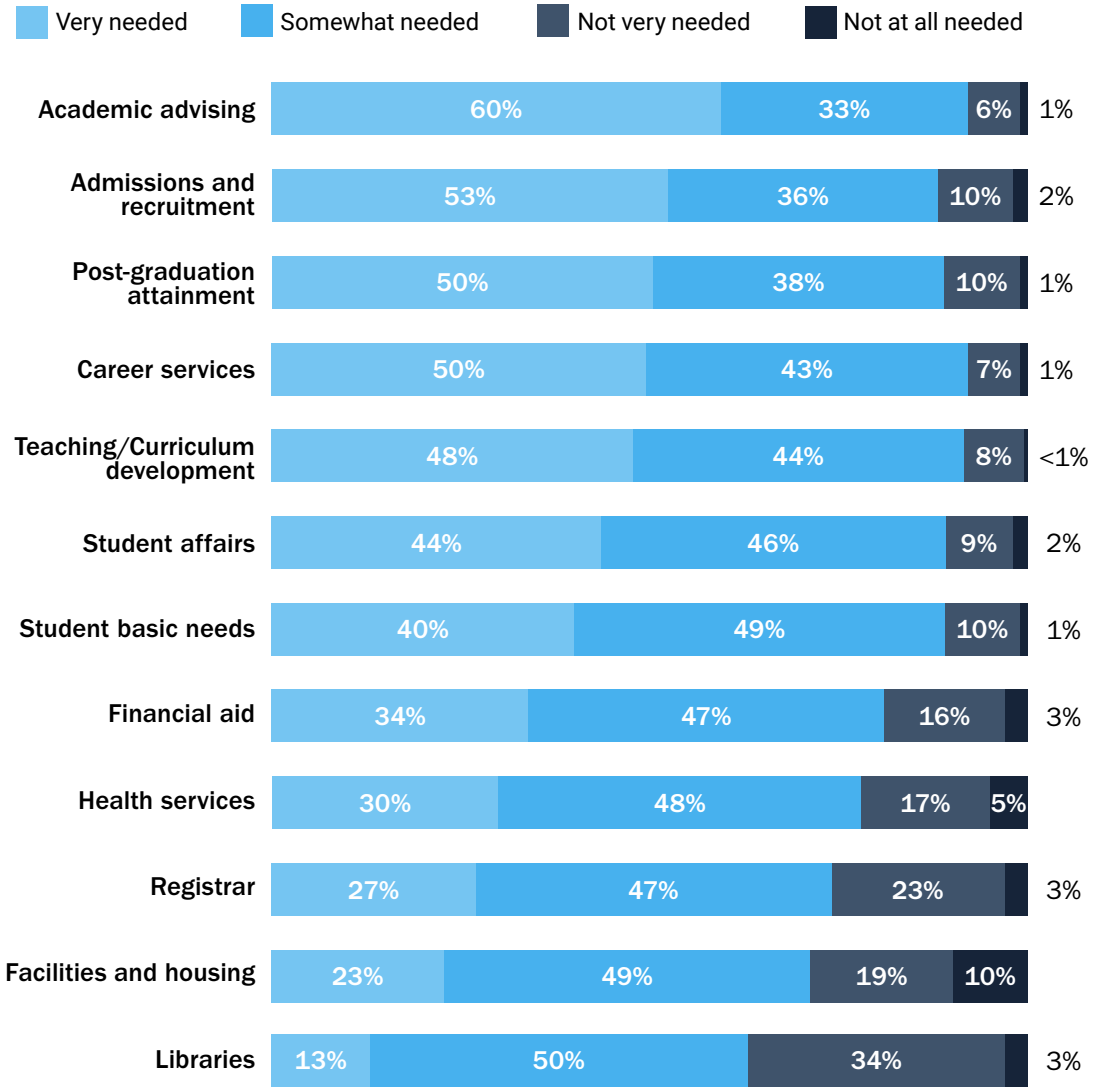
Some institutions, including Georgia State, have moved to using professional full-time advisers. This shift is taking place partly in the belief that although faculty members may be experts on their own department's requirements and future career options for students in that department's major, the professors have difficulty staying informed on all of an institution's departmental and degree requirements.

In the event that faculty members are doing the advising, says Kurzweil, "then I think they need to be prepared, trained, and equipped to do that effectively. In a lot of institutions, they're assigned advisees and left to their own devices to figure out what to do with them."

