The Student-Centered College — a CIO Perspective

How technology is helping meet student needs in the wake of Covid-19

THE CHRONICLE OF HIGHER EDUCATION®

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INTRODUCTION

Over the past decade or so, student success — improved access, better-engaged students, better retention, higher graduation rates — has become an institutional priority for higher education, and colleges have used a variety of tactics and tools to achieve it. Increasingly, they have turned to a range of technologies to help students remain on the path to a degree — and thrive.

When Covid-19 hit, student-success issues became an even greater concern. Campus closures meant that colleges had to reinvent themselves — and to scramble to meet and anticipate students' evolving needs — all the while keeping safety and health the top priority. The work of chief information officers has never been more central. To see what that work looks like in the moment, what role technology teams play in these efforts, and what the challenges are internally and externally, *The Chronicle* brought together five CIOs, from a small, private HBCU, a large private university, two large public universities, and a community-college system. Hosted by Goldie Blumenstyk, a *Chronicle* senior writer, the panel discussed technology gaps, institutional priorities, and strategic plans; how to recreate the campus experience both academically and socially to shore up students in a remote setting; and how to prepare for the uncertain days ahead.

This report offers key points of the discussion. The following excerpts have been edited for clarity and length.

PANELISTS

Robert Bramucci is vice chancellor of technology and learning services in the South Orange County Community College District, in California. He spent 15 years in the classroom, has led hundreds of workshops on faculty development, and serves as an international keynote speaker. His team has been honored with the system's award for technology leadership, and its work has been featured in *The Chronicle of Higher Education, USA Today,* and other publications.

Donna Heath is vice chancellor for information-technology services at the University of North Carolina at Greensboro. She provides strategic technology leadership to the university and has responsibility for developing innovative and cost-effective services that support student success by enabling access to high-quality learning opportunities for all students, independent of time, location, and device. She was instrumental in establishing the Technology and Data Institute, a consortium of public entities focused on developing technology and data readiness and capacity in the region.

Vince Kellen is chief information officer at the University of California at San Diego. He has 35 years of experience in designing, developing, and directing the operations of data-analysis systems in industries and within higher education. A board member of IMS Global Learning Consortium, a nonprofit organization that enables academic and educational technology interoperability, he is also a senior fellow with Cutter Consortium, an IT-industry strategy-and-analysis firm, where he writes on strategy and IT topics. Kellen is a three-time winner of the CIO 100 award.

Kimberley Marshall is vice president for information-technology services and chief information officer of Morehouse College. She is responsible for developing a secure, innovative, and robust information technology environment that enhances teaching and learning throughout the college. Marshall holds a Ph.D. in technology and a minor in community college leadership from Mississippi State University.

Keith W. McIntosh is vice president for information services and chief information officer at the University of Richmond. Previously he was CIO at Ithaca College and Pima Community College, and he had a 24-year career in the U.S. Air Force, including a combat tour in Iraq. He serves on the boards of Educause and the National Association of College and University Business Officers. He was the inaugural recipient of the Educause Rising Star Award, in 2011.

Goldie Blumenstyk is a senior writer for *The Chronicle of Higher Education,* where she has covered colleges and universities for more than three decades. She writes a weekly newsletter, The Edge, about innovation in and around academe and recently co-wrote the *Chronicle* report "The Innovation Imperative: The Buzz, the Barriers, and What Real Change Looks Like." In 2014, Oxford University Press published her book, *American Higher Education in Crisis? What Everyone Needs to Know.*

Technology Gaps and Priorities

When campuses emptied in March, in response to the coronavirus pandemic, sustaining academic work and fostering a sense of a community to help students achieve their goals took on even greater urgency. The rapid move to remote teaching, learning, and services had its obstacles and stress points, but was nonetheless impressive in terms of scale and speed. As the lifeline tethering faculty and staff members and students to their institutions, technology played a vital role, and it will continue to do so as colleges work to dispel digital disparities and seek creative solutions to the complex logistical, social, and educational problems they face.

Our panelists discussed their immediate concerns in the shift — increasing VPN and Zoom capacities, improving access to broadband, finding laptops for students in need — and how those first priorities quickly widened to include helping students with mental-health, food, and housing challenges. As colleges head into the fall, IT departments are gearing up to continue to support students and their communities, and are devising ways to contribute to enrollment and retention efforts.

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Goldie Blumenstyk: What were some of the technology gaps that became apparent to you when March hit?

Robert Bramucci: The most striking thing to me was that there was no striking thing. We've been preparing for that for over two years. While many people did heroic efforts, if you waited until this started you were too late.

Blumenstyk: Did it change short- and long-term priorities?

Bramucci: Yes. On the software side all of the programming we've done is all Covid-related. We don't know to what extent we'll be allowed to return. We can quickly go in and accommodate that in the system. The last five months of work has been exclusively Covid.

Donna Heath: Fortunately we were three years into a five-year strategy of dealing with moving all our strategies to mobile and cloud. We were better positioned than we might have been. That really eased our transition. We did a good job of quickly rolling out Zoom. Even though we had the capability of delivering online learning, there's a difference between delivering online learning and teaching remote courses. There's training that allowed us to move to a more engaging experience online. Where we have automation of services that are not yet complete, we still have paper forms, and that's tough. I think the need to modernize those remaining processes was certainly something that emerged for us.

Blumenstyk: Are those the changes and priorities now?

Heath: The good news is all the pillars of our strategy were sound. Anything that might have been related to improving the tele-learning experience moved to the front of the line. It accelerated things that might have been on a two-year horizon. As opposed to the things that we thought five months ago were the immediate needs.

We focused a lot on development of communications, on building websites, and we launched a number of platforms. Those weren't things on the horizon five months ago. So definitely some priority changes.

Keith W. McIntosh: We were well prepared. There were a few things that caught us off-guard. We had an older VPN, with about 750 users, and it had about 300 megabits. We were going to have a lot of folks working remotely, so we had to quickly shift to 7,500 users and 1.5 gigabytes — we got that done within a week of pivoting. Also, we had only 40 licenses for Zoom. We had to get one for every faculty, staff, and student. We went from 40 to 4,000. Because folks wanted to communicate with staff and students and parents, we needed webinar capabilities.

Other than that, the big thing for us was that this was all additive for us. We might have hit the pause button on strategic efforts. But shortly after the wave of moving everyone off campus, when folks were in a sustained operation, we revisited our priorities. Some things shifted up, but we're still pressing forward.

Vince Kellen: We had a cloud-first strategy four years ago. I was very surprised how well the cloud providers could handle the scalability. We went tenfold on many usages. That was good for us. The second thing, in my unit we've always had an aggressive use of telework. For us, we didn't miss a beat in the remote work. The rest of campus had other issues figuring out telework. Technology was the least of them — could managers live without line-of-sight management?

The third thing — the communication angle. The need to communicate well, email and all other forms, to all audiences, suddenly leapt forward. This had probably quintupled over our normal operations. It's caused us to have to rethink our communications infrastructure to look more robust.

Kimberley Marshall: When the pandemic hit, our biggest focus was our students. Over all, we executed sending students

home pretty well. We already had courses online. We were able to put everything online in a short period of time. We were able to learn new technologies on the fly. We are moving into the fall semester, and all of our faculty are certified for teaching online.

Six out of 10 Morehouse men come from homes that earn $40,000 or less. We partnered with a technology company to send out tablets. It will definitely help our students to be ready from Day 1 in the fall semester. Also, UPS shipped these to students for free, because they believed in our mission. We already knew there was a digital divide amongst our students, and that Covid affected our race more than others. Parents might be unemployed, and students might be going back to a situation where the campus may have been a positive environment versus where they have to go back to. We want to make sure that technology wasn't something they would have to worry about for their education. This is what we were able to do in a pandemic. Imagine what we'll be able to continue to do.

Kellen: We did have students who didn't

> "We already knew there was a digital divide amongst our students, and that Covid affected our race more than others... We want to make sure that technology wasn't something they would have to worry about for their education. This is what we were able to do in a pandemic. Imagine what we'll be able to continue to do."
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have equipment when the outbreak hit. While everyone was running to the grocery store for toilet paper, we were running around raiding local stores for laptops. We set up a laptop program for students. The dorm is the new classroom. Now we have to make sure all the technology in the dorm meets the requirements. We won't have all the classrooms we used to have. We're in the middle of doing that right now.

McIntosh: Remote learning really exacerbated the inequities for our students. There are students who come from lower socio-economic backgrounds — predominantly our students of color. We found that their parents might have been laid off, that they were going home to situations that were higher-stress and more untenable for them. It would have been better for them to stay on campus.