Only 48 percent of those answering the *Chronicle* survey found that data was "very needed" to inform teaching and curriculum development. That result

Rate where having better data and insights into students is needed



Source: *Chronicle of Higher Education* survey of 505 senior college administrators.

surprised some administrators. "Personally, that's where I think you get the biggest bang for the buck," says Pursel, at Unizin. If data is reflected back to teachers and students in a meaningful way, he says, professors and instructors can adjust courses and curriculum, and students can figure out how to improve study habits, time management or learn about their metacognition. Those adjustments can make for a lifelong improvement of important skills, says Pursel.

In the search for better data to inform academic advising and teaching, a frequent complaint of administrators is that students don't respond to email. But at least some administrators wonder if the problem could be the universities themselves, not the students.

In the *Chronicle* survey, 72 percent of those responding said that email was their primary method of collecting information. "People are saying that students don't read their email, but I think it's because they've been inundated with messages," says Amelia Parnell, vice president for research and policy at NASPA: Student Affairs Administrators in Higher Education. She would like to see some research measuring university communications to students.

At Spelman College, Darryl Holloman, vice president for student affairs, suggests that data collectors may need to stop sending long email surveys and collect smaller chunks of information through different platforms, such as Instagram accounts or GroupMe chats. Other

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administrators say that they need to more clearly communicate to students the value of the data they seek to collect, and include in communications information of importance to students. A message to newly admitted students for instance, could offer a choice of dates for orientation, not just ask them to fill out a survey.

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Tracking the Whole Student

During Covid, some health data, such as knowing if students had tested positive for Covid or had a sick family member, suddenly became crucial to campuses concerned about their students and trying to prevent retention and graduation rates from taking a dive. Campuses are also coping with a nationwide mental-health crisis among teenagers and young adults, with rising levels of anxiety and depression.

But colleges do not appear to have kept pace with the need to collect data beyond academic performance. In the *Chronicle* survey, 97 percent of those responding said they collected data on academics. Only 38 percent said they collected data on basic needs like food and housing; 32 percent on health, and 21 percent on holistic concerns like child care or transportation.

In interviews, those responsible for student success cited privacy and legal concerns about collecting holistic and health data, particularly federal legal

requirements protecting the release of health information without a patient's consent.

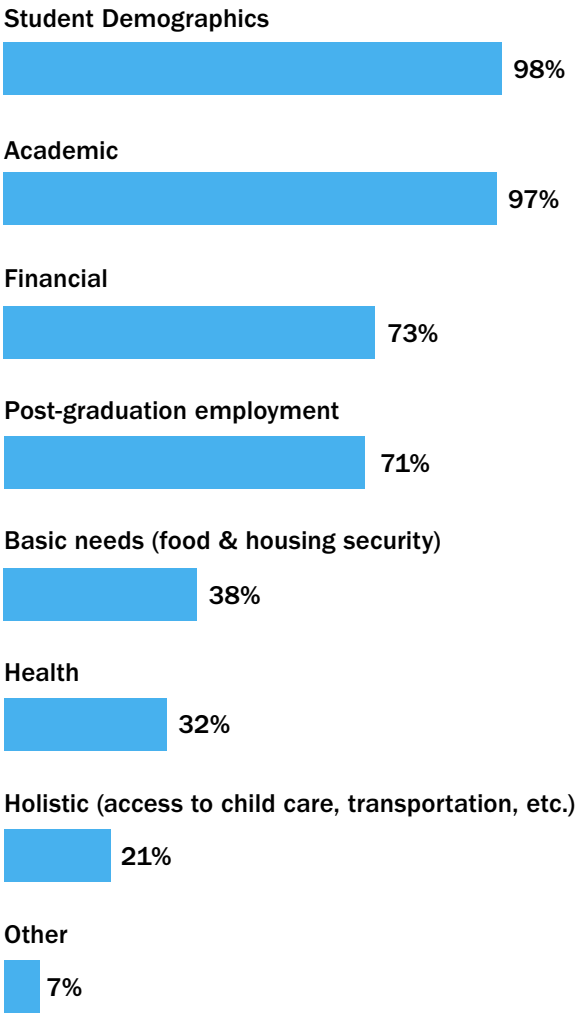
At Marshall, Fugett said, the university seeks to understand students' complete academic, financial, and emotional universe, but tries to do so in a way that is not intrusive and safeguards privacy. A survey goes out to enrolled students before they attend orientation that explores nonacademic information. The survey is optional, but results are fed into a student-success forecasting model the university uses. The survey asks about topics like food insecurity and if the students need to support someone but also about issues such as how they decided on their proposed major, and if they are interested in tutoring or mental-health accommodations. The survey checks on the confidence levels of students by, for instance, asking about how they feel about their ability to graduate from Marshall and how prepared they feel for college math classes. Knowing how students feel about their academic abilities, says Fugett, is as important as what grades or test scores might tell the institution. Only two people on campus have access to the individual-level data that has been collected.