We were fortunate because we had a laptop program. We identified students with needs. Just prior to the pandemic, we were working to put in a new portal. Now folks can put in their self-service requests, we can track them, and financial aid can decide if it's OK to give it to them. That process works very smoothly, but we still had people slip through the cracks. We've learned a lot that will inform the fall semester if we have to pivot again.

Blumenstyk: Bob and Donna, you probably had a lot of adult students on campuses dealing with their own kids at home. Are you still trying to make these heroic efforts, getting students broadband and hotspots, particularly in rural areas of North Carolina?

Heath: We have created the Technology and Data Institute with local municipal and educational partners. It's really geared for the sole purpose of technology capacity and readiness for our 12-county region. We've been extremely focused on leveling the digital gap in our underserved and rural areas.

Bramucci: Our two colleges were fortunate in that they had a lot of laptops. They had close to 1,000 that they gave out almost immediately, along with masks and gloves. Subsequent rounds have come through Covid funding. In my area, the infrastructure manager sent out employees to collect any computing devices they could.

Blumenstyk: Your colleges are being asked to pitch in and help students with food and housing challenges. Mental-health needs are growing. What can IT shops do to help campuses meet so many human needs, not just the academic ones? Can you do that in a remote context?

Kellen: We've been doing that for a while. We are employing students, because we know they are going to be economically compromised.

Heath: I was going to say that technology is a crucial piece of delivering those services. In 2019 we really doubled down on building out our mobile app. We knew that students would come with a different preference for how they communicate. We wouldn't have guessed it would be a critical communications channel for us. We have been able to add additional programs. It's been a successful add-on in making students aware of the services available and a channel to leverage those services. Same for virtual mental-health counseling. If you look at our wellness center, instructors are virtually delivering exercise sessions. I think it's a cornerstone of keeping students connected in this new normal.

Bramucci: Every major process you had face-to-face has to be replicated. We're helping them fill in the gaps. A lot of that is an interview process to figure out what they want. Mental-health services are important. That's reflected in a couple of vendor decisions that we led. Health centers needed expanded software. Another is the behavioral-response team: People still harass each other on social media. Agreeing on products helps us find efficiencies and meet needs. We're filling in the gaps.

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McIntosh: I've never done technology for technology's sake. Our role has been and will be to always stay connected and see how technology can help support or enable. I'm very close with most of the leaders who work in our student mental-health area. They had challenges trying to keep the same level of quality while doing things remotely. They were talking about partnering with other institutions, because we had students living in other states, and we tried to set up some kind of reciprocity between institutions.

Initially we heard that students might have felt disconnected to services. In the fall semester, we're going to lay out a road map for all our students and faculty. If we do have to pivot to remote, students will be aware of what services are available and how to access them.

Marshall: We are trying to grow our online presence. We want online students to have the same access. When this pandemic started, we started a campaign to help students who could not make it home or eat their next meal. Some didn't have a home to go to, and we had to put them in hotels. Students reach out to say what they have a

need for. It doesn't have to be technology. It can be that they're hungry and don't have money and need a place to go. We're continuing to help students, because we have to be virtual in the fall.

Blumenstyk: How do your operations contribute to enrollment and retention efforts right now?

Kellen: We're all seeing severely degraded budgets. We're trying to get ahead of that now in enrollment management and student advising and support so we can continue to serve students with better technology that would help us withstand some of the budget pressure we'll feel in the near future. The investments we make right now will help us to support students. Digitization has to increase in order to deal with the problem of the budget support. My biggest fear is the loss of service on the face-to-face side that's still desperately needed for students. It will be an interesting tightrope walk.

Heath: One of the ways that tech organizations are helping is to deliver quality institutional data to make decisions. We all

rely on our ERP [enterprise resource planning] systems, but there's a lot of additional institutional data. Can we bring this data together in a structure to present more robust information? If you want smart people in enrollment management to make good decisions about enrollment, you equip them with the data to make those decisions. That's a key role IT will play.

From a retention perspective, absolutely it can be about presenting the data to know which students are in trouble and need an early-intervention strategy.

McIntosh: Analytics and data are a resource as precious as any other resource on our campus. They will help us be successful. I want to add the ethical realm around how we collect data and use it. Do we use security vetting? Those are challenges we are facing.