In responding to the data, Fugett says, all interventions are designed in the aggregate and not aimed at individual students, so no one feels singled out.

The information can help advisers know what questions to ask all students. No set of factors is considered to be a predictor of failure. "We have students who work 40 hours a week, go to school full time, and support their family," she says. "And they are fine. They don't need an intervention."

At the University of Mississippi, the effort on making sure students are successful also begins before they even set foot on campus. Advisers are informed about students whose academic record indicates they might struggle in their chosen major, for example, so they can be given supplemental instruction. Eligible students are given access, at no cost, to success coaches who can help them with broader issues such as food insecurity or housing, as well as their academic needs. The coaches are graduate students who get substantial training.

What type of student data do you collect?



Source: *Chronicle of Higher Education* survey of 505 senior college administrators.

Spelman Colleges uses a combination of survey data and interviews by resident assistants to steer students to the assistance they need. Resident assistants talk to all students, not just students flagged for interventions, in what are called "success chats." The RAs inquire about homesickness, adjustment to college-level academics, relationships with roommates, and social interaction. RAs then tell the resident director — there is one for each residence hall — about students who might need intervention and then helps them find it.

Parnell, at NASPA, says there is tremendous potential for colleges to use data to better support the health and well-being of students. The focus of student-success efforts can expand beyond grades and graduation rates to social interaction and other factors that might show if college is the experience that students and administrators were hoping it might be.

Without invading privacy, she says, colleges can learn from operational data about students' broader needs and the adequacy of the institution's responses. How many students are using a food pantry? What are the wait times for seeing a counselor?

"Those trends can show you that maybe, over all, students' needs have not been fully taken care of," says Parnell. After studying such operational data, she says, institutions can opt to collect individual data, if they choose to, in a more thoughtful and strategic way, rather than collecting lots of personal data they might not need. But even without individual data, she says, "We have tons of operational indicators that can help us see if we should be reallocating resources."

Without invading privacy colleges can learn from operational data about students' broader needs and the adequacy of the institution's responses.

The Data-Informed Future

As academics look to the future of student data, one major challenge remains: the sometimes erratic paths of transfer students. Well over a third of U.S. students transfer within six years of enrolling in college, although that proportion dipped during the pandemic. Individual institutions still face strong challenges in collecting comprehensive student data, but tracking across institutions is even harder.

Ithaka S+R has been working with the City University of New York, where 25 institutions serve more than 275,000 degree-seeking students. Many students transfer among the colleges within CUNY, so Ithaka S+R has tried to help create advising resources to give those considering transfers better information. There had been no single source of course and degree requirements for all 25 institutions, so CUNY created a public tool called Transfer Explorer. And CUNY and Ithaka S+R developed internal-facing tools, like a dashboard that alerts advisers when an incoming student has transfer courses that won't count at the new institution.

As colleges plan for the next academic year, they know the academic effects of Covid are by no means over. Holloman, of Spelman, says he hears anecdotally that many students are not engaged in classes. "They don't want to talk. They just kind of sit there. They're not really contributing."

But as colleges hope for a more-engaged future, improved enrollment, and better retention, they also want to carefully frame the discussion around data. Pursel, of Unizin, emphasizes that decisions should be "data informed," not "data driven." This, he believes, makes academics more comfortable with using student data. In the end, he says, data is just another tool.

"Data is never going to show you a death in the family," he says. "Data is never going to show you a bad breakup. The data we have is not going to be able to paint a human picture."

METHODOLOGY

In April and May 2022, *The Chronicle* emailed surveys to 9,000 administrators, and 505 responded. Directors made up the largest portion of respondents (33 percent), followed by vice presidents (16 percent) and associate, assistant, and vice provosts (11 percent). Smaller numbers of presidents, provosts, deans, department heads, and other administrators answered the survey.

Forty-two percent of respondents work at public four-year institutions, 39 percent at private four-years, and 19 percent at public two-year colleges.

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