Marshall: Our internal data is important to us. We are in education, but we are a business. It's time we start thinking like a business and working with business. We're seeing the data, and we understand why our students leave, but we also need the data of the industry. What are they looking for? We need to partner with industries to produce the students they are looking for. Or they can send employees to us.

Recently we partnered with OHUB [Opportunity Hub]. We're offering a boot camp to help our students grow, and to bring back professionals who have not completed their degree. Some of the industries around the Atlanta area have

a need for professional development for their staff or employees but don't want to get into that arena. We can provide the training for those employees. And they can partner with us so that when students graduate, they have a job from Day 1. Those are some of the ways we can continue to grow our retention or increase it. We bring students on, and we want them to be confident they'll get a good job. We have to continue to think like a business and go beyond just education.

Blumenstyk: I guess there've been other kinds of partnerships off the campus, but has anything happened in the past six months to change relationships that IT has had?

McIntosh: Maybe a year ago, we set up a new entity called the Teaching and Scholarship Hub. That organization and IT have been locked at the hip at all levels. I've been meeting with those folks almost on a daily basis. Kim and I are both part of the Associated Colleges of the South. We are thinking about how to partner across our institutions to provide faculty training. Who is an expert at my campus? Who is an expert at your campus? That partnership has grown exponentially. I can definitely look at Covid as the impetus. I like this because we're focused on what we need to get accomplished. When we bought our Zoom licenses, we collaborated to deliver Zoom courses. We're now installing technology across 160-plus locations to teach students in the classroom and remotely.

The Shift to Remote Education

The importance of online education's role as a key institutional strategy is likely to increase, which will have significant implications for IT leaders, as well as for the relationships of IT departments with teaching-and-learning centers on campus. Our panelists discussed those implications, as well as the crucial role that a campus plays in student success — the more students are engaged in their classes, campus activities, and research projects, the more likely they are to succeed. IT departments are now tasked with recreating those experiences — or at least the lessons of these experiences — in a remote setting.

Panelists agreed that this is a time for rethinking and reinvention. As Robert Bramucci commented, "I am reminded of Marcel Proust. It's not about knowing something new. It's seeing what you already know through new eyes. It's natural with a new technology that people approach it through the lens of technologies they already know. It takes time to see the thing itself. With online, we're looking to replicate the experiences we had before and to replace what we lost rather than looking for what is there that wasn't there before."

Goldie Blumenstyk: I've been wondering about the teaching-and-learning centers. Sometimes they are integrated with IT departments. Are you finding different relationships with the centers on your campuses?

Vince Kellen: We've had a great one.

Kimberley Marshall: Our teaching-and-learning center is separate from our IT department, but it's like we are one. We have to work together even more so with the pandemic. People call us instead of the center, and we help or we redirect them. I think we created an even stronger bond than what we had. They come to us, and we go to them. We're all there for the same reason.

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—Robert Bramucci
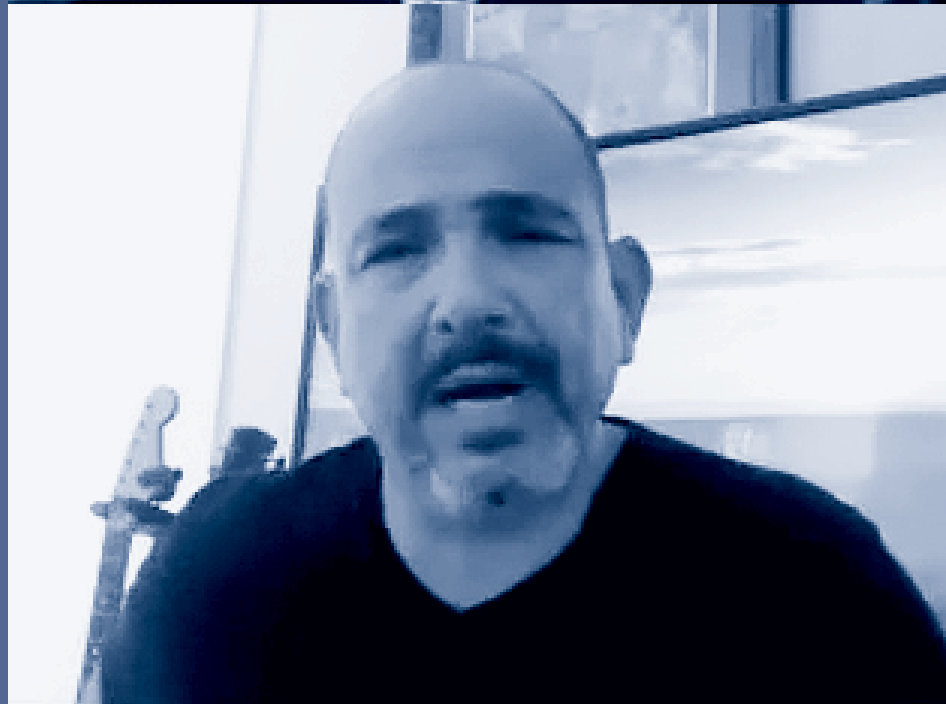
Donna Heath: From our perspective, five years ago even, we were a centralized technology organization. We were very old-school: Tell us what you want, and we'll build that for you. In the past four or five years, we've been supporting the business role. It's changed our management strategy. We don't just seek people who are technical rock stars. We have spent significant energy writing a new IT structure that puts our clients in the driver's seat for learning technologies. We have better stakeholder engagement than we've ever had. You never design for the sake of technology. It's always for what you're trying to achieve. My favorite quote is that good technology is easy to use. Great technology is invisible.

Blumenstyk: To bring it back to student success, everyone says students do better when they're on a campus and more engaged. Even for older adult students who aren't residential students, having connections to their advisers matters. As IT departments, are you feeling the pressure to replicate a lot more of these experiences in a remote environment? How do you do that?

Kellen: I think as CIOs we're underestimating how we're going to adjust and build community and sociality in this digital realm. We have to help transcribe human culture into the Zoom world.

I think we've been pushed to replicate. That's probably not our challenge. Our challenge is to transform. We've been doing that, but it's viewed as a necessity, not a virtue. How do I reknit a digital experience for our students that distinguishes us as an institution from others? I think that's what we're stepping into. Many of us have replicated now, but now we need to distinguish and integrate and address gaps in diversity.

Heath: I agree. This is a reinvention. I don't think we'll ever go back to the status quo before this happened. The normal will be new. The institutions that thrive in the new environment will be those that provide a rich experience that is a reinvention of how they deliver their services.

Keith W. McIntosh: My last two institutions were private, residential, liberal-arts. I wouldn't say it was a snobbish view, but there hasn't been a necessity to embrace online learning in institutions like mine. The pivot has helped. We will see some faculty say it's been fantastic. They'll say that no matter how they teach in the future, it will be better because they'll incorporate new technologies. For others, they will revert back. And others will be somewhere in the middle.

I do think we'll see that more faculty and students will want more engagement with technology.

Marshall: We had several courses online. Before Covid we were already in talks about doing more online with degrees and more courses and more programs. Covid expedited the talk about being online. You have faculty and students getting a taste for it, so they will be asking for elements of online. They are ready to go there in some ways. And some aren't. We can think about technology to help with online presence. I'm talking about more technology outside of your clicker. More artificial intelligence.

Heath: What we see with our student population is that we need to meet those students where they are. As the economy changes — up or down — there will be fluctuations in how people work and how they're able to consume education. They will want to consume it in different ways. Success will hinge on us delivering a high-quality experience in a number of different ways, including a mixture of in-class and remote, in a way that's convenient for them.

Robert Bramucci: We need to listen to the students more and change the way we do things to respond more quickly. Institutions that come out the other side will be those that do those two things. We no longer have the luxury of being slow. The most important thing in technology is not technology. It's the processes that we have adopted will lead us out.

Looking Ahead

Institutions of all types are dealing with an unprecedented health crisis, its economic ramifications, and its accompanying undertow of uncertainty. At the same time, the nation is grappling with an intensifying recognition of racial inequities and the imperative to take action to combat racism. Students — particularly those who are first-generation, low-income, and/or racial and ethnic minorities — are especially vulnerable to the stresses of these concurrent crises.

The panelists discussed managing immediate concerns and the demands on their departments, the need to improve diversity in their field, data-privacy issues, and the silver lining of emerging opportunities. The mixture of challenges and potential transformation is daunting. In the words of one of the panelists, Vince Kellen, "I think we're only just seeing the beginnings of the shock wave."

Goldie Blumenstyk: IT leaders are thought of as the innovative leaders on campus. I'm wondering, how do you balance that need with the demands of the moment?

Vince Kellen: You need to have a great team. If you don't tend to the future, who will? I spend time each week on the future. I say I'll help with the present, but I need help. I'm really thinking now about the long-term effects of Covid. What will occur outside that will affect us? There's things we can do to get ready. Look at the economic and employment data. That's going to be horrific. There's a divide between those who have the technology abilities and those who don't. That's going to put pressure on our institutions to solve. You're probably going to see the increased regulation of privacy writ large. You're going to see some interesting responses to the Black Lives Matter movement on campus. This will impact our data analysis. The list goes on.

Kimberley Marshall: Sadly, Covid has been an advantage and a disadvantage. We had to speed up some of the things we were working on. Without students on campus, we're able to do some of these things. We are definitely always looking to update our classrooms to make it better for new technology. We need to talk about data science. If we're going to do that, we need a robust

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—Donna Heath

network. We can do all the things we need to do on campus, but we need to go beyond that and look into our communities. We know many of our communities don't have high-speed internet. What good is technology if students can't access it from home?

Robert Bramucci: When you're around these young people, they have so much enthusiasm they will fill you with it. Remember when you were that age. That's something that can be harnessed like a wild bronco.

Keith W. McIntosh: I feel confident the team can do what they want us to do — but they can't do everything. We need to be realistic. More than anyone, I've been explaining what it takes to run IT and how much time it takes to do that. That lets you know how much we have left in our tank for new initiatives. We can control that flow. It's been exacerbated by Covid. All they see is their single request, but we see 50 requests.

We're just trying to use governance on a microscale and focus on needs versus wants. Do you need this to do this, or is it a strong desire? I never want to say no, but I'll say why and when. I'll figure out the strategic aspect or mission need that will be met. And then try to have others decide what's first, second, and third. It's much more complicated than what I just said.

Donna Heath: I'm extremely lucky to work with a leadership team and faculty and staff who are laser-focused on student success. When we begin to think about the best use of IT resources, it's applied with that lens. Good governance is not a bloated model. It's trust with stakeholders to address the problem of the moment. We've had success at being transparent on how our IT dollars are spent. That enables us to have short-term wins. We look at the sprint and at the two-year plan. That's given us some flexibility in how we adjust to what we're focused on. It always comes back to student success.

This year we were ranked No. 1 one in social mobility in North Carolina and No. 27

nationwide. That did not come from having folks who were not focused on student success. We have that kind of a team. Everyone enters the room with that priority in mind. It cuts out on the white noise.

Blumenstyk: I want to discuss one of the elephants in the room. Especially if there's going to be a lot more reliance on data and IT in general, all this data protection, data security — frankly, data privacy — and data ethics will be bigger issues for everybody, and particularly for colleges. How can IT leaders make students and faculty members more aware of the ramifications of data issues? Is that an area getting enough attention?

Kellen: It gets huge attention here in San Diego. Several years ago, I warned my colleagues not to create the tools for the next totalitarian state. Young people going to protests know to turn their phones off. Same with us. The records we keep on students can be grabbed by other parties. I have students afraid they will be picked up and deported. This is ground zero for us in California. I encourage my colleagues to form their own opinion. This is no longer just a simple armchair exercise. This is reality, and it hurts people. We're trying to stay on top of that and get ahead of it. I have a policy where I get rid of location data wherever I can. We need to protect the privacy of our students. I think this is a big ethical issue. The next one following is artificial intelligence. I don't think it's as big as this, but it's a big one.

McIntosh: For me this is a leadership issue. CIOs must exercise as much leadership as they can. We're the voice that educates the rest of the community about the challenges. We live in a digital era. We're susceptible to many things. Just because you walk into the beautiful confines of the university doesn't mean you're immune. First question is, do we need to collect the data? If so, why? Can we get rid of it as soon as possible? Data analytics and data privacy need to be pushed to the front-line staff. I don't think we're there yet. That's what I'd like to see.

Bramucci: Your phone reports to cellphone towers. There's a record of everywhere you go. The time to prevent it is now, when it's small. Technology always had a libertarian aspect to it. Information is for the people, the blogosphere, etc. I see it increasingly becoming a centralized garden with tools in the background for totalitarian control.

Blumenstyk: I get the sense that technology will be used to make sure people stay healthy and safe. Cellphone tracking is used to make sure people are being socially distant in buildings. How do you balance that with privacy issues?

McIntosh: Contact tracing — what's the ethical usage of that? It's a good use to know where you've been and who you've been in contact with. But for all the reasons that Bob and Vince mention, what else are you going to do with the data? There are a lot of challenges there.

Blumenstyk: We've dealt with the health crisis and the racial crisis. Your field tends to be dominated by white men. Does the lack of diversity matter? Does it change the way IT departments respond? Obviously it matters to individuals who want to work in these fields, but does it matter for how students are served?

McIntosh: Absolutely. We have pay-equity issues, and also, to me, this is representation. When we have a diverse leadership, a diverse team, we have more-diverse thoughts. If they're at the table, it will help shape our decisions. We also have looming retirements. All these white men in leadership positions will retire. We have a duty — IT leaders, all leaders — have a responsibility to set the tone of the organization. I want a diverse organization so I can maximize our ability to serve the members of our institution. We know the demographics are changing. We'll see that the majority is going to be black and brown. We've been making efforts to diversify the student body, but in the staff we don't see as many black and brown faces.

At the junior level is where most of the women and black and brown people are. We don't see them rise up. Why not? We need to double down on our recruitment and retention efforts. We need to mentor and encourage. That's not to say that you need to have a person of color in each position to think more inclusively, but I'd like to encourage all our current leaders to think about this more often than not. Incorporate this in your daily work. If we have more diverse backgrounds, we can be more strategic about where we want to go.

Kellen: The more diverse ideas, the better. We need all the talent we can get. IT is a wonderful career that can help support all people. If you can do the job, you're hired. IT is a great career, we have to make it happen.

Blumenstyk: Does it make a difference in services on campus? How?

Kellen: Better solutions. If I have three people all thinking the same way, I just have answer A. Otherwise I get an answer B, and it's better.

Marshall: I agree it's better to have a diverse team. We all think in different ways. It can be powerful in serving the students. When you're making a product, hopefully you're making it for everyone. How can it be a great product if it's not a diverse team creating it? We don't see a lot of leadership in this field. As CIOs and as minorities, it's our job to push students that way. There's so much you can do in the IT field. So what if you're the only female or the only black person in the room? You will break that barrier. You have to think that you have just as much knowledge as the next person — let me share that knowledge to achieve a common goal.

Heath: There is so much hard research, particularly in the business world, that supports gender, ethnic, and cultural diversity giving higher profit margins and more-successful companies. I would suggest that institutions should be in the business of investing in tech and data capabilities for

their community at large — and at a younger and younger level. This is why partnerships give you an opportunity to begin erasing those disparities at a very young age and preparing children to take these kinds of careers and be better at it than everyone else. Colleges and universities need to play this over the next few years.

Blumenstyk: If there's anything I didn't ask today, I'll give you one more chance to have a final word on the changing environment with Covid.

Kellen: This is a great transition. Things are won or lost in transition. If you get

your organization to move, all the challenges will become opportunities and you'll come out of the transition even better. My only worry is that this is more of a fracturing with abrupt change. We'll have to get the agility to be able to address that. To me this is a worrisome time, but a fantastic, wide-open space of possibility.

Heath: I'll echo Vince. Change brings opportunity. I think there's opportunities to close gaps that are presenting themselves with great clarity now in the time of Covid. I urge all my counterparts to play strong roles in their communities.

To deepen your understanding of the student-centered college, here is a selection of articles and reports that build on ideas or programs mentioned in the discussion.

"College Students Have Been Stressed Out During the Pandemic. Here's How It's Affected Their Mental Health," by Audrey Williams June, *The Chronicle of Higher Education,* July 13, 2020

"Covid-19 Has Forced Higher Ed to Pivot to Online Learning. Here Are 7 Takeaways So Far," By Lee Gardner, *The Chronicle of Higher Education,* March 20, 2020

"How Will the Pandemic Change Higher Education? Professors, administrators, and staff on what the coronavirus will leave in its wake," *The Chronicle of Higher Education,* April 10, 2020

"What College Students Need Now: They're more vulnerable than ever, physically and financially," by Sarah Brown and Katherine Mangan, *The Chronicle of Higher Education,* May 28, 2020